

The L^AT_EX keyfloat Package

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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 `tocdata` 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.

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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 `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{w=3in,c=A figure,l=fig:somelabel}{filename}
```

The `\onefigure` general case becomes:

```
\keyfig*[loc]{w=width,t={add'l text},sc=shortcap,cstar=caption,
l=label}{filename}
```


1.3 Features

The macros and environments provided by **keyfloat** include:

\keyfig: A figure with an image.

\keytab: A table.

\keyflt: An arbitrary float type macro.

\keyfigbox: A figure with arbitrary contents.

\keyparbox: A “figure” without a caption, useful to place uncaptioned text inside a group,

keyfigure: A figure environment.

keytable: A table environment.

keyfloat: An arbitrary float type environment.

keyfloats: A group of rows and columns of floats.

keysubfigs: A figure containing a group of rows and columns of subfigures.

keysubtabs: A table containing a group of rows and columns of subtables.

keysubfloats: A float of arbitrary type containing a group of rows and columns of subfloats.

keywrap: Wraps a keyfloat around an environment of text. Usable inside a list.

marginfigure: A figure environment placed into the margin.¹

marginable: A table environment placed in the margin.

Additional features include:

- Rows and columns of floats may be generated by placing them inside a **keyfloats** environment.
- Subfloats may be generated by placing them inside a **keysubfigs** or **keysubtabs** 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.


¹**marginfigure** and **marginable**: The environments provided by the **tufte-book** class are used if loaded, otherwise **keyfloat** provides its own versions.

- Floats may be placed [H]ere.
- Floats may be placed in the [M]argin.
- Floats may be placed with text [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. (`\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 `tocdata` package is loaded (use v0.12+), the name is also added to the LOF.
- Additional descriptive text may be added as well.
- Frames may be customized.

examples A large number of examples are provided, each showing L^AT_EX source and the resulting float.

index A customized index is included at the back of the documentation.

margin tags Blue margin tags are used to help quickly find information, and often indicate the destination of index entries.

 **warnings** Several warnings are noted in the text. Watch out for these special cases.

problems See the “troubleshooting” section of the index for help with specific problems which may occur.

2 Using the keyfloat package

2.1 Loading keyfloat and related packages

keyfloat is loaded with the usual command:

```
\usepackage{keyfloat}
```

Pkg tocdato If you wish to have artists' names appear in the list of figures, as provided by the
 Pkg tocloft tocdato package, load tocdato, optionally followed by either tocloft or titletoc, then
 Pkg titletoc 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` * [*loc*] {*keys/values*} {*image filename*}
A macro to generate a figure with an image from a file.
- `\keytab` * [*loc*] {*keys/values*} {*tabular contents*}
A macro to generate a table with tabular contents. Usually use the `keytable` environment instead.
- `\keyflt` * [*loc*] {*float type*} {*keys/values*} {*contents*}
A macro to generate an arbitrary float type with its contents.
- `\keyfigbox` * [*loc*] {*keys/values*} {*box contents*}
A macro to generate a figure with arbitrary paragraph contents. See example 2.
- `\keyparbox` * [*loc*] {*keys/values*} {*box contents*}
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` * [*loc*] {*keys/values*}
An environment to generate a figure with arbitrary contents. Useful for multi-paragraph contents. See example 3.
- Env `keytable` * [*loc*] {*keys/values*}
An environment to generate a table with arbitrary contents. Useful for larger tables. See example 5.
- Env `keyfloat` * [*loc*] {*float type*} {*keys/values*}
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` * [*loc*] {*num columns*}
A group of figures or tables typeset in rows. May be nested, [H], [W], or [M]. See example 15.
- Env `keysubfigs` * [*loc*] {*numcols*} {*keys*}
A group of subfigures typeset in rows. May *not* be nested. May be [H], [W], or [M]. See example 16.

-
- Env `keysubtabs` * [`<loc>`] {`<numcols>`} {`<keys>`}
A group of subtables typeset in rows. May *not* be nested. May be [H], [W], or [M]. See example 17.
- Env `keysubfloats` * [`<loc>`] {`<float type>`} {`<numcols>`} {`<keys>`}
A group of subfloats typeset in rows. May *not* be nested. May be [H], [W], or [M].
- Env `keywrap` {`<width of keyfloat>`} {`<keyfloat>`}
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. `<keyfloat>` may be any of `\keyfig`, `keyfigure`, `keyfloats`, `keysubfigs`, etc., each with its proper arguments. See example 27.
- △ empty space
- Env `marginfigure` [`<offset>`]
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 `marginable` [`<offset>`]
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 `marginable` 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 `wp` key; see the `wrapfig` package documentation for more information. Use `w` or `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 `w` or `lw` for the size of the image, and also use `ww` or `wlw` for a larger size for the caption. Watch the log for warnings from
- Pkg `wrapfig`
- △ 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`, `al`, 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

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

^a: All the keys in Part I may be used with the keysubfigs, keysubtabs, and keysubfloats environments.

^b: Artist / author keys: al is an artist's last name, 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 "as={, Title}", for example.

... continued

Table 1: Keys and values — part II

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

^a: None of the keys in Part II are used in the `keysubfigs`, `keysubtabs`, and `keysubfloats` environments.

Table 2: Caption-related key combinations

Keys in Use			Type of	
c	cstar	sc	Caption ^a	LOF/LOT ^b
•	—	—	Numbered	Caption
•	—	•	Numbered	Short Caption
—	•	—	Unnumbered	None
—	•	•	Unnumbered	Short Caption
—	cstar={}	Ignored	None	None

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

^b: 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: Key wp: Wrapped float placement options

Key	Location
r R	to the right of the text body
l L	to the left of the text body
i I	to the inside margin
o O	to the outside margin

The un-capitalized key attempts to place the float “here”, and the capitalized key allows L^AT_EX to try to find the best location. The default is 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

A	B
C	D

Example 3: Figure environment with arbitrary contents

Code:

```
\begin{keyfigure}{f,c={A \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 \keyfigbox macro when multiple lines of contents are to be included.

Example 4: Table macro

Code:

```
\keytab{c=A \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.

[large tables](#) For large tables, use the longtable or supertabular packages.

Table 5: A keytable environment

Arbitrary contents may go here. ^{<i>a</i>}	
A	B
C	D
^{<i>a</i>} A footnote.	

Example 5: Table environment with arbitrary contents*Code:*

```

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

\testtable
\end{keytable}

```

*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 `tc`, `tl`, or `tr` instead of `t`

Figure 4: A figure with many options

Example 6: Figure with many options selected

Code:

```
\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.



Figure 5: Half of `\linewidth`

Example 7: Using `\linewidth`

Code:

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

Result:

Figure 5

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

`lw` and `w` are not used at the same time. If both `lw` and `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*

<div><div><i>An image.</i></div><div></div></div>	<div><div><i>An image.</i></div><div></div></div>	<div><div>Table 6: Loosely-framed table</div><div><div>A B</div><div>C D</div></div></div>	<div><div>Table 7: Tightly-framed table</div><div><div>A B</div><div>C D</div></div></div>
<div><div>Figure 6: Loosely-framed figure</div></div>	<div><div>Figure 7: Tightly-framed figure</div></div>		

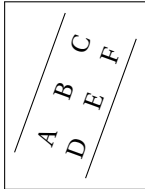
The `f` key adds a loose frame with the current `\fboxsep`. This is desirable in most cases.

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
- ⚠ box width 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.
- 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


Table 9: A table [H]

A	B
C	D



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.

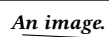
Example 11: Unnumbered float

Code:

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

Result:

See fig: “A starred caption”.



A starred caption

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 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.”



Optional text which is not a caption.

By using [H] and cstar={}, the image is placed inline without a number or LOF entry.

Also see example 14.

Some contents.

A `\keyparbox` with no number or label.

An image.

Figure 9: Next to a `\keyparbox`

Example 14: A box without a caption.

Code:

```
\begin{keyfloats}{2}
\keyparbox{
  f,lw=.5,
  tc={A \cs{keyparbox} with no number or label.}
}{Some contents.}
\keyfig{c=Next to a \cs{keyparbox},l=fig:nexttoparbox}{image}
\end{keyfloats}
\keyparbox[H]{f,lw=.5}{A \cs{keyparbox} [H], outside the row.}
```

Result:

Figure 9, and the box to its left.

A `\keyparbox` [H], outside the row.

A `\keyparbox` is a `\keyfigbox` with `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

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.

 **\linewidth** Note that \linewidth is adjusted for each row and nested row, so the lw key will need to be changed if a float is moved to a different nesting level.

 **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 w, h, or lw as necessary.

Keyfloats may be located [H], [M], or located [W] set with half the line width:

```
\begin{keyfloats}[H]{2}...
```

Keyfloats may be starred to span both columns in a two-column format:

```
\begin{keyfloats}*{2}...
```




\raggedright text

Figure 10: First in a group

A \keyparbox describing something.
With several paragraphs.



