

Package hvfloat

Rotating and scaling of objects and captions ver 2.15

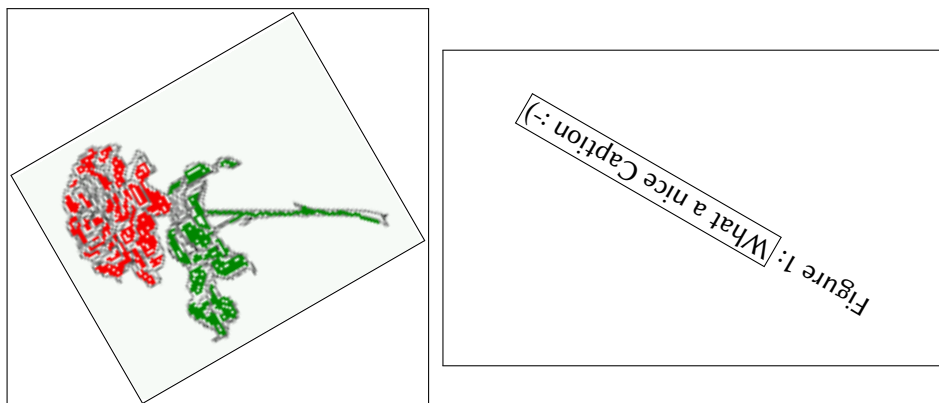
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The package hvfloat defines a macro to place objects and captions of floats in different positions with different rotating angles.

All objects and captions are framed on the first pages, which is only for some demonstration here and has no additional sense!

To compare the place of the definition of the floating objects in the source and the output a marginnote `\float` is set into the margin. This is done also only for demonstration!



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1 The package options

- fbox The objects and captions are put into a `\fbox` command, like in this documentation. This doesn't make real sense and is only for some demonstration useful or for locating problems if images seems to have too much whitespace.
- hyperref Load package `hyperref`.

The length `\belowcaptionskip` is set by \LaTeX to 0pt and changed in `hvfloat` to the same value than `\abovecaptionskip`. This length can be changed to another value in the usual way with `\setlength` or `\addtolength`.

The following packages are loaded by `hvfloat` and the optional argument `hypcap` is passed to the packages `caption` and `subcaption`:

`caption`, `subcaption`, `atbegshi`, `expl3`, `multido`, `graphicx`, `xkeyval`, `ifoddpage`, and `afterpage`.

2 The Macros and optional arguments

The syntax for the macros and `\setDefault`s, `\hvSet`, and `\hvFloat` is

```
\hvset{key=value list}
\setDefault
\hvFloat* [Options] + {float type}{floating object}[short caption] {long caption}{label}
```

The star version is explained in section 11 on page 24 and 19.2 on page 52 and the optional `+` is explained in section 17.3 on page 39.

`\hvSet` allows the global setting of keywords and `\setDefault`s sets all keywords to its default value as shown in Table 2 on the next page.

If `\hvFloat` has an empty second parameter `<float type>`, then `\hvFloat` switches by default to a nonfloat (see table 2) object, which is not important for the user. All other parameters may also be empty and the short caption as second optional parameter missing. This one is as usual the caption for the `\listoffigures`.

There are some more macros defined, more or less for internally use in `hvfloat`, but they can be used for own purposes.

```
\figcaption[short caption text]{caption text}
\tabcaption[short caption text]{caption text}
```

They are used for the `nonFloat` keyword, where these macros write captions in the same way but outside of a float environment. The default caption cannot be used here. It is no problem to use the `\tabcaption` command to place a caption anywhere, like here in an inlined mode:

Table 1: A Caption without any sense and any object

A label can be put inside the argument or after the command in the usual way, so that a reference to the not existing table 2 is no problem.

2 The Macros and optional arguments

[...] It is no problem to use the `\verb|\tabcaption|` command to place a caption anywhere, like here in an `inlined` mode: `\tabcaption[The Caption without sense ...]{A Caption without any sense and any object}\label{dummy}` A label can be put inside the argument or after the command in the usual way, so that a reference to the not existing table-`\ref{dummy}` is no problem.

With the macro `\defhvstyle` one can define a style which can be used instead of the individual setting:

`\defhvstyle{name}{setting}`

Internally the style is saved in a macro named `\hv@<name>`.

There are the following keywords:

Table 2: The optional keywords for the macro `\hvFloat`

Keyword	Default	Description
<code>floatPos</code>	<code>htb</code>	This is <i>not</i> the same default placement setting like the one from the floats.
<code>rotAngle</code>	<code>0</code>	The value for the angle if both, the object and the caption should be rotated in the same way.
<code>capWidth</code>	<code>n</code>	The width of the caption. Can be <code>»n«</code> like a natural width, <code>»w«</code> for the width of the object, <code>»h«</code> for the height of the object, or a scale for <code>\columnwidth</code> .
<code>capAngle</code>	<code>0</code>	The value for the angle if the caption should be rotated. Counted anti clockwise.
<code>capPos</code>	<code>before</code>	The position of the caption relative to the object. Possible values are before: <i>always</i> before (left) from the object. left: <i>always</i> before (left) from the object, but on the <i>same page</i> in twocolumn mode. after: <i>always</i> after (right) from the object. right: <i>always</i> after (right) from the object, but on the <i>same page</i> in twocolumn mode. inner: in twoside mode always typeset at the inner margin. outer: in twoside mode always typeset at the outer margin. evenPage: in twoside mode with fullpage objects always on an even page. oddPage: in twoside mode with fullpage objects always on an odd page.
<code>capVPos</code>	<code>c</code>	This is only important for <code>capPos=left right</code> . Only in this case the caption can vertically placed at the bottom, center and top.
<code>objectPos</code>	<code>center</code>	The horizontalplacement of the object relative to the document. Possible values are (l) eft (c)enter (r)ight.
<code>objectAngle</code>	<code>0</code>	The value for the angle if the object should be rotated. Counted anti clockwise.

<i>Keyword</i>	<i>Default</i>	<i>Description</i>
floatCapSep	5pt	The additional width between the object and a left or right placed caption.
use0Box	false	Instead of passing the object as parameter to the <code>\hvFloat</code> , the contents maybe saved in the box <code>\hv0Box</code> . With <code>use0Box=true</code> the contents of this box will be used.
nonFloat	false	The object isn't put in a floating environment. It is printed as standard text with an additional caption. The float counters are increased as usual and can be referenced.
wide	false	The float can use <code>\textwidth+\marginparwidth</code> as horizontal width.
objectFrame	false	put a frame with no separation around the float object.
style	–	Use a defined style
capFormat	–	Define formatting options for <code>\caption</code> (see documentation of package <code>caption</code>).
subcapFormat	–	Define formatting options for <code>\subcaption</code> .

3 The default use of floating environments

In this case there is no essential difference to the well known figure or table environment, f.ex.:

```
\begin{figure}
... object ...
\caption{...}% caption below the object
\end{figure}
```



Figure 2: Without any keywords (only the `fbox` package option)

Code for figure 2:

```
\hvFloat{figure}{\includegraphics{images/rose}}{Without any keywords (only the \texttt{fbox}
package option)}{fig:0}
```

Code for table 3:

`float`

4 Caption width

Table 3: With the only Option capPos=top to place the caption on top of the table, which is often the default.

Name	Type	Description
\hvFloat	command	places object and caption in different ways
hvFloatEnv	environment	places object and caption exactly Here
\figcaption	command	writes a figure caption in a non floating environment
\tabcaption	command	writes a table caption in a non floating environment
\setDefaultts	command	sets all options to the defaults
\defhstyle	command	define a user style

```
\hvFloat[capPos=top]{table}{%
\begin{tabularx}{\textwidth}{>{\ttfamily}l|l|X}
\rmfamily Name & Type & Description\\ \hline
\CMD{hvFloat} & command & places object and caption in different ways\\
hvFloatEnv & environment & places object and caption exactly Here\\
\CMD{figcaption} & command & writes a figure caption in a non floating environment\\
\CMD{tabcaption} & command & writes a table caption in a non floating environment\\
\CMD{setDefaultts} & command & sets all options to the defaults\\
\CMD{defhstyle} & command & define a user style
\end{tabularx}}%
{With the only Option \texttt{capPos=top} to place the caption on top of the table, which is often
the default.}%
\tab:0}
```

See section 14 for some more informations about tabulars as objects.

4 Caption width

4.1 Default – natural width

The default setting is the natural width of a paragraph with respect to the current linewidth or columnwidth for a caption below or above an object. It behaves in the same way as a caption set by one of the default floating environments like figure or table:

```
\hvFloat[floatPos=!htb]{figure}{\includegraphics{images/rose}}%
{Default caption width setting, which is the natural width with respect to the current linewidth
.}{fig:width0}
```

float

For the following examples the package option fbox is disabled. All frames are now set with the macro \frame or the optional keyword objectFrame.

For a caption beside an object, the *natural* caption width (without the optional argument wide) is given by the current linewidth minus the width of the object and the space between object and caption, which is set by floatCapSep (see Table 2 on page 8).

```
\hvFloat[floatPos=!htb,capPos=after,objectFrame]{figure}{\includegraphics[scale=1.5]{images/rose}}
%
```

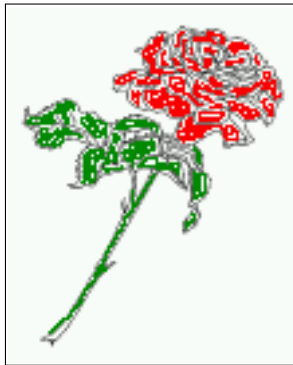


Figure 3: Default caption width setting, which is the natural width with respect to the current linewidth.