Figure 11: Third
in a group

Figure 12: Fourth
in a group

Table 10: Seventh in a group

A	B	C
D	E	F



Figure 13: Fifth in
a group

Figure 14: Sixth in
a group

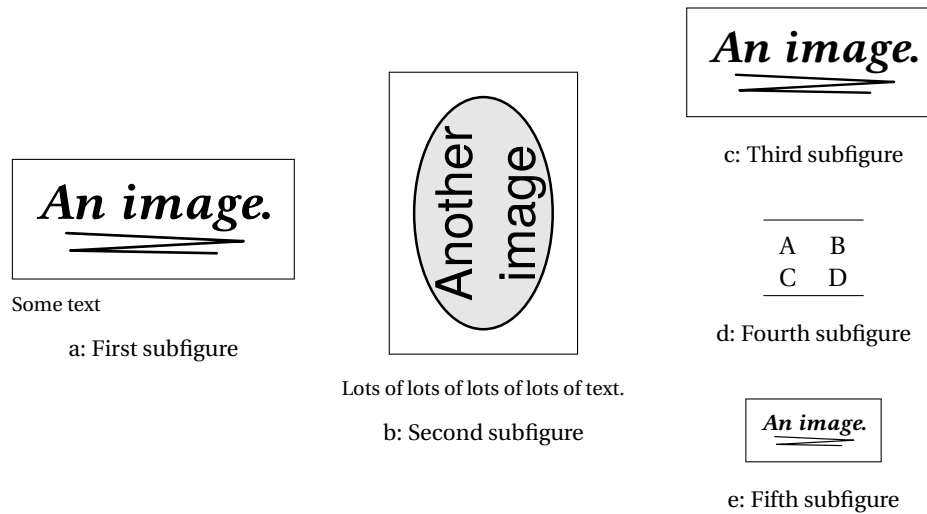


Figure 15: Subfigures

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}
\begin{keyfloats}{1}
\keyfig{lw=1,f,c={Third subfigure},l=fig:thirdsubfig}{image}
\keytab{c={Fourth subfigure},l=fig:fourthsubfig}{\testtable}
\keyfig{lw=.5,f,c={Fifth subfigure},l=fig:fifthsubfig}{image}
\end{keyfloats}
\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.)
- n **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

Table 11: Subtables [H]

a: First subtable

A	B
C	D

b: Second subtable

A	B	C
D	E	F

An image.

Figure 16: Figure to be continued



Figure 16: ...continued

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.

a: First of a set

An image.

b: Second of a set

Figure 17: A set of figuresAnother
image

c: Third of a set

Another
image

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{keysubfigs}{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{keysubfigs}
\begin{keysubfigs}{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{keysubfigs}
```

*Result:**Figure 17*

2.5.6 Margin floats

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

Cls tufte-book

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.

An image.

Some text added by hand.

Figure 18: A marginfigure

Example 20: The marginfigure environment

Code:

```
\begin{marginfigure}
\centering
\includegraphics[width=.75\linewidth]{image}

Some text added by hand.
\caption{A \env{marginfigure}}
\label{fig:marginfigure}
\end{marginfigure}
```

Result:

Figure 18

Example 21: The margintable environment

A	B	C
D	E	F

Table 12: A margintable

Code:

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

Result:

Table 12

Example 22: Using \keyfig[M]

Code:

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

More paragraphs.
}{image2}
```

Result:

Figure 19

Example 23: Using keytable[M] and an offset

Code:

```
\begin{keytable}[M]{c={A \env{keytable}\optn{[M]}},
l=tab:keytablem,mo=-.9in}
\centering
\testwidetable
\end{keytable}
```


Result:

Table 13

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

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

```
\setlength{\marginparpush}{3ex}
```



Additional text. Text text text text text text.

More paragraphs.

Figure 19: A \keyfig[M]

Table 13: A keytable[M]

A	B	C
D	E	F

margin float offset

distance between floats

2.5.7 Wrapped floats

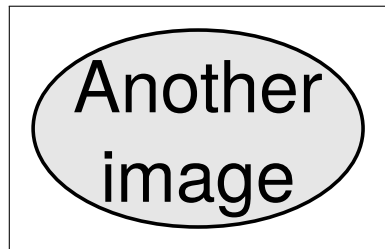
Example 24: Using \keyfig[W] and \keytab[W]

```
Code:

\keyfig[W]{c={A \cs{keyfig}\optn{[W]}},
  l=fig:keyfigw,ft,lw=.4,wp=I,
  t={.4\cs{linewidth} wide, placed \optn{I}.}
}{image2}
\blindtext

\keytab[W]{c={A \cs{keytab}\optn{[W]}},l=tab:keytabw,w=.75in,
}{\testtable}
\blindtext
```

Result:
Figure 20 and table 14



.4\linewidth wide, placed I.

Figure 20: A \keyfig[W]

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Table 14: A \keytab[W]

A	B
C	D

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.

The contents.

Text text text text text text
text text text

Figure 21: A
`\keyfigbox[W]`

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum

libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Example 26: Using \keyfigure[W] and \keytable[W]

Code:

```
\begin{keyfigure}[W]{c={A \cs{keyfigure}\optn{[W]}},
  l=fig:keyfigurew,f,w=1.5in}
This is a keyfigure.
\end{keyfigure}
\blindtext

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

Result:

Figure 22 and table 15

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

This is a keyfigure.

Figure 22: A \keyfigure[W]

Table 15: A keytable[W]

A	B	C
D	E	F

Placed L and 2in wide.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel,

semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

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

```

*Result:**Figure 23*

- First item. Several lines of 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.
- These paragraphs are inside the keywrap. A vertical gap appears below if the text is not enough to fill the space next to the \keyfig.
- Outside the wrapfig, but still in the second item. There is no elegant way to place only part of a paragraph inside a keywrap, and attempting to do so requires manually removing the vertical paragraph skip.
- Third item.

An image.



Figure 23: Keywrap with \keyfig

notes

Example 28: Using wrap width `ww` and `wlw`*Code:*

```

\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]

```

*Result:**Figures 24 and 25**.15\linewidth wide, in a .4\linewidth box.***Figure 24: A `\keyfig[W]` with `wlw`**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien.

*1cm wide, in a 3cm box.***Figure 25: A `\keyfig[W]` with `ww`**

libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum



Figure 26: Custom-framed image

Figure 27: Custom loosely-framed box

2.5.8 Custom frames

Example 29: Custom frames with mdframed

Code:

```
\renewcommand{\KFLTtightframe}[1]{%
\begin{minipage}{\KFLTimageboxwidth}
\begin{mdtightframe}%
#1
\end{mdtightframe}%
\end{minipage}
}
\setlength{\KFLTtightframewidth}{1pt}

\renewcommand{\KFLTlooseframe}[1]{%
\begin{mdlooseframe}[leftmargin=1.5in,rightmargin=1.5in]%
#1
\end{mdlooseframe}%
}
\setlength{\KFLTlooseframewidth}{4pt}

\keyfig{ft,c=Custom-framed image,l=fig:customframe,r=90}{image}
\keyfigbox{f,c=Custom loosely-framed box,
l=fig:customlooseframe}{A loosely-framed box.}
```

Result:

Figures 26 and 27

⚠ Pkg mdframed
mdframed width

Example 29 shows custom frames created with the `mdframed` package along with `tikz`. Note that `mdframed` uses the full `\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 `\KFLTimageboxwidth`. Any shadow may fall outside this

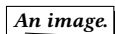


Figure 28: Custom shadow

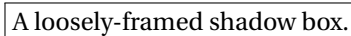


Figure 29: Custom loosely-framed shadow

box.

See section 2.6.1 for more details.

Example 30: Custom shadows with fancybox

Code:

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

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

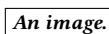
\keyfig{ft,c=Custom shadow,l=fig:customshadow}{image}
\keyfigbox{f,c=Custom loosely-framed shadow,lw=.5,
l=fig:customlooseshadow}{A loosely-framed shadow box.}
```

Result:

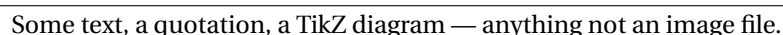
Figures 28 and 29

Pkg fancybox 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.



MR. FIRST LAST III

*About the illustration.***Figure 30: Artist's name — image**


MR. LAST

Figure 31: Artist's name — arbitrary contents

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 `tocdata \tdname...` macros may be used to align the name.

An image.

a: Artist's First Work



Commentary about the work.

b: Artist's Second Work

PREFIX FIRST LAST, SUFFIX

Some fully-justified text just for illustrative purposes, in case you have use for long explanations. This text may be the full \linewidth in size.

Multiple paragraphs of text are allowed.

Figure 32: Artist's collection

Example 33: Subfloats with an artist

Code:

```
\begin{keysubfigs}{2}{
  c=Artist's collection, l=fig:artistcollection,
  t={Some fully-justified text just for illustrative purposes,
    in case you have use for long explanations.
    This text may be the full \cs{linewidth} in size. \par
    Multiple paragraphs of text are allowed.},
  ap=Prefix,af=First,al=Last,as={, Suffix}
}
  \keyfig{c=Artist's First Work}{image}
  \keyfig{c=Artist's Second Work,
    tc={Commentary about the work.}}{image2}
\end{keysubfigs}
```

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 L^AT_EX 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

rows too close/far 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:

```

1 \@ifpackageloaded{tocdata}{
2   \@ifpackagelater{tocdata}{2019/03/21}{}{
3     \PackageError{keyfloat}
4       {%
5         The tocdata package is out of date.\MessageBreak
6         Update to tocdata v2.02 2019/03/21 or later.\MessageBreak
7         to use use this version of keyfloat%
8       }
9     {%
10      Please update the tocdata package. It's worth it!%
11    }
12  }
13 }{}

```

3.2 Prohibited packages

Prohibits the use of a certain other packages.

`\KFLT@prohibitpackage` $\{\langle packagename \rangle\}$

```

14 \newcommand*{\KFLT@prohibitpackage}[2]{%
15 \@ifpackageloaded{#1}
16 {
17   \PackageError{keyfloat}
18   {%
19     The keyfloat package conflicts with the #1.\MessageBreak
20     package. Remove #1 to use keyfloat.\MessageBreak
21     Alternative(s):.\MessageBreak
22     \space\space#2%
23   }
24   {%
25     Keyfloat uses the caption, subcaption, newfloat, and wrapfig packages.%
26   }
27 }{}
28 }

```

`\KFLT@prohibitpackage` $\{\langle packagename \rangle\}$

Prohibits the use of another package, both now and also `\AtBeginDocument`.

```
29 \newcommand*\KFLT@prohibitpackage}[2]{
30   \KFLT@prohibitpackage{#1}{#2}
31   \AtBeginDocument{\KFLT@prohibitpackage{#1}{#2}}
32 }
```

The list of prohibited packages:

```
33 \KFLT@prohibitpackage{floatrow}{caption and subcaption}
34 \KFLT@prohibitpackage{subfig}{subcaption}
35 \KFLT@prohibitpackage{subfigure}{subcaption}
36 \KFLT@prohibitpackage{subfloat}{subcaption}
37 \KFLT@prohibitpackage{floatflt}{wrapfig}
```

3.3 Required packages

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

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

Pkg xparse Argument processing:

```
39 \RequirePackage{xparse}
```

Pkg keyval Key processing:

```
40 \RequirePackage{xkeyval}
```

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

```
41 \RequirePackage{graphicx}
```

Pkg caption Handles all caption-related functions:

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

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

```
43 \RequirePackage{subcaption}
```

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

```
44 \RequirePackage{calc}
```


Pkg rotating Provides rotation via the turn environment:

```
45 \RequirePackage{rotating}
```

Pkg placeins Provides

to process existing floats before adding new ones.

```
46 \RequirePackage{placeins}
```

Pkg wrapfig Provides figure wrapping code.

```
47 \RequirePackage{wrapfig}
```

Pkg gettitlestring Used by `hyperref` and `nameref`.

Expand names used in titles:

```
48 \PassOptionsToPackage{expand}{gettitlestring}
```

Rows of floats are created by a simple `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.

Env tablehere Place a table exactly [H].

```
49 \ProvideDocumentEnvironment{tablehere}{}
50 {%
51   \vskip\intextsep\noindent%
52   \minipage{\linewidth}%
53   \def\capttype{table}%
54   \normalcolor\reset@font\normalsize%
55 }%
56 {\endminipage\vskip\intextsep}%
```

Env figurehere Place a figure exactly [H].

```
57 \ProvideDocumentEnvironment{figurehere}{}
58 {%
59   \vskip\intextsep\noindent%
60   \minipage{\linewidth}%
```



```

61 \def\@capttype{figure}%
62 \normalcolor\reset@font\normalsize%
63 }%
64 {\endminipage\vskip\intextsep}%

```

3.5 Row counting and control

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

Ctrl KFLT@numcols Columns per row.

```
65 \newcounter{KFLT@numcols}
```

Ctrl KFLT@thiscol Column currently processing. 0 if not yet in a keyfloats or subfloat.

```
66 \newcounter{KFLT@thiscol}
```

Len \KFLT@rowboxwidth How wide is each box in the row.

```
67 \newlength{\KFLT@rowboxwidth}
```

3.6 Float key handling

Bool KFLT@cont Continued float?

```
68 \newboolean{KFLT@cont}
```

Key [main] cont Continued float?

```
69 \define@key{KFLT@keys}{cont}[true]{\setboolean{KFLT@cont}{#1}}
```

\KFLT@c Caption storage

```
70 \newcommand{\KFLT@c}{}%
```

Bool KFLT@cstar Starred caption?

```
71 \newboolean{KFLT@cstar}
```

Key [main] c Caption

```

72 \define@key{KFLT@keys}{c}{%
73 \renewcommand{\KFLT@c}{#1}\setboolean{KFLT@cstar}{false}%
74 }

```


Key [main] cstar Caption starred?

```
75 \define@key{KFLT@keys}{cstar}{%
76   \renewcommand{\KFLT@c}{#1}\setboolean{KFLT@cstar}{true}%
77 }
```

Key [main] sc Short caption

```
78 \define@key{KFLT@keys}{sc}{%
79   \renewcommand{\KFLT@sc}{#1}%
80   \setboolean{KFLT@scgiven}{true}%
81 }
```

\KFLT@sc Short caption storage

```
82 \newcommand{\KFLT@sc}{}%
```

Bool KFLT@scgiven Was a short caption given?

```
83 \newboolean{KFLT@scgiven}
```

\KFLT@type Float type: “figure”, “table”

```
84 \newcommand*\KFLT@type{}
```

Key [main] l Label

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

\KFLT@l Label storage

```
86 \newcommand*\KFLT@l{}
```

For the artist/author keys:

Key [main] ap Artist prefix

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

\KFLT@ap Storage for artist prefix

```
88 \newcommand*\KFLT@ap{}
```


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@a1}{}

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.

Used for the additional text in the float.

103 \newcommand*{\KFLT@textalign}{}

\KFLT@t Additional text storage

Used for the additional text in the float.

104 \newcommand{\KFLT@t}{}

Create replacement macros in case tocddata 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}{} 
```

Key [main] t Additional text, justified alignment.


```

121 \define@key{KFLT@keys}{t}{%
122   \renewcommand{\KFLT@t}{#1}%
123   \renewcommand{\KFLT@textalign}{}%
124 }

```

Key [main] tc Additional text, centered alignment.

```

125 \define@key{KFLT@keys}{tc}{%
126   \renewcommand{\KFLT@t}{#1}%
127   \renewcommand{\KFLT@textalign}{\centering}%
128 }

```

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

```

129 \define@key{KFLT@keys}{tr}{%
130   \renewcommand{\KFLT@t}{#1}%
131   \renewcommand{\KFLT@textalign}{\raggedleft}%
132 }

```

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

```

133 \define@key{KFLT@keys}{tl}{%
134   \renewcommand{\KFLT@t}{#1}%
135   \renewcommand{\KFLT@textalign}{\raggedright}%
136 }

```

Key [main] lw Fraction of \linewidth

```

137 \define@key{KFLT@keys}{lw}{%
138   \renewcommand{\KFLT@lw}{#1}%
139   \setlength{\KFLT@w}{0pt}%
140 }

```

\KFLT@lw Fraction of linewidth storage: “.5”

```

141 \newcommand*{\KFLT@lw}{}

```

Key [main] w Fixed width

```

142 \define@key{KFLT@keys}{w}{%
143   \setlength{\KFLT@w}{#1}%
144   \renewcommand{\KFLT@lw}{}%
145 }

```

\KFLT@w Width storage: “3cm”

```

146 \newlength{\KFLT@w}

```


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}
```


Key [main] `va` Set vertical alignment of the outermost minipage container.

```
173 \define@key{KFLT@keys}{va}{\renewcommand{\KFLT@va}{#1}}
```

`\KFLT@va` Storage for the vertical alignment.

```
174 \newcommand{\KFLT@va}{c}
```

3.7 Nesting control

Ctr `KFLT@keyfloatdepth` Depth inside a keyfigs environment

```
175 \newcounter{KFLT@keyfloatdepth}
176 \setcounter{KFLT@keyfloatdepth}{0}
```

Bool `KFLT@inkeysubfloats` Inside a keysubfigs environment?

```
177 \newboolean{KFLT@inkeysubfloats}
178 \setboolean{KFLT@inkeysubfloats}{false}
```

3.8 Subfloat key handling

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

Bool `KFLT@subgrpcont` Continued float?

```
179 \newboolean{KFLT@subgrpcont}{}
```

Key [subfloat container] `cont` Continued float

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

`\KFLT@subgrpc` Sub-caption storage

```
183 \newcommand{\KFLT@subgrpc}{}%
```

Bool `KFLT@subgrpcstart` Sub-caption starred?

```
184 \newboolean{KFLT@subgrpcstar}
```


Key [subfloat container] c Caption

```
185 \define@key{KFLT@subgrpkeys}{c}{%
186   \renewcommand{\KFLT@subgrpc}{#1}\setboolean{KFLT@subgrpcstar}{false}%
187 }
```

Key [subfloat container] cstar Starred caption?

```
188 \define@key{KFLT@subgrpkeys}{cstar}{%
189   \renewcommand{\KFLT@subgrpc}{#1}\setboolean{KFLT@subgrpcstar}{true}%
190 }
```

Key [subfloat container] sc Short caption

```
191 \define@key{KFLT@subgrpkeys}{sc}{%
192   \renewcommand{\KFLT@subgrpsc}{#1}%
193   \setboolean{KFLT@subgrpscgiven}{true}%
194 }
```

\KFLT@subgrpsc Sub-shortcaption storage

```
195 \newcommand{\KFLT@subgrpsc}{{}}
```

Bool KFLT@subgrpscgiven Sub-shortcaption was given?

```
196 \newboolean{KFLT@subgrpscgiven}
```

\KFLT@subgrptype Subfloats collection type storage: “figure”, “table”

```
197 \newcommand*\KFLT@subgrptype{{}}
```

Key [subfloat container] l Label

```
198 \define@key{KFLT@subgrpkeys}{l}{\renewcommand{\KFLT@subgrpl}{#1}}
199 \newcommand*\KFLT@subgrpl{{}}
```

\KFLT@subgrptextalign Storage for text alignment.

Used for the additional text in the float.

```
200 \newcommand*\KFLT@subgrptextalign{{}}
```

\KFLT@subgrpt Additional text storage

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 `tocdata` 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}}
```


\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@subgrpaf}{#1}}

\KFLT@subgrpaf Storage for artist last name

223 \newcommand*{\KFLT@subgrpaf}{{}}

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@subgrpauf}{#1}}

\KFLT@subgrpauf Storage for author first name

229 \newcommand*{\KFLT@subgrpauf}{{}}

Key [subfloat container] au1 Author last name

230 \define@key{KFLT@subgrpkeys}{au1}{\renewcommand{\KFLT@subgrpau1}{#1}}

\KFLT@subgrpau1 Storage for author last name

231 \newcommand*{\KFLT@subgrpau1}{{}}

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    {% width not given
```


Use full \linewidth or only a fraction:

```

248         \ifcempty{KFLT@lw}%
249             {\setlength{KFLT@imagewidth}{KFLT@boxwidth}}%
250             {\setlength{KFLT@imagewidth}{KFLT@lwKFLT@boxwidth}}%
251     }% width not given

```

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

```

252     \ifdimgreater{KFLT@ww}{0pt}%

```

Width was given:

```

253     {%
254         \setlength{KFLT@wrapwidth}{KFLT@ww}}%
255     }% width not given

```

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

```

256         \ifcempty{KFLT@wlw}%
257             {%
258                 \setlength{KFLT@wrapwidth}{KFLT@imagewidth}}%
259             {%
260                 \setlength{KFLT@wrapwidth}{KFLT@wlwKFLT@boxwidth}}%
261     }% width not given
262 }

```

3.10 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 {*<contents>*}

```

263 \newcommand{KFLTtightframe}[1]{%
264     \setlength{fboxsep}{0pt}%
265     \setlength{fboxrule}{.4pt}%
266     \fbox{#1}%
267 }
268

```

Len \KFLTtightframewidth Must be set to the combined width of the tight frame and separation used by \KFLTtightframe.