{Caption right beside with a `\emph{natural}` width, which is given by the width of the object, the separation between object and caption, and the current linewidth.}{fig:width1}

float

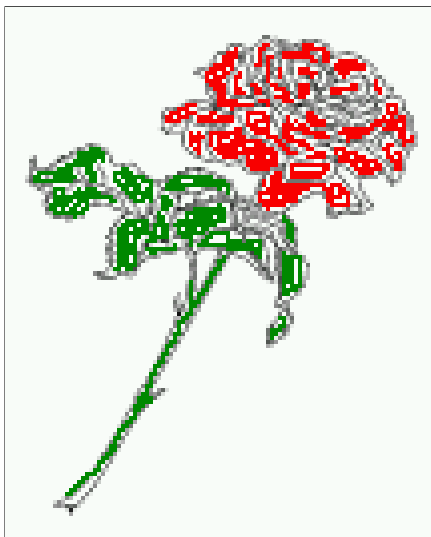


Figure 4: Caption right beside with a *natural* width, which is given by the width of the object, the separation between object and caption, and the current linewidth.

4.2 Relative linewidth

With `capWidth=<number>` the caption width is set to `<number>\columnwidth`. For captions at the bottom or on top of objects the setting is not checked if `<number>` is greater than 1.

```
\hvFloat[floatPos=!htb,capWidth=0.9]{figure}{\includegraphics{images/rose}}%
{Caption below with a width of 0.9 of the current line width (column width), which is
in this special case \the\linewidth. Divide it by 28.82 to get cm.}{fig:width2}
```

float

4 Caption width



Figure 5: Caption below with a width of 0.9 of the current line width (column width), which is in this special case 376.4258pt. Divide it by 28.82 to get cm.

If such a value like 0.9\linewidth is used for a caption beside an object, then the macro does a test if the space beside the object is less equal the defined caption width. If not then the width is set to the possible value between object and margin:

```
\hvFloat[floatPos=!htb,  
    capPos=after,  
    capWidth=0.9]{figure}{\includegraphics[scale=1.5]{images/rose}}%  
{Caption right beside with a width setting of  $0.9\text{\textbackslashlinewidth}$   
which is too big for this example and therefore corrected  
by the macro to the maximal width.}{fig:width3}
```

float

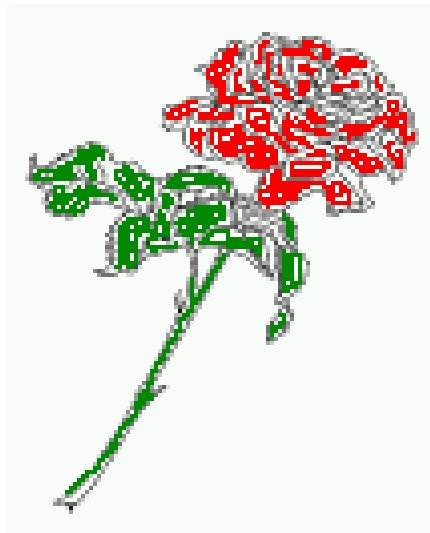
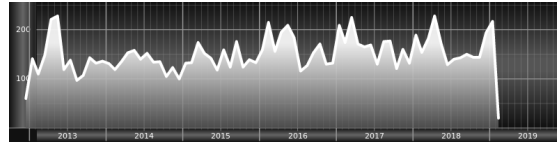


Figure 6: Caption right beside with a width setting of 0.9\linewidth which is too big for this example and therefore corrected by the macro to the maximal width.

4.3 Identical object and caption width

With `capWidth=w` the caption width is like the object width which makes only real sense if you have a lot of identical images with respect to its widths.

```
\hvFloat[floatPos=!htb, capWidth=w]{figure}{\includegraphics[width=0.5\linewidth]{images/CTAN}}%
{Caption below with a width of the given object which may be a problem
if it is a very small object.}{fig:width4}
```



float

Figure 7: Caption below with a width of the given object which may be a problem if it is a very small object.

4.4 caption width to height of the object

With `capWidth=h` the caption width is like the object height which makes only real sense if you want to put a rotated caption beside the object.

```
\hvFloat[floatPos=!htb, capPos=after, capWidth=h, capAngle=90, objectFrame]{figure}{\includegraphics{
images/rose}}%
{Caption beside with a width of the given object height which may be a problem
if it is a very small object.}{fig:width5}
```



Figure 8: Caption beside with a width of the given object height which may be a problem if it is a very small object.

5 Caption left or right of the object

By default the caption is set on the left side of the object. If the caption and the object are set side by side, then the keyvalue before is identical to the setting left.

5.1 Caption right with specific length

Code for figure 9:

```
\hvFloat%
[ floatPos=htb,
  capPos=right,
  objectFrame,
  objectPos=c]{figure}{\includegraphics[scale=0.9]{images/rose}}%
[Caption beside object and vertically centered]%
{Caption vertically centered right beside the float with a natural caption width
(the default). \blindtext}%
{fig:1}
```

float
capPos=right



Figure 9: Caption vertically centered right beside the float with a natural caption width (the default). Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

5.2 Caption left and rotated

Code for figure 10:

```
\hvFloat%
[ floatPos=htb,
  capPos=left,
  capWidth=h,% of \columnwidth
  capAngle=90,
  objectFrame
]{figure}{\includegraphics{images/rose}}%
[Centered Caption beside Object]%
{Caption vertically centered left beside the float with a caption width
of \texttt{capWidth=h}, which is the height of the object.}{fig:2}
```

float
capAngle=90

It is no problem to rotate the object, too. But with a different angle value than for the caption. Do not ask for the sense, it is only a demonstration of what is possible ... The object (image) is rotated by -30 degrees with the macro `\rotatebox`. Without any definition the caption will be placed vertically centered to the object. Important for the height of the object is the surrounding orthogonal rectangle.

Figure 10: Caption vertically centered left beside the float with a caption width of `capWidth=h`, which is the height of the object.



Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Code for figure 11:

```
\hvFloat[%
  capWidth=h,
  capPos=after,
  capAngle=180,
  objectAngle=90,
  capVPos=center,
  objectPos=center]{figure}{\frame{\includegraphics{images/rose}}}%
[Centered Caption beside Object]{%
{Caption vertically centered right beside the float with a caption width of the height
of the image and a rotation of the caption and the object.}}{fig:3}
```

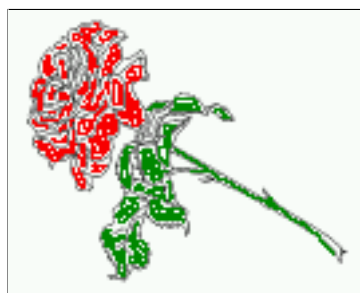


Figure 11: Caption vertically centered right beside the float with a caption width of the height of the image and a rotation of the caption and the object.

float

6 Caption inner or outer

Setting the caption position to *inner* or *outer* makes only sense for a document in twoside mode. For a oneside document *inner* is the same as *left* and *outer* is the same as *right*. We show only

6 Caption inner or outer

the code for the first image with the setting `capPos=inner` , whereas the second one chooses only `capPos=outer` .

Code for figure 12:

```
\hvFloat[capPos=inner]{figure}{\includegraphics{images/rose}}%  
[Centered Caption on the inner side]{%  
Caption set with the parameter setting \texttt{capPos=inner}, which will be  
a caption on the right side for an even page and on the left side for  
an odd page.}{fig:20}
```

float
capPos=inner



Figure 12: Caption set with the parameter setting `capPos=inner`, which will be a caption on the right side for an even page and on the left side for an odd page.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Now the same Image with `capPos=outer` . The current `pagenumber` is 16, an even page. We now set a `pagebreak` at the end of the second image to see if it works with *inner/outer*.

```
\hvFloat[capPos=outer]{figure}{\includegraphics{images/rose}}%  
[Centered Caption on the inner side]{%  
Caption set with the parameter setting \texttt{capPos=outer}, which will be  
a caption on the right side for an even page and on the left side for  
an odd page.}{fig:20b}
```

floatfloat
capPos=outer

We have an even page, the reason why figure 13 has the caption for *inner* on the left side and figure 14 for *outer* on the right side.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Code for figure 15:



Figure 13: Caption set with the parameter setting capPos=outer, which will be a caption on the right side for an even page and on the left side for an odd page.



Figure 14: Caption at the bottom right beside the float with a caption width of 0.5\columnwidth and and capPos=outer.

```
\hvFloat[%
  capWidth=0.5,% of \columnwidth
  capPos=inner,% ==> INNER
  capAngle=0,
  capVPos=bottom,
  objectPos=center]{figure}{\includegraphics{images/rose}}%
  [Centered Caption beside Object]{%
  Caption vertically centered right beside the float with a caption
  width of \texttt{0.5\textbackslashcolumnwidth} and \texttt{capPos=outer} }{fig:22}
```

float

Figure 15: Caption vertically centered right beside the float with a caption width of 0.5\columnwidth and capPos=outer



We have an odd page, the reason why figure 12 has the caption for *inner* on the right side and figure 14 for *outer* on the left side.