```

269 \newlength{\KFLTtightframewidth}
270 \setlength{\KFLTtightframewidth}{.4pt}

```

`\KFLTlooseframe` $\{\langle contents \rangle\}$

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.

```

271 \newcommand{\KFLTlooseframe}[1]{%
272   \setlength{\fboxsep}{3pt}%
273   \setlength{\fboxrule}{.4pt}%
274   \fbox{#1}%
275 }

```

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

```

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

```

`\KFLT@frame` $\{\langle contents \rangle\}$

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

```

278 \newcommand{\KFLT@frame}[1]
279 {%
280   \ifbool{\KFLT@ft}%
281     {\KFLTtightframe{#1}}%
282     {% not tightframe
283       \ifbool{\KFLT@f}%
284         {\KFLTlooseframe{#1}}%
285         {#1}% no frame
286     }% not looseframe
287 }

```

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

```

288 \newcommand{\KFLT@findenvboxwidth}{%
289   \settowidth{\KFLTimageboxwidth}{\usebox{\KFLT@envbox}}%
290   \ifbool{\KFLT@ft}%
291     {\addtolength{\KFLTimageboxwidth}{2\KFLTtightframewidth}}%
292     {% not tightframe
293       \ifbool{\KFLT@f}%
294         {\addtolength{\KFLTimageboxwidth}{2\KFLTlooseframewidth}}%
295       }% no frame

```



```

296      }% not looseframe
297 }

```

3.11 A graphics image from a file

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

Create an image with size, frame, and turn.

```

298 \NewDocumentCommand{\KFLT@onefigureimage}{m}%
299 {%

```

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.

```

300   \begin{lrbox}{\KFLT@envbox}%

```

Handle the `lw` key. If `lw` is used, width and height are ignored.

```

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

```

Handle the `w` key, which may be used along with the `h` key:

```

303       \ifdimgreater{\KFLT@w}{0pt}%
304       {% width is given
305       \ifdimgreater{\KFLT@h}{0pt}%

```

Width and height are both given:

```

306           {% w and h
307           \includegraphics%
308           [scale=\KFLT@s,%
309           width=\KFLT@imagewidth,height=\KFLT@h]{#1}%
310           }% w and h

```

Only width:

```

311           {% only w
312           \includegraphics%
313           [scale=\KFLT@s,width=\KFLT@imagewidth]{#1}%
314           }% only w
315           }% width is given

```


Width was not given, so maybe handle h alone:

```
316      {% width is not given
317      \ifdimgreater{\KFLT@h}{0pt}%
```

h was given:

```
318      {\includegraphics[scale=\KFLT@s,height=\KFLT@h]{#1}}%
```

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

```
319      {\includegraphics[scale=\KFLT@s]{#1}}%
320      {% width is not given
321      }% not linewidth
322      {% linewidth given
323      \includegraphics[scale=\KFLT@s,width=\KFLT@imagewidth]{#1}%
324      }%
325      \end{lrbox}%
326      \unskip%
327      \KFLT@findenvboxwidth%
328      \begin{turn}{\KFLT@r}%
329      \KFLT@frame{\usebox{\KFLT@envbox}}%
330      \unskip%
331      \end{turn}%
332 }
```

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.

```
333 \NewDocumentCommand{\KFLT@dosimplecaption}{m m m}
334 {%
335     \unskip%
336     \IfBooleanTF{#1}% star?
337     {\IfValueTF{#2}{\caption*{#2}{#3}}{\caption*{#3}}}%
338     {\IfValueTF{#2}{\caption[#2]{#3}}{\caption{#3}}}%
339 }
```

There are two versions of `\KFLT@docaption`, depending on whether `tocdata` is loaded.

```
340 \@ifpackageloaded{tocdata}
341 {% tocdata loaded
```


\KFLT@edocaption 1: artist/author {\langle 2: empty or "u" \rangle} {\langle 3: star? \rangle} {\langle 4: short caption \rangle} {\langle 5: caption \rangle} {\langle 6: empty or "subgrp" \rangle}

342 \newcommand*{\KFLT@edocaption}[6]{%

(tocdata does not expand its text argument before checking for empty.)

```

343 \addvspace{\smallskipamount}%
344 \ifcseempty{KFLT@#6t}{%
345   \IfBooleanTF{#3}%
346   {%
347     \csuse{caption#1}*[#4]{#5}%
348     []%
349     [\csuse{KFLT@#6a#2p}]%
350     {\csuse{KFLT@#6a#2f}}%
351     {\csuse{KFLT@#6a#2l}}%
352     [\csuse{KFLT@#6a#2s}]%
353   }%
354   \csuse{caption#1}[#4]{#5}%
355   []%
356   [\csuse{KFLT@#6a#2p}]%
357   {\csuse{KFLT@#6a#2f}}%
358   {\csuse{KFLT@#6a#2l}}%
359   [\csuse{KFLT@#6a#2s}]%
360   }%
361 }{%
362   \ifcsstring{KFLT@#6textalign}{\csuse{td#1textjustify}}{%
363     \ifcsstring{KFLT@#6textalign}{\centering}{\csuse{td#1textcenter}}{%
364       \ifcsstring{KFLT@#6textalign}{\raggedleft}{\csuse{td#1textright}}{%
365         \ifcsstring{KFLT@#6textalign}{\raggedright}{\csuse{td#1textleft}}{%
366           \IfBooleanTF{#3}%
367           {%
368             \csuse{caption#1}*[#4]{#5}%
369             [\csuse{KFLT@#6t}]%
370             [\csuse{KFLT@#6a#2p}]%
371             {\csuse{KFLT@#6a#2f}}%
372             {\csuse{KFLT@#6a#2l}}%
373             [\csuse{KFLT@#6a#2s}]%
374           }%
375           \csuse{caption#1}[#4]{#5}%
376           [\csuse{KFLT@#6t}]%
377           [\csuse{KFLT@#6a#2p}]%
378           {\csuse{KFLT@#6a#2f}}%
379           {\csuse{KFLT@#6a#2l}}%
380           [\csuse{KFLT@#6a#2s}]%
381         }%
382 }%
383 }
```



```
\KFLT@docaption * [⟨2:short caption⟩] {⟨3:caption⟩} {⟨4: empty or “subgrp”⟩}
```

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`:

```
384 \NewDocumentCommand{\KFLT@docaption}{s o m m}
385 {%
```

Is the last name empty? Assume no artist if so.

```
386   \ifcempty{KFLT@#4al}%
387   {% figure w/o artist
388       \ifcempty{KFLT@#4aul}%
389       {% figure w/o artist or author
```

A figure without an artist or author uses the simple caption.

```
390       \KFLT@dosimplecaption{#1}{#2}{#3}%
391      }% figure w/o artist or author
```

A figure with an author uses the `tocdata \captionauthor` macro, which also creates an index entry.

```
392       {% figure w/ author
393       \KFLT@docaption{author}{u}{#1}{#2}{#3}{#4}%
394      }% figure w/ author
395   }% figure w/o artist
396   {% figure with an artist
```

A figure with an artist uses the `tocdata \captionartist` macro, which also creates an index entry.

```
397       \KFLT@docaption{artist}{#1}{#2}{#3}{#4}%
398   }% figure with an artist
399}% KFLT@tocdata
400}% tocdata loaded
401}% no tocdata
```

Without `tocdata`:

`\KFLT@docaption` * [`\langle 2:short caption \rangle`] {`\langle 3:caption \rangle`} {`\langle 4: empty or “subgrp” \rangle`}

```
402 \NewDocumentCommand{\KFLT@docaption}{s o m m}
403 {%
```

If `tocdata` is not loaded, use a simple caption.

```
404 \KFLT@dosimplecaption{#1}{#2}{#3}%
```

Create an index entry depending on whether there is a last, first name:

```
405 \ifcempty{KFLT@#4al}%
406 {%
407 \ifcempty{KFLT@#4aul}%
408 {}%
409 {% yes author
410 \ifcempty{KFLT@#4auf}%
411 {\index{\csuse{KFLT@#4aul}}}%
412 {\index{\csuse{KFLT@#4aul}, \csuse{KFLT@#4auf}}}%
413 }% yes author
414 }% no artist
415 {% yes artist
416 \ifcempty{KFLT@#4af}%
417 {\index{\csuse{KFLT@#4al}}}%
418 {\index{\csuse{KFLT@#4al}, \csuse{KFLT@#4af}}}%
419 }% yes artist
420 }% KFLT@docaption
421 }% no tocdata
```

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

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.

```
422 \newcommand{\KFLT@caption}[1]{%
```

A starred caption is printed but not numbered.

```
423 \ifbool{KFLT@#1cstar}% starred caption?
```

This is a starred caption:

```
424 {%starred caption
```


A key given as `cstar={}` yields a float with no caption at all.