7 Vertical Position of the Caption

The caption can be placed beside the object in the positions

(c)enter|(b)ottom|(t)op

The code for figure 16:

```
\hvFloat[%  
    floatPos=htb,%  
    capWidth=0.25,%  
    capPos=right,%  
    capVPos=bottom,%  
{figure}{\frame{\includegraphics{images/rose}}}{Caption at bottom right beside the float}{fig:4}
```

float

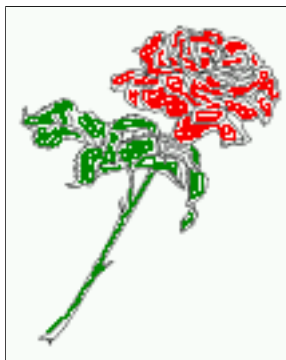


Figure 16: Caption at bottom right beside the float

The code for figure 17:

```
\hvFloat[%  
    floatPos=htb,  
    capWidth=0.25,  
    capPos=right,  
    capVPos=top,  
{figure}{\frame{\includegraphics{images/rose}}}{Caption at top left beside the float}{fig:5}
```

float

Figure 17: Caption at top left beside the float



The code for figure 18:

```
\hvFloat[%
  capWidth=0.25,
  capPos=right,
  capVPos=center,% the default
]{figure}{\frame{\includegraphics{images/rose}}}{Caption centered right beside the float}{fig:6}
```

float



Figure 18: Caption centered right beside the float

8 Caption format

The `\caption` and `\subcaption` macros are fully under the control of the package `caption`. The formatting can be set with the macros `\captionsetup`, `\subcaptionsetup`, or via the optional argument setting of `\hvFloat` with the keywords `capFormat` and `subcapFormat`. The argument itself will then be used internally by `\captionsetup` and/or `\subcaptionsetup` in a minipage, the reason why it will be local to the current image..

```
\hvFloat[%
  capPos=right,
  capFormat={labelsep=newline,justification=RaggedRight,font={small,it},labelfont=bf}
]{figure}{\frame{\includegraphics{images/rose}}}{\blindtext}{fig:66}
```

float



Figure 19

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

9 Horizontal Position of the Float

The caption is always near the object, only divided by the length `\floatCapSep` which can be set by the keyword of the same name `floatCapSep`. It accepts only a value with any allowed unit. The keyword `objectPos` refers always to the complete floating object: caption *and* object. The meaning of `objectPos=left` is: Put the object as far as possible to the left margin. If `capPos=left` is also used, then the caption is at the left margin followed by the object (see Figure 21 on the next page).

The code for figure 20:

```
\hvFloat[%
  capWidth=0.25,
  capPos=right,
  capVPos=top,
  objectPos=left,
  objectFrame,
]{figure}{\includegraphics{images/rose}}{%
  Caption at top right beside the float and object position left}{fig:7}
```

float



Figure 20: Caption at top right beside the float and object position left

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

The same with `capPos=left` :

float
capPos=left

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Figure 21: Caption at top right beside the float and object position left



The code for figure 22:

```
\hvFloat[%
  capWidth=0.25,
  capPos=before,
  capVPos=top,
  objectPos=right,
  objectFrame,
]{figure}{\includegraphics{images/rose}}{%
  Caption at top leftt beside the float and object position right}{fig:8}
```

Figure 22: Caption at top left beside the float and object position right



float

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

10 Wide floats

With the optional argument wide the width of the defined `\marginparwidth` is added to the allowed horizontal width of the float.

10 Wide floats

The code for figure 23:

```
\hvFloat[wide,  
  capPos=right,  
  capVPos=top,  
  objectPos=left,  
{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{%  
  Caption at top right beside the float and object position left and  
the option \texttt{wide}.}{fig:70}
```

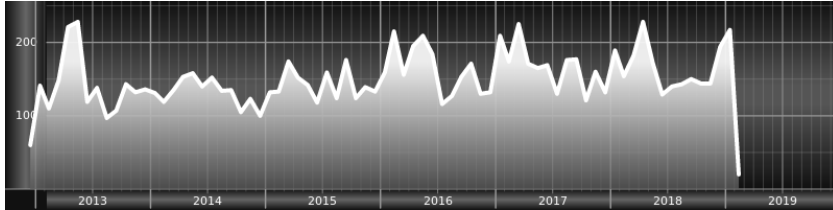
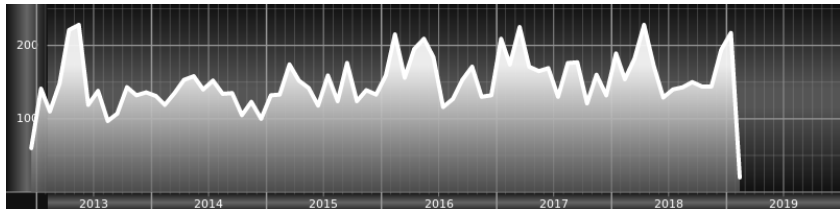


Figure 23: Caption at top right beside the float and object position left and the option wide.

The code for figure 24:

```
\hvFloat[wide,  
  capPos=left,  
  capVPos=top,  
  objectPos=right,  
{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{%  
{Caption at top left beside the object and object position left and  
the option \texttt{wide}.}{fig:80}
```

Figure 24: Caption at top left beside the object and object position left and the option wide.



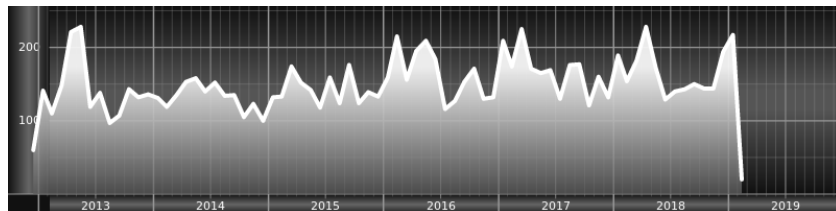
For a twosided document it will place the object always in the margin.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

```
\hvFloat[wide,  
  capPos=inner,  
  capVPos=top,  
{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{%  
Caption at top and inner beside the float and object position right and
```

the option `\texttt{wide}.`{fig:81}

Figure 25: Caption at top and inner beside the float and object position right and the option wide.

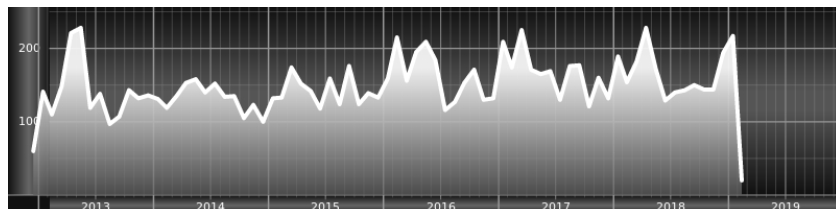


Now we set the same image with the same setting on the next page. The caption will change its side due to the setting `capPos=outer`.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

```
\hvFloat[wide,
  capPos=inner,
  capVPos=top,
]{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{%
Caption at top inner beside the float and object position right and
the option \texttt{wide}.
```

Figure 26: Caption at top inner beside the float and object position right and the option wide.

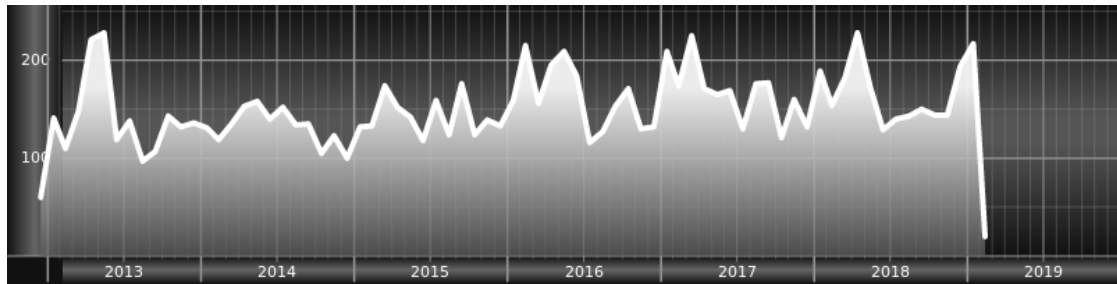


The caption can be typeset completely into the margin with:

```
\captionsetup{justification=RaggedRight}
\hvFloat[wide,
  capPos=outer,
  capVPos=top,
  floatCapSep=\marginparsep,
]{figure}{\includegraphics[width=\linewidth]{images/CTAN}}{%
Caption at top inner beside the float and object position right and
the option \texttt{wide}.
```

12 Full Page Width in Landscape Mode

Figure 27:
Caption at top
inner beside the
float and object
position right
and the option
wide.



11 The star version \hvFloat*

In the twocolumn mode the floating environment can be set over both columns with the star version `\hvFloat*`. The floating environment will not be on the bottom of the page. The code for the following example (Figure 28) is:

```
\hvFloat*[capPos=right]{figure}%  
{\includegraphics{images/rose}}%  
[A float with the default caption setting]%  
{A default caption of a '' object with the default setting, which  
is a ''left'' caption which means that it always appears before the object.  
This can be an even or odd page. And some more text which has no  
real meaning because it fills only the space for a long caption.}%  
{fig:0}
```

The example shows on page 3 the star version and on page 4 the same without using the star.

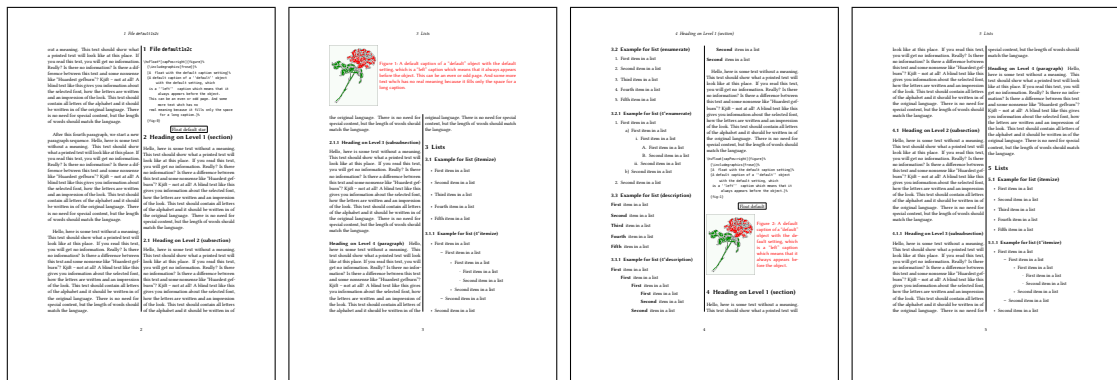


Figure 28: Output of default1s2c (pages 2–5)

12 Full Page Width in Landscape Mode

If you do not want to load the package `lscape` (or `pdfscape`) you can use the `floatPos=p` option to put the image on an own page and rotated by 90 degrees (figure 29).

Code for figure 29:


```

\hvFloat[%
    floatPos=p,
    capPos=bottom,
    rotAngle=90,
    objectPos=center,
]{figure}{\includegraphics[width=0.9\textheight]{images/CTAN}}%
    [Object and Caption in landscape mode]{%
    Caption and object in landscape mode. \blindtext}{fig:9}

```

The float can also be put to the left or to the right (above/below in landscape) with the `objectPos=l` parameter

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

float landscape

The code for figure 30:

```

\hvFloat[%
    floatPos=p,
    capWidth=h,
    capPos=right,
    objectAngle=90,
    capAngle=-90,
    objectPos=left,
]{figure}{\includegraphics[width=\textheight]{images/CTAN}}%
    [Rotated Caption in Landscape]{%
    Caption right beside the float and object position left. The caption rotated by $-90$
    degrees.\blindtext}{fig:10}

```

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

float

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

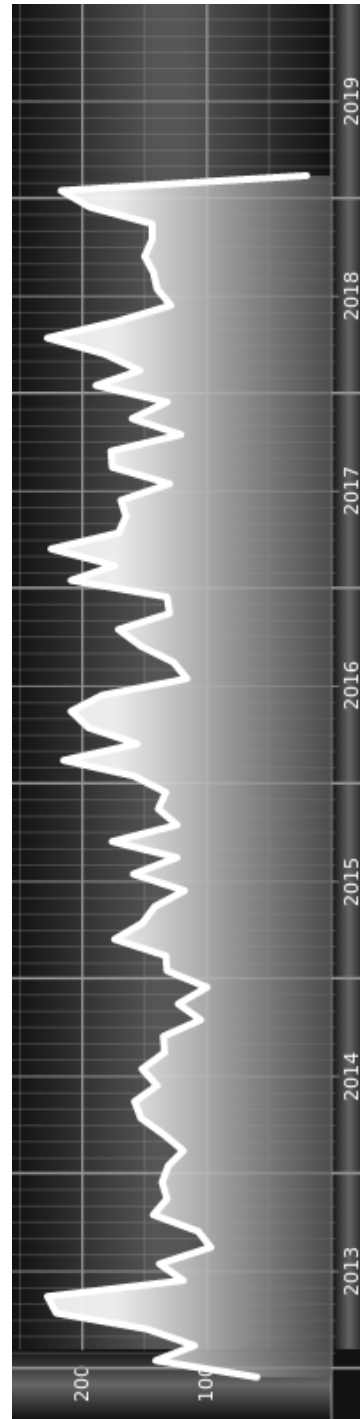
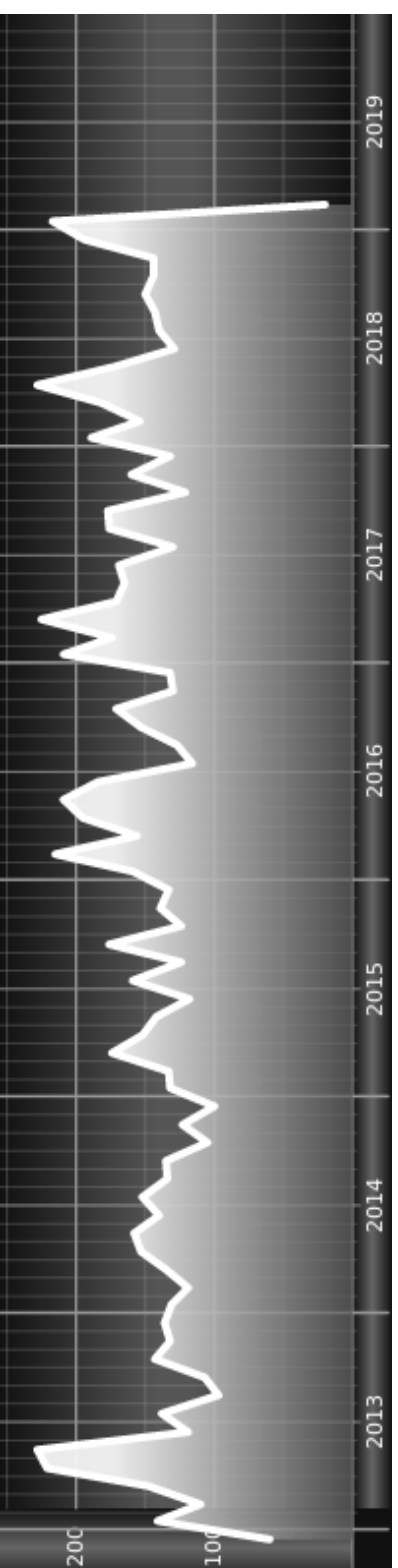


Figure 29: Caption and object in landscape mode. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Figure 30: Caption right beside the float and object position left. The caption rotated by -90 degrees. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.



13 The nonFloat Option

Sometimes it is better to put a “float” in a specific position of the page. This is possible with the nonfloat package and the keyword nonFloat.

Some nonsense text before the following `\emph{non floating}` object.

```
\hvFloat[%
  nonFloat,
  capWidth=0.25,
  capPos=right,
  capVPos=bottom,
  objectPos=center,
  objectFrame,
]{figure}{\includegraphics[scale=1.5]{images/rose}}%
[Nonfloat Captions]{%
  Caption of a “nonfloat” Object, using the \texttt{nonfloat} Package}{fig:11}
```

Some nonsense text after the preceding `\emph{non floating}` object.

`\float`

Some nonsense text before the following *non floating* object.

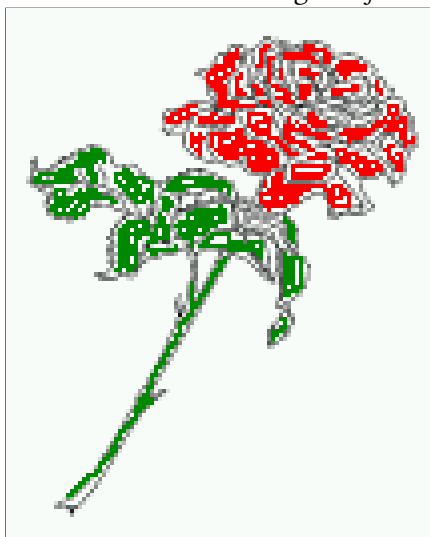


Figure 31: Caption of a “nonfloat” Object, using the nonfloat Package

Some nonsense text after the preceding *non floating* object.

The image 13 is exactly placed where the command `\hvFloat` appears. There are only commands for figure and table environments:

```
\newcommand{\figcaption}{\def\@capttype{figure}\caption}
\newcommand{\tabcaption}{\def\@capttype{table}\caption}
```

But it is no problem, to define more xxxcaption commands to support other with the float package defined new floats.

14 Tabulars as Objects

The object has to be passed as an parameter to the `\hvFloat` macro. This is no problem with images but maybe with tables, so it is easier to use the box `\hv0Box` to save the table in this box and pass it then to `\hvFloat` with the `use0Box` option. For example see table 4 and 5:

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

```
\savebox{\hv0Box}{%
\begin{tabular}{>{\small\ttfamily}l|l|l}\hline
\rmfamily Name      & Type      & Description\\\hline
\CMD{hvFloat} & command      & places object and caption in different ways\\
hvFloatEnv    & environment & places object and caption exactly Here\\
\CMD{figcaption} & command      & writes a figure caption in a non floating environment\\
\CMD{tabcaption} & command      & writes a table caption in a non floating environment\\
\CMD{setDefault} & command      & sets all options to the defaults\\\hline
\end{tabular}%
}
```

The code for table 4 and 5 is:

```
\hvFloat[%
floatPos=!hb,
capPos=top,
use0Box=true]{table}{\texttt{use0Box} Parameter}{table:1}

\blindtext

\hvFloat[%
floatPos=hb,
use0Box=true,
objectAngle=90,
capPos=right,
capVPos=top,
capWidth=0.3]{table}{\texttt{use0Box} Parameter}{table:2}
```

In this case leave the third parameter empty.

float

15 Text and objects

With the `onlyText` keyword it is no problem to put some text beside an image without getting the caption title Figure/Table. The object still can be a floating one or a nonfloating if the `nonfloat` keyword is used.

The code for figure 15:

Table 4: Demonstration of the use0Box Parameter

Name	Type	Description
\hvFloat	command	places object and caption in different ways
hvFloatEnv	environment	places object and caption exactly Here
\figcaption	command	writes a figure caption in a non floating environment
\tabcaption	command	writes a table caption in a non floating environment
\setDefaultts	command	sets all options to the defaults

Name	Type	Description
\hvFloat	command	places object and caption in different ways
hvFloatEnv	environment	places object and caption exactly Here
\figcaption	command	writes a figure caption in a non floating environment
\tabcaption	command	writes a table caption in a non floating environment
\setDefaultts	command	sets all options to the defaults

Table 5: Demonstration of the use0Box Parameter

```
\hvFloat[%  
  onlyText=true,  
  capAngle=90,  
  capPos=right,  
  capVPos=top,
```

```
objectFrame,
capWidth=h]{}{\includegraphics{images/rose}}}%
[‘‘\texttt{onlyText}’’ Caption]{%
  Demonstration of the \texttt{onlyText} Parameter, which makes it
  possible to put some text beside a floating object without getting
  a starting \texttt{Figure:} or \texttt{Table:}}{fig:text}
```



Demonstration of the `onlyText` Parameter, which makes it possible to put some text beside a floating object without getting a starting `Figure:` or `Table:`

float

16 Environment `hvFloatEnv`

With the environment `hvFloatEnv` one can place an object exactly on that position where the environment is defined. For captions the use of `\captionof` is recommended:

```
\begin{hvFloatEnv}
\captionof{table}{A caption for a nice table}
\begin{tabular}{@{} l c r @{}}\hline
left & center & right \\
L & C & R \\
\end{tabular}
\end{hvFloatEnv}
```

Table 6: A caption for a nice table

left	center	right
L	C	R

The environment has an optional argument for setting the line width which is preset to `\textwidth`. The object is always centered.

```
\begin{hvFloatEnv}[0.5\textwidth]
\captionof{table}{A caption for a nice table}
\begin{tabular}{@{} l c r @{}}\hline
left & center & right \\
L & C & R \\
\end{tabular}
\end{hvFloatEnv}
```

Table 7: A caption for a nice table

left	center	right
L	C	R

17 Full page objects in onecolumn mode

For an image or table which needs the whole space of a page the caption can be printed at the bottom of the preceeding or following page. It is possible in oneside and twoside mode, but makes only real sense in the twoside mode. hvfloat defines three additional optional arguments for placing images in a complete column, page or paper:

```
\define@key{Gin}{fullpage}[true]{%           \define@key{Gin}{FullPage}[true]{%
  \def\Gin@ewidth{\columnwidth}%             \def\Gin@ewidth{\textwidth}%
  \def\Gin@eheight{\textheight}%             \def\Gin@eheight{\textheight}%
  \Gin@boolkey{false}{iso}%                   \Gin@boolkey{false}{iso}%
}                                               }
\define@key{Gin}{FULLPAGE}[true]{%
  \def\Gin@ewidth{\paperwidth}%
  \def\Gin@eheight{\paperheight}%
  \Gin@boolkey{false}{iso}%
}
```

Figure 32 on the next page shows the meaning of the optional arguments fullpage, FullPage, and FULLPAGE for `\includegraphics[...]{tiger}`.