```
425      \ifcempty{KFLT@#1c}% cstar={}?  
426      {}%
```

Non-empty starred caption might have a LOF entry if it has a short caption `sc` key:

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

No `sc` short caption, but there is a `cstar`, so no LOF entry:

```
429      {}%
```

Both `cstar` and `sc` were given, so add a LOF entry:

```
430      {% non-empty cstar and sc:  
431      \edef\KFLT@listtype{\csuse{KFLT@#1type}}%  
432      \addcontentsline{\csuse{ext@KFLT@listtype}}%  
433      {\csuse{KFLT@#1type}}{\KFLT@sc}%  
434      }% non-empty cstar and sc
```

`cstar` was given, so create an unnumbered caption:

```
435      \KFLT@docaption*{\csuse{KFLT@#1c}}{#1}%  
436      }%  
437      }% starred caption
```

Unstarred caption `c` was given, so number this float:

```
438      {% unstarred caption  
439      \ifcempty{KFLT@#1sc}%  
440      {% no short cap  
441      \KFLT@docaption{\csuse{KFLT@#1c}}{#1}%  
442      }% no short cap  
443      {% short cap  
444      \KFLT@docaption[\csuse{KFLT@#1sc}]%  
445      {\csuse{KFLT@#1c}}{#1}%  
446      }% short cap
```

Optional label:

```
447      \ifcempty{KFLT@#1l}%  
448      {}%  
449      {\label{\csuse{KFLT@#1l}}}%  
450      }% unstarred caption  
451 }
```


3.13 Defaults for a new float

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

```

452 \newcommand*{\KFLT@defaults}{%
453   \setboolean{KFLT@cont}{false}%
454   \renewcommand{\KFLT@c}{}%
455   \setboolean{KFLT@cstar}{false}%
456   \renewcommand{\KFLT@sc}{}%
457   \setboolean{KFLT@scgiven}{false}%
458   \renewcommand{\KFLT@type}{figure}%
459   \renewcommand{\KFLT@l}{}%
460   \renewcommand{\KFLT@ap}{}%
461   \renewcommand{\KFLT@af}{}%
462   \renewcommand{\KFLT@al}{}%
463   \renewcommand{\KFLT@as}{}%
464   \renewcommand{\KFLT@aup}{}%
465   \renewcommand{\KFLT@aup}{}%
466   \renewcommand{\KFLT@aul}{}%
467   \renewcommand{\KFLT@aus}{}%
468   \renewcommand{\KFLT@t}{}%
469   \renewcommand{\KFLT@textalign}{}%
470   \renewcommand{\KFLT@lw}{}%
471   \setlength{\KFLT@w}{0pt}%
472   \setlength{\KFLT@h}{0pt}%
473   \renewcommand{\KFLT@s}{1}%
474   \renewcommand{\KFLT@r}{0}%
475   \setboolean{KFLT@f}{false}%
476   \setboolean{KFLT@ft}{false}%
477   \renewcommand{\KFLT@stretch}{1}%
478   \setlength{\KFLT@mo}{-1.2ex}%
479   \renewcommand{\KFLT@wp}{0}%
480   \renewcommand{\KFLT@wlv}{}%
481   \setlength{\KFLT@ww}{0pt}%
482   \renewcommand{\KFLT@va}{c}%
483 }
```

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.

```

484 \newcommand*{\KFLT@maybestartfloatrow}{%
485   \KFLT@maybeendfloatrow%
486   \defcounter{KFLT@thiscol}{\value{KFLT@thiscol}+1}%

```


487 }

`\KFLT@maybeendfloatrow` Counts rows

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

```
488 \newcommand*{\KFLT@maybeendfloatrow}{%
489     \ifnumless{\value{KFLT@thiscol}}{\value{KFLT@numcols}}}%
490     {}% thiscol < numcols
491     {% >=
492         \par%
493         \addvspace{.75\floatsep}%
494         \defcounter{KFLT@thiscol}{0}%
495     }%
496 }%
```

3.15 Key environment helper macros

`\KFLT@trackrows` Tracks and spaces rows and columns.

```
497 \newcommand{\KFLT@trackrows}%
498 {%
```

If are nested inside a keyfloats or a subfloat:

```
499     \ifboolexpr{%
500         test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or%
501         bool{KFLT@inkeysubfloats}%
502     }%
503     {% nested
```

Tracks row start and end:

```
504         \KFLT@maybestartfloatrow%
```

Possibly fill space between columns:

```
505         \ifnumgreater{\value{KFLT@thiscol}}{1}%
506         {\hfill}%
507         {}%
508     }% nested
509     {}% not nested
510 }
```

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

Adds optional additional text.

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

```
511 \newcommand{\KFLT@addtext}[1]
512 {%
```

Is there text to add?

```
513   \ifcempty{KFLT@#1t}%
514   {}% no text
515   {% text to add
516   {% local
```

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

```
517   \addvspace{\smallskipamount}%
518   \begin{minipage}{\linewidth}%
```

Inside this minipage, temporarily prevent underfull \hbox warnings:

```
519   \hbadness=10000\relax%
```

Set the alignment and some text parameters:

```
520   \csuse{KFLT@#1textalign}%
521   \footnotesize%
522   \setlength{\parskip}{1.5ex}%
523   \setlength{\parindent}{0em}%
```

Typeset the actual text:

```
524   \csuse{KFLT@#1t}%
```

Close it all out with a little more space:

```
525   \end{minipage}%
526   \par\addvspace{2ex}%
527   }% local
528 }% text to add
529 }
```

`\KFLT@optionalname` {<name>}

Adds optional artist's name and the following space.

```
530 \newcommand{\KFLT@optionalname}[1]
```



```

531 {%
532     \ifblank{#1}%
533         {}%
534         {#1~}%
535 }

```

`\KFLT@addartisttext` {(*empty or “subgrp”*)}

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:

```

536 \@ifpackageloaded{tocdata}
537 {% tocdata loaded

```

If `tocdata` is loaded:

```

538 \newcommand{\KFLT@addartisttext}[1]
539 {%

```

Only add text if is a figure without an artist or author name. If an artist or author is given, the name and text will be added by `tocdata`.

```

540     \ifcseempty{KFLT@#1al}% artist last name
541         {%
542             \ifcseempty{KFLT@#1aul}% author last name
543                 {\KFLT@addtext{#1}}
544                 {}%
545             }%
546         {}% fig w/ artist: text will be added by \captionartist in \KFLT@caption
547 }% KFLT@addartisttext
548 }% tocdata loaded

```

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

```

549 {% tocdata not loaded

```

Factored from `\KFLT@addartisttext`

```

550 \newcommand*{\KFLT@addartisttext}[3]{%

```


Add space and create the name inside a full-width minipage:

```
551      \addvspace{\medskipamount}%
552      \begin{minipage}{\linewidth}%
```

Inside this minipage, temporarily prevent underfull \hbox warnings:

```
553      \hbadness=10000\relax%
```

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

```
554      #3%
```

#1 is empty or 'subgrp'

#2 is empty for artist, 'u' for author:

```
555      \footnotesize\textsc{%
556          \KFLT@optionalname{\csuse{KFLT@#1a#2p}}}%
557          \KFLT@optionalname{\csuse{KFLT@#1a#2f}}}%
558          \csuse{KFLT@#1a#2l}%
559          \csuse{KFLT@#1a#2s}%
560      }%
561      \end{minipage}%
562      \par\addvspace{2ex}%
563 }
564
565 \newcommand{\KFLT@addartisttext}[1]
566 {%
```

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

```
567      \ifcempty{KFLT@#1al}%
568      {% artist last name not given
569          \ifcempty{KFLT@#1aul}%
570          {% author last name not given
571              {% author last name given
572                  \KFLT@addartisttext{#1}{u}{\raggedleft}%
573              }% author last name given
574          }% artist last name not given
575      }% artist last name given
576          \KFLT@addartisttext{#1}{}{\centering}%
577      }%
```

Any additional text follows the artist's name:

```
578      \KFLT@addtext{#1}%
579 }% \KFLT@addartisttext
580}% tocd data not loaded
```


Len \KFLTimageboxwidth The computed width of the object.

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

```
581 \newlength{\KFLTimageboxwidth}
```

Env KFLT@boxinner Typeset the contents in a width which depends on the keys.

```
582 \newsavebox{\KFLT@envbox}
583
584 \NewDocumentEnvironment{KFLT@boxinner}{}
585 {% keyboxinner
```

(Possibly) frame the contents of an lrbox:

```
586 \begin{lrbox}{\KFLT@envbox}%
```

Rotate the contents:

```
587 \turn{\KFLT@r}%
```

Box the contents in the width computed by \KFLT@findwidths:

```
588 \minipage{\KFLT@imagewidth}%
```

Spacing inside the box. Also default to regular justified text alignment.

```
589 \setlength{\parskip}{2ex}%
590 \renewcommand{\arraystretch}{\KFLT@stretch}%
591 }% keyboxinner
```

End of the environment:

```
592 {% endkeyboxinner
593 \endminipage%
```

End the rotated box:

```
594 \endturn%
```

Possibly frame:

```
595 \end{lrbox}%
596 \KFLT@frame{\usebox{\KFLT@envbox}}%
597 \par%
598 }% endkeyboxinner
```


`\KFLT@boxkeys` $\{\langle keys \rangle\} \{\langle float type \rangle\}$

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

```
599 \NewDocumentCommand{\KFLT@boxkeys}{+m m}
600 {%
601   \KFLT@defaults%
602   \renewcommand{\KFLT@type}{#2}%
603   \setkeys{KFLT@keys}{#1}%
604 }
```

Bool `KFLT@captionistop` Saves the value of `\caption@position`, which may become unreliable if using KOMAScript and

`\captionsetup[table]{position=above}`

```
605 \newbool{KFLT@captionistop}
```

`\KFLT@LWR@hook@boxouter` Used by `lwarp`.

```
606 \newcommand*{\KFLT@LWR@hook@boxouter}{}%
```

Env `KFLT@boxouter` $\{\langle star? \rangle\} \{\langle loc \rangle\}$

Boxes the contents of figures and floats.

Not used by subfigures.

```
607 \NewDocumentEnvironment{KFLT@boxouter}{m m}
608 {% 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:

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

If `keyfloats`, place the contents inside a `minipage`:

```
611   {% not subfloat:
612     \ifnumgreater{\value{KFLT@keyfloatdepth}}{0}%
613     {% keyfloats
614       \ifbool{KFLT@keywrap}%
```



```

615          {\minipage[t]{\KFLT@rowboxwidth}}%
616          {\minipage[\KFLT@va]{\KFLT@rowboxwidth}}%
617          \captionsetup*{type=\KFLT@type}%
618      }% keyfloats
619      {% not keyfloats

```

A hook for `lwarp` to set `\linewidth`, etc.

```

620          \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.

```

621          \ifbool{\KFLT@keywrap}%
622          {%
623              \par\addvspace{\baselineskip}%
624              \noindent%
625              \minipage[t]{\linewidth}%
626              \captionsetup{type=\KFLT@type}%
627          }%
628          {% not a keywrap

```

See if the float should [W]rap:

```

629          \ifstrequal{#2}{W}%

```

Place [W], so create a wrapfloat using the `wrapfig` package:

```

630          {% [W]

```

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

```

631          \KFLT@findwidths%
632          \wrapfloat{\KFLT@type}{\KFLT@wp}%
633              {\KFLT@wrapwidth+2\KFLT@looseframewidth}%
634          \minipage{\KFLT@wrapwidth+2\KFLT@looseframewidth}%

```

Inside this minipage, temporarily prevent underfull `\hbox` warnings:

```

635          \hbadness=10000\relax%

636          \normalcolor\reset@font\normalsize%

```

Change the interior image to the discovered fixed width.


```

637          \renewcommand{\KFLT@lw}{}%
638          \renewcommand{\KFLT@w}{\KFLT@imagewidth}%
639          \renewcommand{\KFLT@wlw}{}%
640          \renewcommand{\KFLT@ww}{\0pt}%
641      }% [W]
642      {% not [W]

```

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

```

643          \ifstrequal{#2}{M}%

```

Place [M], so create a marginfloat:

```

644      {% [M]
645          \KFLT@marginfloat[\KFLT@mo]{\KFLT@type}%
646      }% [M]
647      {% not [M]

```

See if the float should be positioned [H]ere:

```

648          \ifstrequal{#2}{H}%

```

Place [H], so create an inline minipage:

```

649      {% [H]
650          \vskip\intextsep%
651          \noindent\minipage[\KFLT@va]{\linewidth}%
652          \normalcolor\reset@font\normalsize%
653          \captionsetup{type=\KFLT@type}%
654      }% [H]

```

Not [H], so create a float: For a starred float, make a two-column table in a two-col format.

```

655      {% not [H]
656          \IfBooleanTF{#1}%
657              {\csuse{\KFLT@type*}[#2]}%
658              {\csuse{\KFLT@type}[#2]}%
659      }% not [H]
660      }% not [M]
661      }% not [W]
662      }% not keywrap
663      }% not keyfloats
664      }% not subfloat

```

Handle a continued float. Ignored if in a subfloat.

```

665      \ifbool{\KFLT@cont}{\ContinuedFloat}{}%

```


Figure out image and parbox widths for the contents:

```
666 \KFLT@findwidths%
```

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

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

Typeset the contents:

```
669 \center\unskip%
670 }% boxouter
```

End of the KFLT@boxouter environment:

```
671 {% endboxouter
672 \endcenter\unskip%
673 \addvspace{\smallskipamount}%
```

Optionally print artist's name and additional text:

```
674 \KFLT@addartisttext{}%
```

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

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

If are inside keysubtabs, end the subtable:

```
676 \ifbool{KFLT@inkeysubfloats}%
677 {%
678 \csuse{endsub\KFLT@type}%
679 }% subfloat
680 {% not subfloat
681 \ifnumgreater{\value{KFLT@keyfloatdepth}}{0}% keyfloats?
682 {%
683 \endminipage%
684 }% keyfloats
685 {% not keyfloats
```

Not subfloat or keyfloats, so is an individual float.

Close the minipage or float:

See if in a keywrap:


```

686         \ifbool{KFLT@keywrap}{%
687             \endminipage%
688             \par\addvspace{\baselineskip}%
689         }%
690         {% not keywrap

```

See if the float should [W]rap:

```

691             \ifstrequal{#2}{W}%

```

Place [W], so close the wrap float:

```

692         {% [W]
693             \endminipage%
694             \endwrapfloat%
695         }% [W]
696         {% not[W]

```

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

```

697             \ifstrequal{#2}{M}%

```

[M], so close the marginfloat:

```

698         {% [M]
699             \endKFLT@marginfloat%
700         }% [M]

```

[H] or float:

```

701         {% not [M]
702             \ifstrequal{#2}{H}%
703             {%
704                 \endminipage% [H]
705                 \vskip\intextsep%
706             }%
707             {% not [H]
708                 \IfBooleanTF{#1}% starred float?
709                 {\csuse{end\KFLT@type*}}%
710                 {\csuse{end\KFLT@type}}%
711             }% not [H]
712             }% not [M]
713             }% not [W]
714             }% not keywrap
715             }% not keyfloats
716             }% not subfloat
717 }% endkeyboxouter

```


`\KFLT@ignorespaces` $\{\langle commandname \rangle\}$ Only do command if not nested inside something.

```

718 \newcommand*\KFLT@ignorespaces[1]{%
719   \ifboolexpr{%
720     test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or%
721     bool{KFLT@inkeysubfloats}%
722   }{\csuse{#1}}%
723 }
```

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

```

724 \newcommand*\KFLT@ignorespaces{%
725   \KFLT@ignorespaces{ignorespaces}%
726 }
```

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

```

727 \newcommand*\KFLT@envignorespaces{%
728   \KFLT@ignorespaces{ignorespacesafterend}%
729 }
```

3.16 The `\KFLT@keyflt` macro

`\KFLT@keyflt` $\{\langle 1:star \rangle\} \{\langle 2:loc \rangle\} \{\langle 3:type \rangle\} \{\langle 4:keys/values \rangle\} \{\langle 5:contents \rangle\}$

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

```

730 \NewDocumentCommand{\KFLT@keyflt}{m m m +m +m}
731 {%

732   \ifcsdef{ftype@#3}{%

733     \PackageError{keyfloat}%
734     {%
735       \protect\keyflt: Invalid float type.\MessageBreak%
736       \protect\keyflt*[loc]{type}{keys/values}{contents}\MessageBreak%
737       Also, \protect\keyflt\space is not an environment
738     }%
739     {%
740       Check argument order and float type.
741     }%
742   }%
743   \KFLT@ignorespaces%
744   \KFLT@trackrows%
```



```

745 \KFLT@boxkeys{#4}{#3}%
746 \begingroup%
747 \KFLT@boxouter{#1}{#2}%
748 #5%
749 \endKFLT@boxouter%
750 \endgroup%
751 \KFLT@ignorespaces%
752 }

```

3.17 The `\keyflt` macro

`\keyflt` * [*loc*] {*type*} {*keys/values*} {*contents*}

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 `keysubtabs` environment.

```

753 \NewDocumentCommand{\keyflt}{s O{tbp} m +m +m}
754 {%
755 \KFLT@keyflt{#1}{#2}{#3}{#4}{%
756 \KFLT@boxinner%
757 \centering%
758 #5%
759 \endKFLT@boxinner%
760 }%
761 }

```

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

```

762 \def\endkeyflt{%
763 \PackageError{keyfloat}
764 {%
765 \protect\end{keyflt}:\MessageBreak
766 \protect\keyflt\space is a macro, not an environment.\MessageBreak
767 Perhaps you want the keyfloat environment instead%
768 }
769 {%
770 Use \protect\begin{keyfloat} ... \protect\end{keyfloat}.
771 }
772 }

```

3.18 The `keyfloat` environment

`\KFLT@keyfloatstart` {*star?*} {*loc*} {*float type*} {*keys/values*}

```

773 \newcommand{\KFLT@keyfloatstart}[4]{%

```



```

774 \KFLT@envignorespaces%
775 \KFLT@boxkeys{#4}{#3}%
776 \KFLT@boxouter{#1}{#2}%
777 \KFLT@boxinner%
778 }

```

\KFLT@keyfloatend

```

779 \newcommand{\KFLT@keyfloatend}{%
780 \endKFLT@boxinner%
781 \endKFLT@boxouter%
782 \KFLT@envignorespaces%
783 }

```

Env keyfloat * [*loc*] {*float type*} {*keys/values*}

```

784 \NewDocumentEnvironment{keyfloat}{s O{tbp} m +m}
785 {%
786 \KFLT@keyfloatstart{#1}{#2}{#3}{#4}%
787 }%
788 {%
789 \KFLT@keyfloatend%
790 }

```

Before keyfloat 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.

```

791 \BeforeBeginEnvironment{keyfloat}{%
792 \KFLT@trackrows%
793 }

```

3.19 The keyfigure environment

Env keyfigure * [*loc*] {*keys/values*}

```

794 \NewDocumentEnvironment{keyfigure}{s O{tbp} +m}
795 {%
796 \KFLT@keyfloatstart{#1}{#2}{figure}{#3}%
797 }%
798 {%
799 \KFLT@keyfloatend%
800 }

```

Before keyfigure 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.