17.1 Using the textarea

The setting capPos=evenPage (even) or capPos=oddPage (odd) page for a document in twocolumn mode makes no real sense. For a twosided document a setting like capPos=inner for inner or capPos=outer for outer margin makes more sense. For an image or table which needs the whole space of a page the caption can be printed at the bottom of the preceeding or following page. It is possible in oneside and twoside mode, but makes only real sense in the twoside mode. Without any additional argument the caption is set first and the object on the following page:

17.1.1 Using the default or capPos=before

Without any additional argument the caption is set first (left) at the bottom of the current page and the object on the following page. This is the same setting like capPos=left for a onecolumn document. For the twocolumn option it makes more sense to use the setting capPos=before if the caption and object can appear on different pages.

```
\hvFloat[fullpage]%
{figure}%
{\includegraphics[fullpage]{images/frose}}%
[A fullpage float with the default caption setting]%
{A default caption of a "fullpage" object with the default setting, which
```

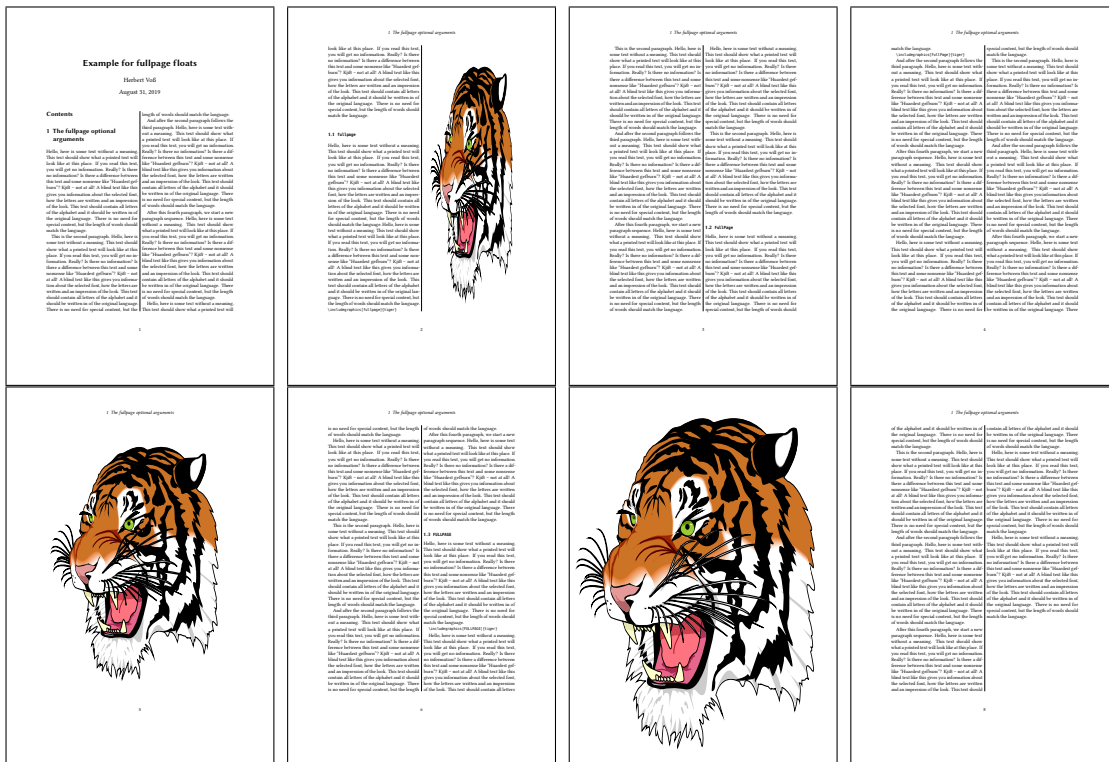



Figure 32: Output of fullpage1s2c (pages 1–8)

is a ‘‘left’’ caption which means that it always appears ‘‘before’’ the object. This can be an even or odd page. And some more text which has no real meaning because it fills only the space for a long caption.}%
`{fig:fullpage0}`

With this setting the caption is always placed *before* the following object. This maybe sufficient for a oneside document but not the best solution if this document is printed on a duplex machine. In such a case it may make sense to have the captions always on an even (left) page, even though the document is typeset in a oneside mode. Figure 33 on the following page shows the output for a oneside document with a setting `capPos=before`.

Depending to the used documentclass it can be a problem, if the caption should be placed on the first page. In such a case use one of the other setting. Table 8 on the next page shows the valid optional arguments for a full page floating object.

17 Full page objects in onecolumn mode

Table 8: Valid optional arguments for a full page object.

Name	Type	Description
fullpage	true false	Put the caption on the bottom of the preceding or following page and the object alone a page.
FULLPAGE	true false	The same for full papersize objects over one or two columns. The pagestyle is set to empty
multiFloat	true false	For multiple objects with captions for every object. See section 17.3 on page 39.
subFloat	true false	For multiple objects with one main and more subcaptions. See section 18 on page 41.
separatorLine	true	Put a line with a predefined width of 0.4pt between the text and the caption. Only valid for the keyword fullpage.
capPos	value	caption before, after an object or on an evenPage or oddPage.

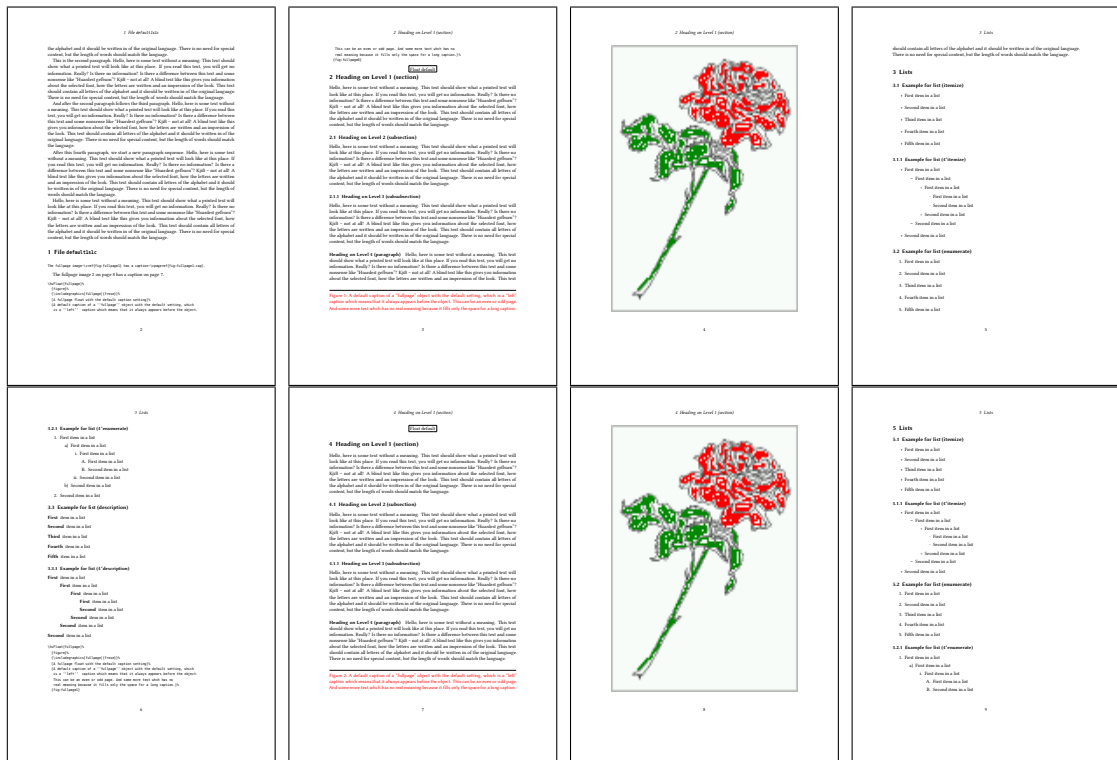


Figure 33: Output of default1s1c (pages 2–9)

17.1.2 Using capPos=after

The caption will be printed always on the right side which is the same as *after* the full page object. The object appears immediately on the next page and the caption of the next following page at the bottom. There is no check for an even or odd page. This behaviour makes only sense for a oneside document.

```
\hvFloat[fullpage, capPos=after]%
{figure}%
{\includegraphics[fullpage]{images/frose}}%
[A float which needs the complete page width and height.]%
{A Caption of a "fullpage" object, which follows on the next page.
This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}
{fig:fullpage}
```