```
801 \BeforeBeginEnvironment{keyfigure}{%
802     \KFLT@trackrows%
803 }
```

3.20 The `\keyfig` macro

`\keyfig` * [*<2:loc>*] {*<3:keys/values>*} {*<4:image filename>*}

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

```
804 \NewDocumentCommand{\keyfig}{s O{tbp} +m m}
805 {%
806     \KFLT@keyflt{#1}{#2}{figure}{#3}{%
807         \KFLT@onefigureimage{#4}%
808     }%
809 }
```

3.21 The `\keyfigbox` macro

`\keyfigbox` * [*<loc>*] {*<keys/values>*} {*<box contents>*}

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.

```
810 \NewDocumentCommand{\keyfigbox}{s O{tbp} +m +m}
811 {%
812     \KFLT@ignorespaces%
813     \KFLT@trackrows%
814     \KFLT@boxkeys{#3}{figure}%
815     \beginngroup%
816     \KFLT@boxouter{#1}{#2}%
817     \KFLT@boxinner%
818     #4%
819     \endKFLT@boxinner%
820     \endKFLT@boxouter%
821     \endgroup%
822     \KFLT@ignorespaces%
823 }
```


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.

```
824 \NewDocumentCommand{\keyparbox}{s O{tbp} +m +m}
825 {%
826   \KFLT@ignorespaces%
827   \KFLT@trackrows%
828   \KFLT@boxkeys{#3}{figure}%
```

Force `cstar={}`:

```
829   \renewcommand{\KFLT@c}{}%
830   \setboolean{KFLT@cstar}{true}%
```

Continue like `\figbox`:

```
831   \begingroup%
832   \KFLT@boxouter{#1}{#2}%
833   \KFLT@boxinner%
834   #4%
835   \endKFLT@boxinner%
836   \endKFLT@boxouter%
837   \endgroup%
838   \KFLT@ignorespaces%
839 }
```

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.

```
840 \NewDocumentCommand{\keytab}{s O{tbp} +m +m}
841 {%
842   \IfBooleanTF{#1}{%
843     \keyflt*[#2]{table}{#3}{#4}%
844   }{%
845     \keyflt[#2]{table}{#3}{#4}%
846   }%
847 }
```


3.24 The keytable environment

```
Env keytable * [<loc>] {<keys/values>}

848 \NewDocumentEnvironment{keytable}{s O{tbp} +m}
849 {%
850   \KFLT@keyfloatstart{#1}{#2}{table}{#3}%
851 }%
852 {%
853   \KFLT@keyfloatend%
854 }
```

Before keytable 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.

```
855 \BeforeBeginEnvironment{keytable}{%
856   \KFLT@trackrows%
857 }
```

3.25 A row of floats

\KFLT@nonest Error message if tried to nest subfloats.

```
858 \newcommand*{\KFLT@nonest}{%
859   \ifboolexpr{%
860     test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or
861     bool {KFLT@inkeysubfloats}%
862   }%
863   {%
864     \PackageError{keyfloat}%
865     {%
866       Cannot nest keysubfigs or keysubtabs.\MessageBreak%
867       (Not in outer par mode.)%
868     }%
869     {%
870       The subcaption package do not support nested environments,\MessageBreak
871       so the keyfloat package cannot place a\MessageBreak
872       keysubfigs or keysubtabs environment inside another,\MessageBreak
873       or inside a keyfloats.%
874     }%
875   }%
876   {}%
877 }
```

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


```
878 \newcommand*{\KFLT@LWR@hook@keyfloats}{}%
```

KFLT@LWR@hook@keyfloatsminipage Modified by `lwarp`.

```
879 \newenvironment*{KFLT@LWR@hook@keyfloatsminipage}[1]
880   {\noindent\minipage{#1}}
881   {\endminipage}%
```

Env keyfloats * [*loc*] {*num columns*}

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` linewidth 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.

```
882 \NewDocumentEnvironment{keyfloats}{s O{tbp} m}
883 {%
884   \KFLT@envignorespaces%
```

A hook for `lwarp` to set `\linewidth`, etc.

```
885   \KFLT@LWR@hook@keyfloats%
```

Track the depth:

```
886   \addtocounter{KFLT@keyfloatdepth}{1}%
```

If [H], nested, subfloats, or `keywrap`, use a minipage instead of a float:

```
887   \ifboolexpr{%
888     test {\ifstrequal{#2}{H}} or
889     test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
890     bool {KFLT@inkeysubfloats} or
891     bool {KFLT@keywrap}%
892   }%
```

Create an inline minipage:

```
893   {% [H] or nested
```


If nested, use different spacing as was computed in the outer nesting level:

```

894      \ifbool{expr}%
895          test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
896          bool {KFLT@inkeysubfloats}
897      }%
898      {%
899          \KFLT@LWR@hook@keyfloatsminipage{\KFLT@rowboxwidth}%
900      }%
901      {%
902          \vskip\intextsep%
903          \KFLT@LWR@hook@keyfloatsminipage{\linewidth}%
904      }%

```

Reset font and color:

```

905      \normalcolor\reset@font\normalsize%

```

If inside subfloats, generate subfigures by default:

```

906      \ifbool{KFLT@inkeysubfloats}%
907          {%
908              {\captionsetup*{type=figure}}%
909          }% [H] or nested

```

Isn't [H] or nested

```

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

```

[W]:

```

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

```

Inside this minipage, temporarily prevent underfull \hbox warnings:

```

915          \hbadness=10000\relax%

916          \normalcolor\reset@font\normalsize%
917          }%
918          {% not [H]:
919              \ifstrequal{#2}{M}%
920              {% [M]:

```

[M]:


```

921          \KFLT@marginfloat{figure}%
922      }%

```

A normal figure:

```

923      {% figure
924      \IfBooleanTF{#1}% starred figure, two-col figure in a two-col format
925          {\begin{figure*}[#2]}%
926          {\begin{figure}[#2]}%
927      }% figure
928      }% not [H]
929  }%

```

Compute the width of each entry:

```

930  \ifboolexpr{%
931      test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
932      bool {KFLT@inkeysubfloats}
933  }%

```

Nested or subfloats:

```

934      {\setlength{\KFLT@rowboxwidth}{.9\KFLT@rowboxwidth/\real{#3}}}%

```

Keyfloats:

```

935      {\setlength{\KFLT@rowboxwidth}{.9\linewidth/\real{#3}}}%

```

Center the contents:

```

936  \centering%

```

Count columns using \defcounter for a local effect:

```

937  \defcounter{KFLT@numcols}{#3}%
938  \defcounter{KFLT@thiscol}{0}%
939 }% starting keyfloats environment

```

When ending a keyfloats environment:

```

940 {% ending keyfloats environment

```

[H] or rows/subfigs? Close a minipage:

```

941  \ifboolexpr{%
942      test {\ifstrequal{#2}{H}} or
943      test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
944      bool {KFLT@inkeysubfloats} or

```



```

945         bool {KFLT@keywrap}
946     }%
947     {% was [H], etc.
948         \endKFLT@LWR@hook@keyfloatsminipage%
949 %         \end{minipage}%

```

Spacing if nested or not:

```

950         \ifboolexpr{
951             test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or
952             bool {KFLT@keywrap}
953         }%
954         {% not nested
955             \vskip\intextsep%
956         }%
957     }% was [H], etc.

```

Not [H]:

```

958     {% not [H], etc.
959         \ifstrequal{#2}{W}%
960         {% [W]:

```

[W]:

```

961         \endminipage%
962         \endwrapfloat%
963     }%
964     {%
965         \ifstrequal{#2}{M}%
966         {% [M]:

```

[M]:

```

967         \endKFLT@marginfloat%
968     }%
969     {% figure

```

A figure:

```

970         \IfBooleanTF{#1}% starred figure?
971         {\end{figure*}}{\end{figure}}%
972     }%
973 }%
974 }% not [H], etc.

```

Unnest the environment:


```

975 \addtocounter{KFLT@keyfloatdepth}{-1}%
976 \KFLT@envignorespaces%
977 }

```

Before keyfloats 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.

```

978 \BeforeBeginEnvironment{keyfloats}{%
979 \KFLT@trackrows%
980 }

```

3.26 Subfloats

\KFLT@subgrpdefaults Sets defaults before reading the keys.

```

981 \newcommand*{\KFLT@subgrpdefaults}{%
982 \setboolean{KFLT@subgrpcont}{false}%
983 \renewcommand{\KFLT@subgrpc}{}%
984 \setboolean{KFLT@subgrpcstar}{false}%
985 \renewcommand{\KFLT@subgrpssc}{}%
986 \setboolean{KFLT@subgrpsscgiven}{false}%
987 \renewcommand{\KFLT@subgrptype}{figure}%
988 \renewcommand{\KFLT@subgrppl}{}%
989 \renewcommand{\KFLT@subgrpap}{}%
990 \renewcommand{\KFLT@subgrpapf}{}%
991 \renewcommand{\KFLT@subgrppl}{}%
992 \renewcommand{\KFLT@subgrpas}{}%
993 \renewcommand{\KFLT@subgrpapup}{}%
994 \renewcommand{\KFLT@subgrpapuf}{}%
995 \renewcommand{\KFLT@subgrpaul}{}%
996 \renewcommand{\KFLT@subgrpapaus}{}%
997 \renewcommand{\KFLT@subgrpt}{}%
998 \renewcommand{\KFLT@subgrptextalign}{}%
999 }

```

Bool KFLT@subcaptionistop Saves the value of \caption@position, which may become unreliable if using KOMAScript and

```
\captionsetup[table]{position=above}
```

```
1000 \newbool{KFLT@subcaptionistop}
```

\KFLT@subfloats { $\langle starred? \rangle$ } { $\langle loc \rangle$ } { $\langle cols \rangle$ } { $\langle keys/values \rangle$ }

Start a subfloat environment


```

1001 \NewDocumentCommand{\KFLT@subfloats}{m m m +m}
1002 {%
1003   \KFLT@envignorespaces%

```

Parse the key-value combinations:

```

1004   \setkeys{KFLT@subgrpkeys}{#4}%

```

Nest the environment:

```

1005   \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.

```

1006   \IfBooleanTF{#1}%
1007     {\setlength{\KFLT@rowboxwidth}{.9\textwidth/\real{#3}}}%
1008     {\setlength{\KFLT@rowboxwidth}{.9\linewidth/\real{#3}}}%

```

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

```

1009   \ifboolexpr{%
1010     test {\ifstrequal{#2}{H}} or
1011     bool {KFLT@keywrap}
1012   }%
1013   {%
1014     \vskip\intextsep\noindent\begin{minipage}{\linewidth}%
1015     \normalcolor\reset@font\normalsize%
1016   }%

```

Not [H]:

```

1017   {%
1018     \ifstrequal{#2}{W}%
1019     {% [W]

```

[W]:

```

1020       \wrapfloat{\KFLT@subgrptype}{0}{.5\linewidth}%
1021       \setlength{\KFLT@rowboxwidth}{.5\KFLT@rowboxwidth}%
1022       \minipage{\linewidth}%

```

Inside this minipage, temporarily prevent underfull `\hbox` warnings:

```

1023       \hbadness=10000\relax%

1024       \normalcolor\reset@font\normalsize%

```



```

1025      }%
1026      {% not [H]:
1027          \ifstrequal{#2}{M}%
1028          {% [M]:

```

[M]:

```

1029          \KFLT@marginfloat{\KFLT@subgrptype}%
1030          \setlength{\KFLT@rowboxwidth}{.9\marginparwidth/\real{#3}}%
1031      }% [M]
1032      {% subfloat

```

A subfloat:

```

1033          \IfBooleanTF{#1}%
1034              {\begin{\KFLT@subgrptype*}[#2]}%
1035              {\begin{\KFLT@subgrptype}[#2]}%
1036          }%
1037      }% not [H]
1038  }%

```

Set the caption type:

```

1039  \captionsetup*{type=\KFLT@subgrptype}%

```

Process continued floats:

```

1040  \ifbool{\KFLT@subgrpcont}%
1041      {\ContinuedFloat}%
1042  }%

```

Center the contents:

```

1043  \center\unskip%

```

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

```

1044  \caption@iftop{\booltrue{\KFLT@subcaptionistop}}{\boolfalse{\KFLT@subcaptionistop}}%
1045  \ifbool{\KFLT@subcaptionistop}{\KFLT@caption{subgrp}}{}%

```

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

```

1046  \defcounter{\KFLT@numcols}{#3}%
1047  \defcounter{\KFLT@thiscol}{0}%

```

Creat a group for the subfloats. Necessary in case they change `\tdartisttextcenter`, etc.


```

1048   \begingroup%
1049 }

```

```
\KFLT@endsubfloats {\starred?} {\loc}
```

Ends a subfloat environment.

```
1050 \newcommand*\KFLT@endsubfloats[2]{%
```

End the group containing the subfloats:

```

1051   \endgroup%
1052   \unskip%
1053   \endcenter%

```

A little extra space at the bottom:

```
1054   \par\addvspace{\bigskipamount}%
```

Optionally print artist's name and additional text:

```
1055   \KFLT@addartisttext{subgrp}%
```

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

```
1056   \ifbool{KFLT@subcaptionistop}{\KFLT@caption{subgrp}}%
```

End the float or minipage:

```

1057   \ifbool{expr{%
1058       test {\ifstrequal{#2}{H}} or
1059       bool{KFLT@keywrap}
1060   }%
1061   {\end{minipage}\vskip\intextsep}% was [H]
1062   {% not [H]:
1063       \ifstrequal{#2}{W}%
1064       {% [W]

```

```

1065           \endminipage%
1066           \endwrapfloat%
1067       }%
1068       {% not [W]:
1069           \ifstrequal{#2}{M}%
1070           {% [M]:

```

```
1071           \endKFLT@marginfloat%
```



```

1072          }% [M]
1073          {% subfloat
1074              \IfBooleanTF{#1}% starred?
1075              {\end{\KFLT@subgrptype*}}%
1076              {\end{\KFLT@subgrptype}}%
1077          }%
1078          }% not [W]
1079          }% not [H]

```

Unnest the environment:

```

1080 \setboolean{KFLT@inkeysubfloats}{false}%
1081 \KFLT@envignorespaces%
1082 }

```

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

```

1083 \newcommand*{\KFLT@LWR@hook@keysubfloats}{}

```

`Env KFLT@keysubfloats` $\{\langle star? \rangle\} \{\langle loc \rangle\} \{\langle float type \rangle\} \{\langle numcols \rangle\} \{\langle keys/values \rangle\}$

A group of subfigures typeset in rows.

```

1084 \NewDocumentEnvironment{KFLT@keysubfloats}{m m m m +m}
1085 {%

```

Error if trying to nest environments:

```

1086 \KFLT@nonest%

```

A hook for `lwarp` to set `\linewidth`, etc.

```

1087 \KFLT@LWR@hook@keysubfloats%

```

Default the options:

```

1088 \KFLT@subgrpdefaults%

```

Default to figure float type:

```

1089 \renewcommand{\KFLT@subgrptype}{#3}%

```

Start of the environment:

```

1090 \KFLT@subfloats{#1}{#2}{#4}{#5}%
1091 }% the start of the environment

```


end of the environment:

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

Env keysubfloats * [*loc*] {*float type*} {*numcols*} {*keys/values*}

A group of subfloats typeset in rows.

```
1095 \NewDocumentEnvironment{keysubfloats}{s O{tbp} m m +m}
1096 {%
1097   \KFLT@keysubfloats{#1}{#2}{#3}{#4}{#5}%
1098 }{%
1099   \endKFLT@keysubfloats%
1100 }
```

Env keysubfigs * [*loc*] {*numcols*} {*keys/values*}

A group of subfigures typeset in rows.

```
1101 \NewDocumentEnvironment{keysubfigs}{s O{tbp} m +m}
1102 {%
1103   \KFLT@keysubfloats{#1}{#2}{figure}{#3}{#4}%
1104 }{%
1105   \endKFLT@keysubfloats%
1106 }
```

Env keysubtabs * [*loc*] {*numcols*} {*keys/values*}

A group of subtables typeset in rows.

```
1107 \NewDocumentEnvironment{keysubtabs}{s O{tbp} m +m}
1108 {%
1109   \KFLT@keysubfloats{#1}{#2}{table}{#3}{#4}%
1110 }{%
1111   \endKFLT@keysubfloats%
1112 }
```

3.27 Margin floats

Env KFLT@marginfloat [*offset*] {*type*}

```
1113 \newsavebox{\KFLT@marginfloatbox}
1114
```



```

1115 \NewDocumentEnvironment{KFLT@marginfloat}{0{-1.2ex} m}
1116 {% start
1117   \FloatBarrier% keep floats in order
1118   \KFLT@envignorespaces%
1119   \begin{lrbox}{\KFLT@marginfloatbox}%
1120   \begin{minipage}{\marginparwidth}%
1121   \captionsetup{type=#2}%
1122   \hbox{}\vspace*{#1}%
1123   \noindent%
1124   \normalcolor\reset@font\normalsize%
1125 }% start
1126 {% end
1127   \end{minipage}%
1128   \end{lrbox}%
1129   \marginpar{\usebox{\KFLT@marginfloatbox}}%
1130   \KFLT@envignorespaces%
1131 }% end

```

Provided in case `tufte-book` is not loaded:

Env `marginfigure` [*⟨offset⟩*]

```

1132 \ProvideDocumentEnvironment{marginfigure}{0{-1.2ex}}
1133 {\begin{KFLT@marginfloat}[#1]{figure}}
1134 {\end{KFLT@marginfloat}}

```

Env `marginable` [*⟨offset⟩*]

```

1135 \ProvideDocumentEnvironment{marginable}{0{-1.2ex}}
1136 {\begin{KFLT@marginfloat}[#1]{table}}
1137 {\end{KFLT@marginfloat}}

```

3.28 Wrapped floats

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

```

1138 \newboolean{KFLT@keywrap}
1139 \boolfalse{KFLT@keywrap}

```

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

```

1140 \newlength{\KFLT@keywrapwidth}

```

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

```

1141 \newlength{\KFLT@keywrapparskip}

```


Len \KFLT@keywrapparindent The \par indent outside of the keywrap.

```
1142 \newlength{\KFLT@keywrapparindent}
```

Env keywrap $\{\langle width \rangle\} \{\langle keyfloat \rangle\}$

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

```
1143 \DeclareDocumentEnvironment{keywrap}{m +m}%
1144 {%
1145   \par\noindent%
1146   \setlength{\KFLT@keywrapwidth}{\linewidth}%
1147   \addtolength{\KFLT@keywrapwidth}{-#1}%
1148   \addtolength{\KFLT@keywrapwidth}{-2em}%
1149   \minipage[t]{\KFLT@keywrapwidth}%
1150 %
1151   \setlength{\parskip}{\KFLT@keywrapparskip}%
1152   \setlength{\parindent}{\KFLT@keywrapparindent}%
1153   \booltrue{KFLT@keywrap}%
1154 }
1155 {%
1156   \par%
1157   \endminipage%
1158   \hfill%
1159   \begin{minipage}[t]{#1}%
1160     \booltrue{KFLT@keywrap}%
1161     \normalcolor\reset@font\normalsize%
```

Inside this minipage, temporarily prevent underfull \hbox warnings:

```
1162   \hbadness=10000\relax%

1163   #2%
1164   \par%
1165   \unskip\vspace{\smallskipamount}%
1166   \end{minipage}%
1167   \par%
1168 }
1169
1170 \BeforeBeginEnvironment{keywrap}{%
1171   \setlength{\KFLT@keywrapparskip}{\parskip}%
1172   \setlength{\KFLT@keywrapparindent}{\parindent}%
1173 }
```


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