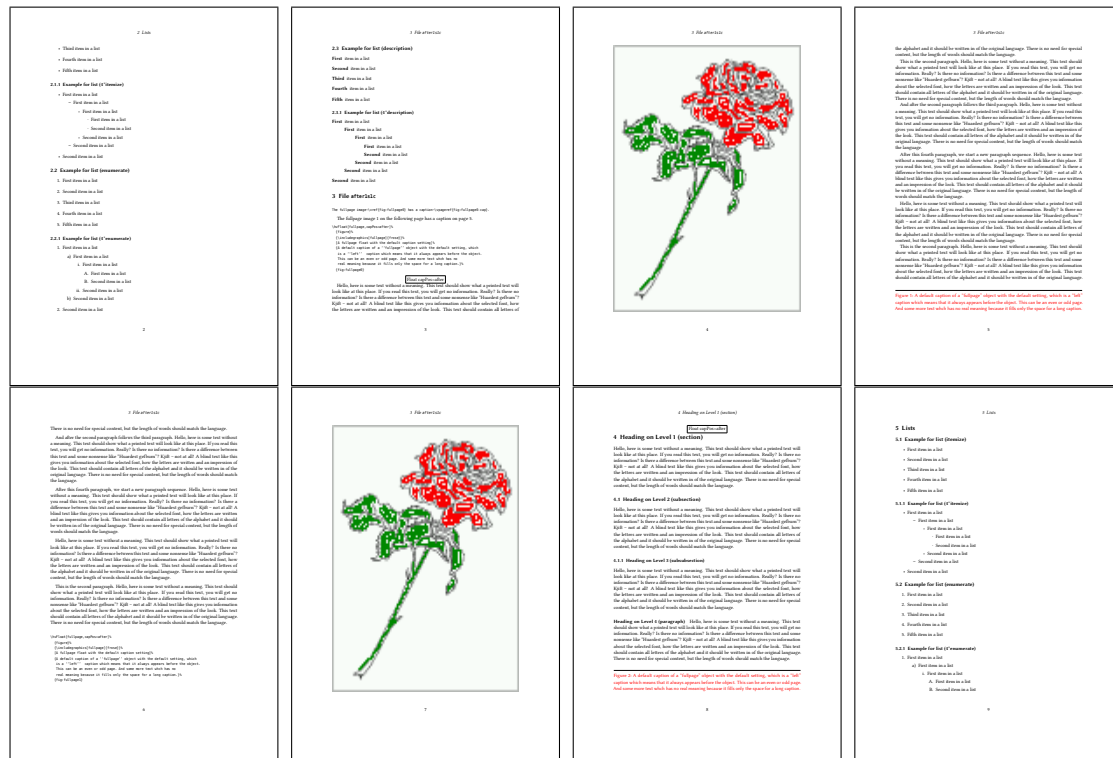


Figure 34: Output of after1s1c (pages 2–9)

17.1.4 Using capPos=oddPage — caption on an odd page

With capPos=oddPage the caption will be printed on an odd (right) page, the object will always be on an even (left) page, which is before the caption.

```
\hFloat[fullpage, capPos=oddPage]%
{figure}%
{\includegraphics[fullpage]{images/frose}}%
[A float which needs the complete page width and height.]%
{A Caption on an odd page of a ‘‘fullpage’’ object, which follows on the next page.
This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}
{fig:fullpage2}
```

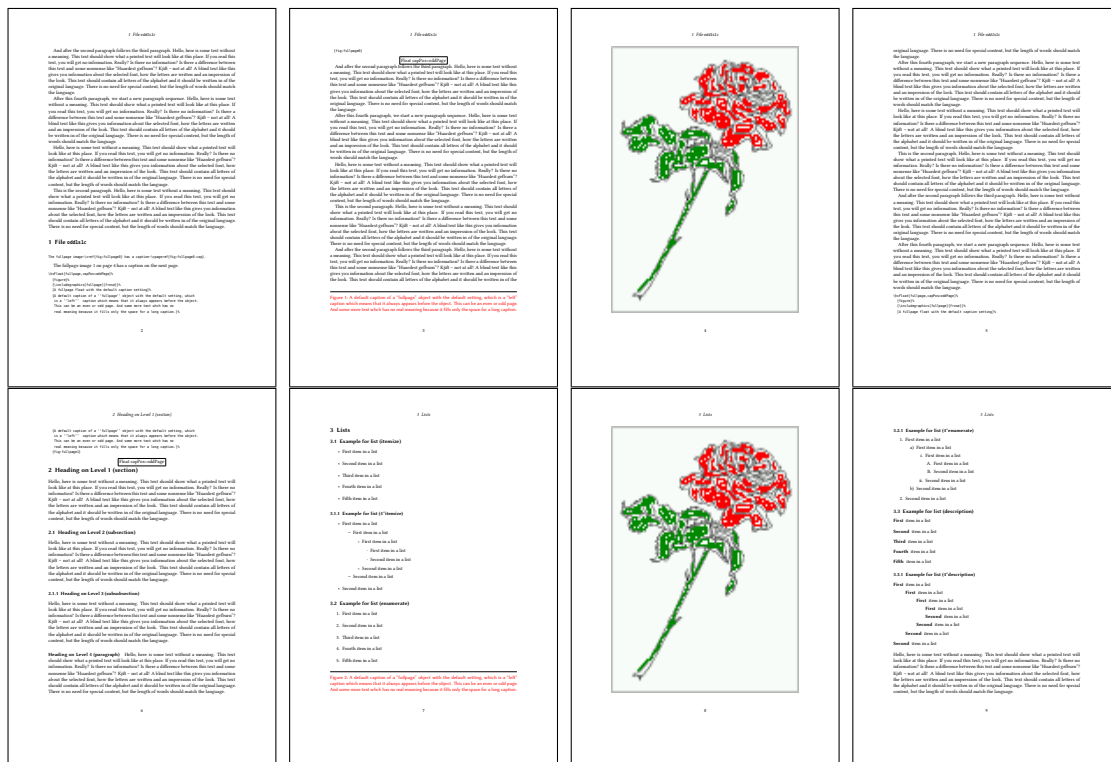


Figure 36: Output of odd1s1c (pages 2–9)

17.1.5 Using capPos=inner or capPos=outer — caption on the inner or outer side

These settings make no sense in onecolumn mode.

17 Full page objects in onecolumn mode

17.2 Using the paper size

It belongs to the user to create an object which fills the complete page. However, with the keyword `FULLPAGE` which is valid for `\hvfloat` and for the macro `\includegraphics` an image will be scaled to the paper dimensions `\paperwidth` and `\paperheight`. It can be used in one- and twocolumn mode!

```
\hvfloat[FULLPAGE]%
{figure}%
{\includegraphics[FULLPAGE]{froese.png}}%
[A fullpage float with the default caption setting]%
{A default caption of a "fullpage" object with the default setting, which
is a "left" caption which means that it always appears before the object.
This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}%
{fig:fullpage0}
```

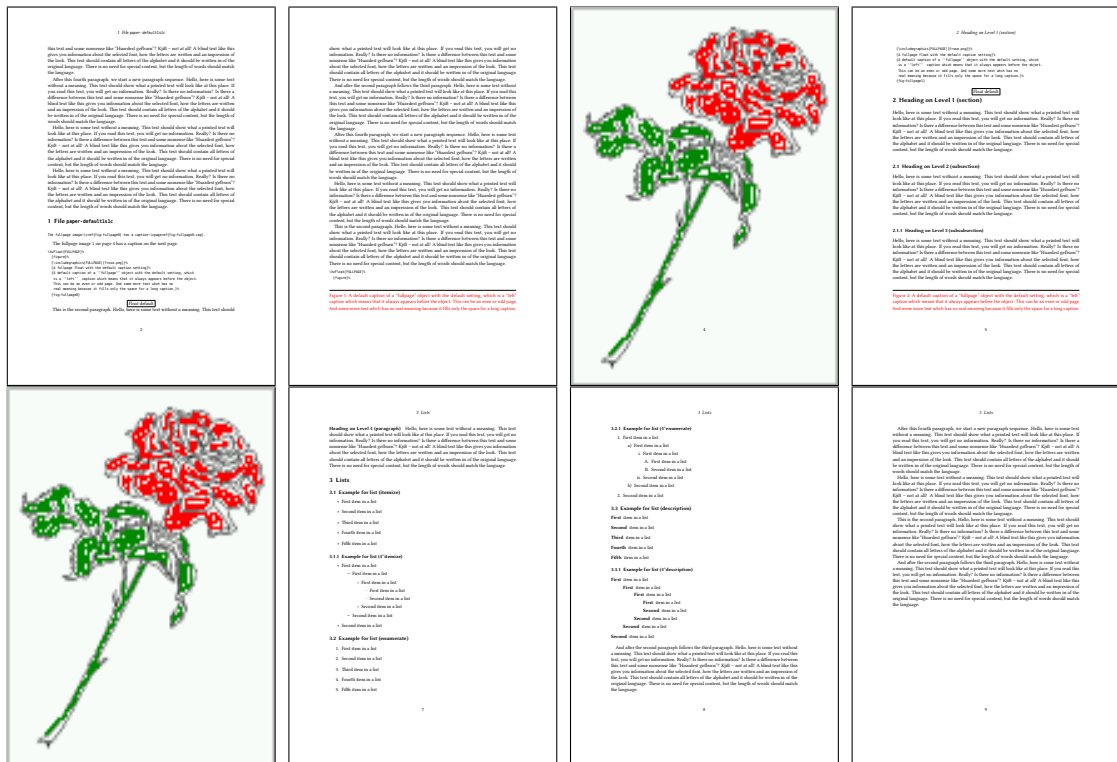


Figure 37: Output of paper-default1s1c (pages 2–9)



Figure 38: Output of paper-after1s1c (pages 2–9)

17.3 Multifloats

Multifloats is the name for more than one image and/or tabular in *one* floating environment. Every image and/or tabular has its own caption, which is different to a subcaption. The syntax for multiple floats is

```
\hvfFloat [Options] +{float type}{floating object} [short caption] {long caption}{label}
+{float type}{floating object} [short caption] {long caption}{label}
+...
+{float type}{floating object} [short caption] {long caption}{label}
```

The + symbol defines an additional Object which will be part of the same floating environment. It's up too the user to be sure that one page or one column can hold all defined objects. Every object gets its own caption which is the reason why figures and tabulars and ... can be mixed:

```
\captionsetup{singlelinecheck=false}
\hvfFloat[fullpage,capPos=before,multiFloat]%
+{figure}{\includegraphics[width=\Linewidth]{images/CTAN}}%%
[Short caption A]%
{A Caption A of a "fullpage" object, which follows on the left or
right column. This can be an even or odd page. And some more text which has no
```


17 Full page objects in onecolumn mode

```

real meaning because it fills only the space for a long caption.}%
{img:demo0}%
+{table}{\begin{tabular}{lrcp{3cm}}\hline                                %              no 2
    Linksbündig & Rechtsbündig & Zentriert & Parbox\\\hline
    L            & R            & C            & P\\
    left         & right        & center       & Text with possible linebreaks\\
\multicolumn{4}{c}{Multicolumn over all columns}\\\hline
\end{tabular}}%
[Short Caption B]%
{A Caption B of a "fullpage" object, which follows on the left or
right column. This can be an even or odd page.}}}%
+{figure}{\includegraphics[width=\linewidth]{images/CTAN}}}%              no 3
{A Caption C of a "fullpage" object, which follows on the left or
right column.}%
{img:demo1}
+{figure}{\includegraphics[width=\linewidth]{images/CTAN}}}%              no 4
{A Caption C of a "fullpage" object, which follows on the left or
right column.}%
{img:demo2}

```

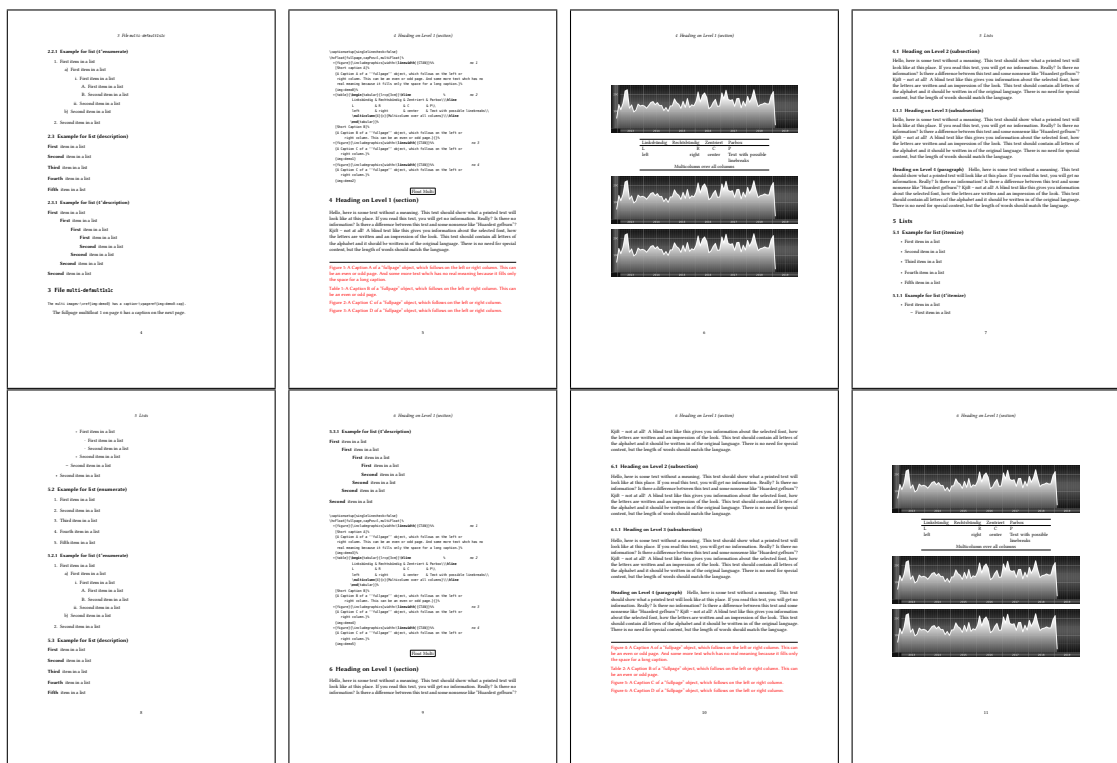


Figure 39: Output of multi-default1s1c (pages 4–11)

The page with the objects has no additional informations it holds only the figures and/or

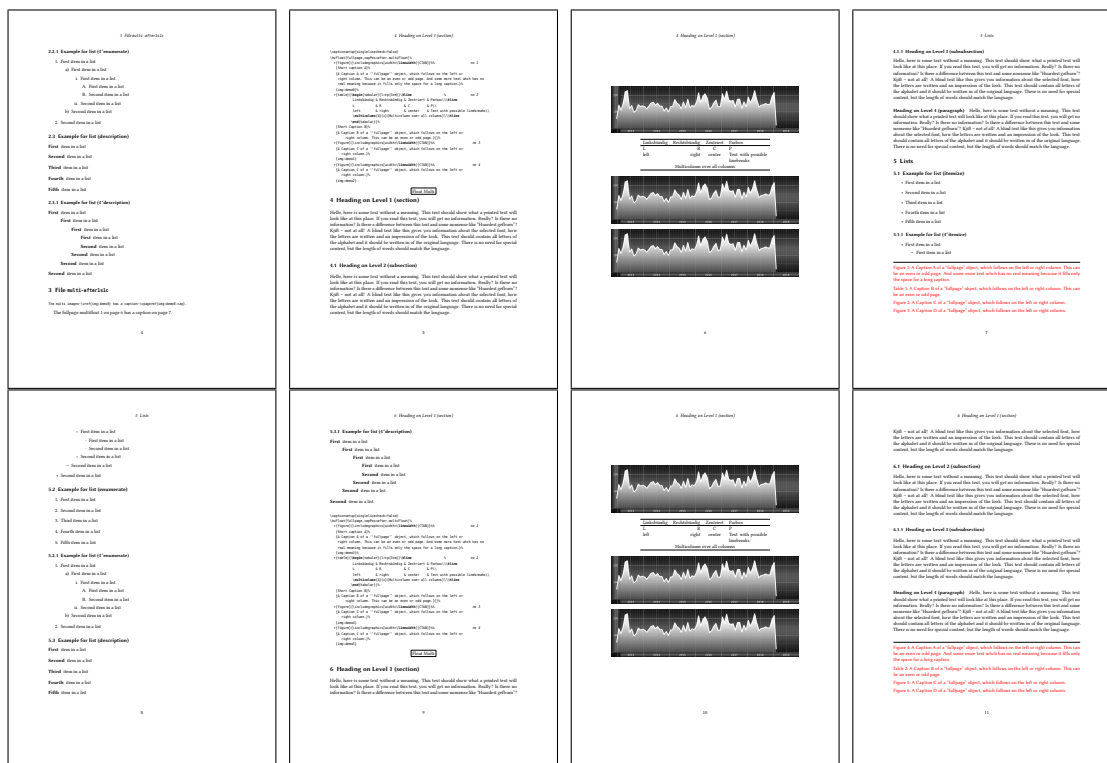


Figure 40: Output of multi-afterls1c (pages 4–11)

tabulars. If you want it like subfigures or subtabulars then go to section 18. The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

18 Subfloat page

A subfloat page can have only one type of floats which will have one main caption and individual subcaptions. The syntax is similar to the one for a multifloat page:

```
\hvFloat[Options]+{float type}{<empty>}[short caption]{long caption}{label}
+{<empty>}{floating object}[short caption]{long caption}{label}
+...
+{<empty>}{floating object}[short caption]{long caption}{label}
```

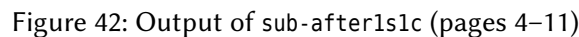
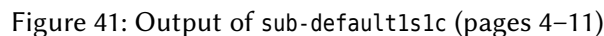
Some arguments are ignored for a subfloat, one can leave them empty. The first line defines only the type and the main caption, the object entry is ignored! All additional lines will have the same float type, the reason why the float type entry is ignored.

```
\hvFloat[fullpage,capPos=before,objectFrame,subFloat]%
+{figure}{[Short main caption of the objects]}% main short lsi entry
{The main caption of a "fullpage" object, which follows on the left or
```

18 Subfloat page

```
right column. This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}% main caption
{sub:demo0}%
+{}{\includegraphics[width=\linewidth]{images/CTAN}}}%
[Short caption B]%
{A Caption B of a ‘‘fullpage’’ sub object.}% subcaption
}%
+{}{\includegraphics[width=\linewidth]{images/CTAN}}}%
{A Caption C of a ‘‘fullpage’’ object, which follows on the left or right column.}%
{sub:demo1}
+{}{\includegraphics[width=\linewidth]{images/CTAN}}}%
{A Caption D of a ‘‘fullpage’’ object}%
{sub:demo2}
+{}{\includegraphics[width=\linewidth]{images/CTAN}}}%
{A Caption E of a ‘‘fullpage’’ object}%
{sub:demo3}
```

The keyword `subFloat` defines the images or tabulars as subfloats. The package `subcaption` is loaded by default and should be activated with `\captionsetup[sub][singlelinecheck]`.



19 Full page objects in twocolumn mode

The filenames always have a “2c” for two columns in its names, e.g. left2s2c indicates capPos=before and the documentclass setting twoside and twocolumn. Depending to the used documentclass it can be a problem, if the caption should be placed on the first page of the whole document. In such a case use one of the other setting. Table 8 on page 34 shows the valid optional arguments for a full page floating object.

19.1 Default setting

For the twocolumn mode the caption can be in the left (first) or right (second) column. With the default setting (without using the keyword capPos) it is equivalent to the setting capPos=before, the caption is always placed *before* (left of) the object. This can be the first or the second column and both can be on different pages. With capPos=before (uppercase L) it is possible to get the caption and the object in the twocolumn mode always on one page. This is then the left (first) column for the caption (see figure 43).

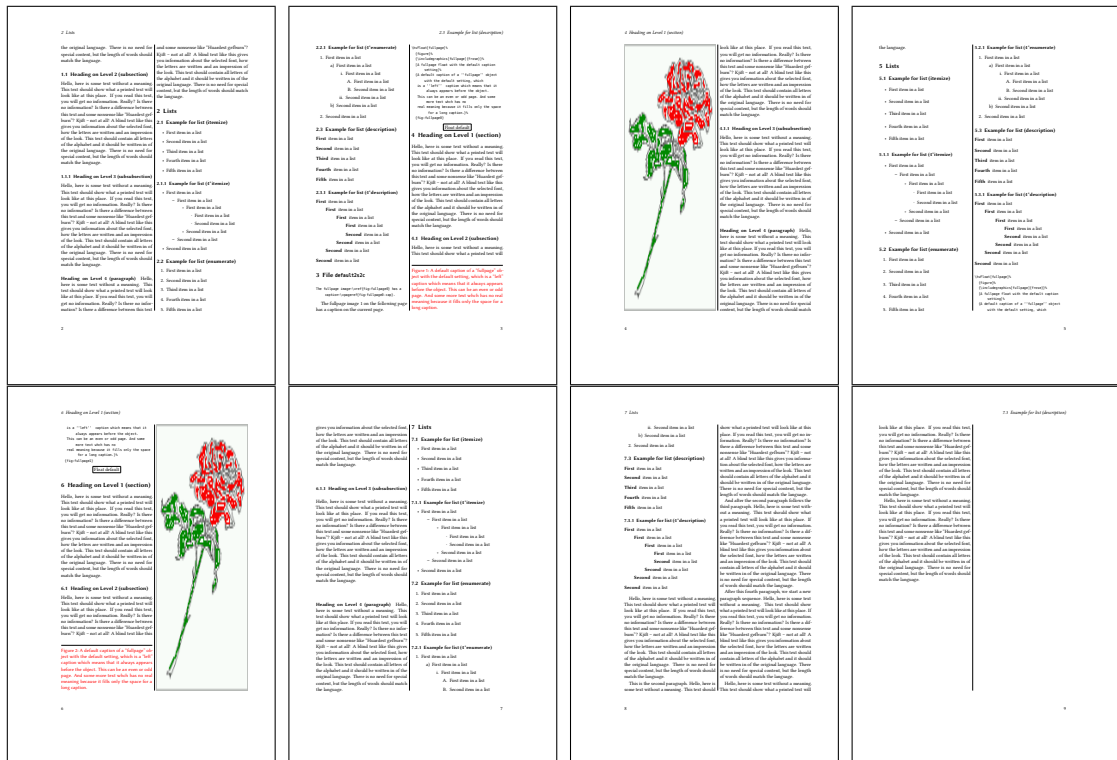


Figure 43: Output of default2s2c (pages 2–9)

```
\hvFloat[fullpage]{figure}%
{\includegraphics[width=\columnwidth,height=0.9\textheight]{images/rosee}}%
[A float which needs the complete column width and height.]%
```

{A Caption of a “fullpage” object, which follows on the next column.
This is always the right column on an even or odd page. And some more
text which has no real meaning because it fills only the space for a long
caption.}%
{fig:fullpage0-2}

The example 43 on the preceding page shows that the caption and the object can be on different pages. If you do not like this behaviour, then use the setting `capPos=left`, which puts the caption before the object, but always on the *same page* (see Figure 44).

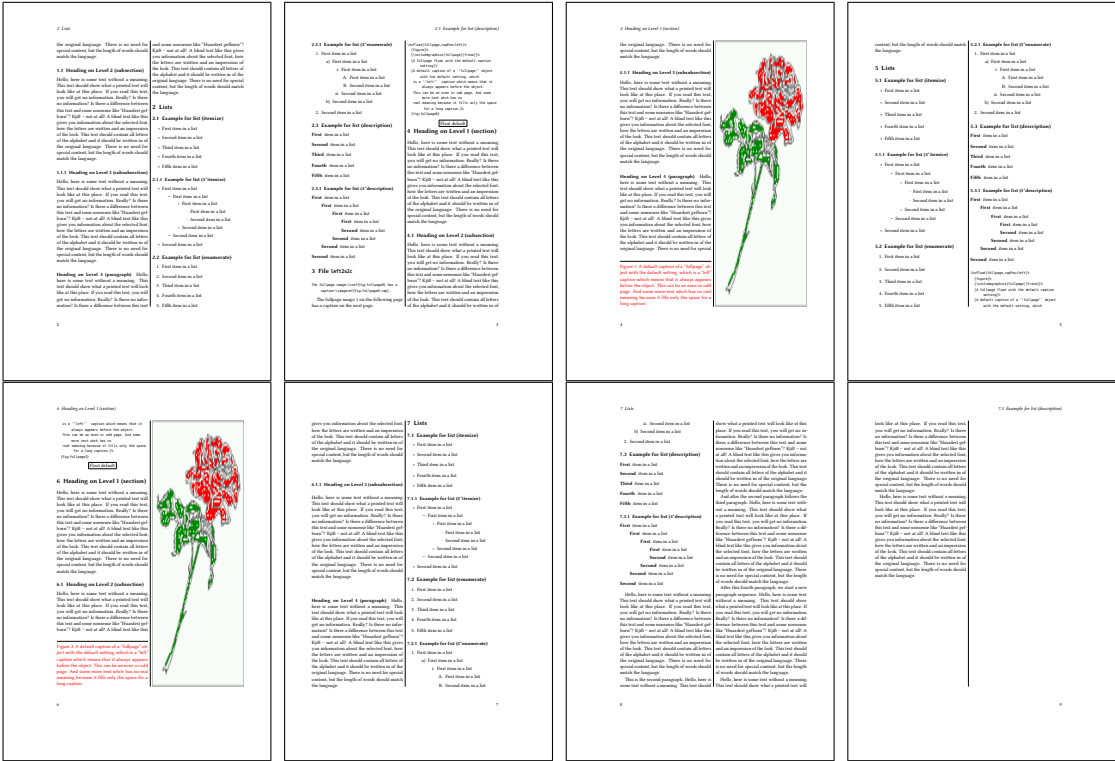


Figure 44: Output of left2s2c (pages 2–9)

19.1.1 Using `capPos=after`

The caption will be printed always right of the object which is the same as *after* the full page object. With `capPos=after` it is possible to get the caption in the twocolumn mode always in the right (second) column (see figure 46 on page 47)

```
\hvFloat[fullpage, capPos=after]{figure}%
{\includegraphics[fullpage]{images/rose}}%
[A float which needs the complete column width and height.]%
{A Caption of a “fullpage” object, which is on the left column.
This is always the right column on an even or odd page. And some more
```

19 Full page objects in twocolumn mode

text which has no real meaning because it fills only the space for a long caption.%
{fig:fullpage1-2}

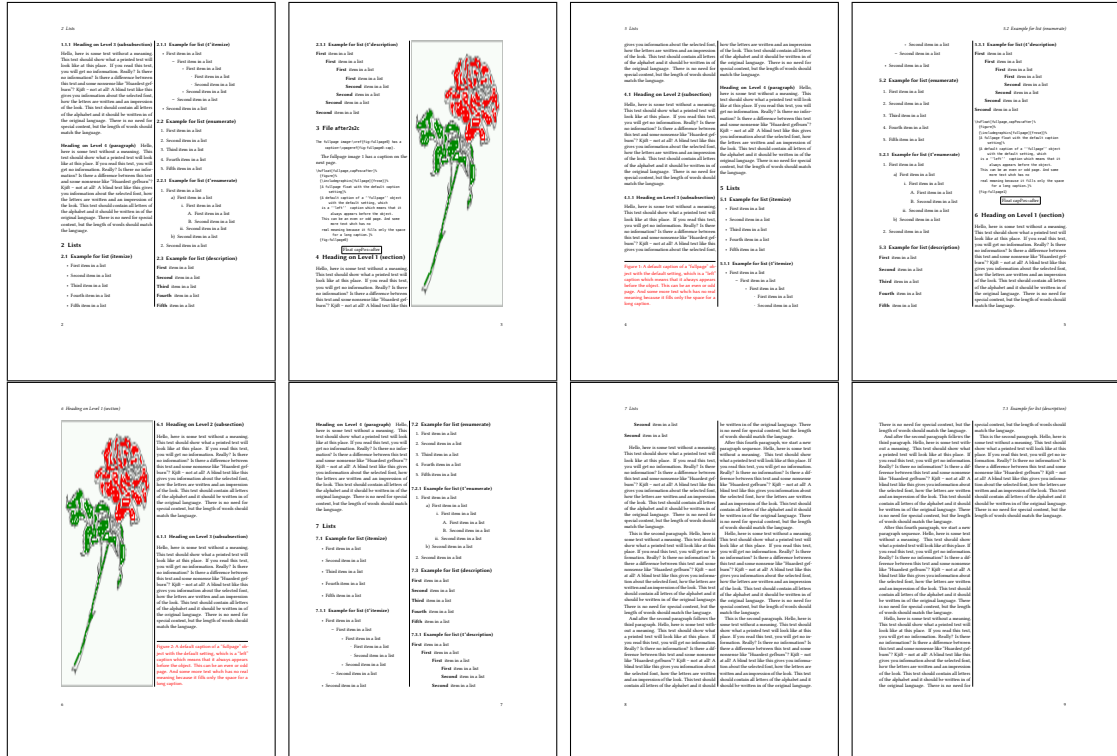


Figure 45: Output of after2s2c (pages 2–9)

The caption and the object can be on different pages (Figure 45). If you do not like this behaviour, then use the setting `capPos=right` instead of `capPos=after`. Figure `right2s2c` shows that caption and object in this case are always on the same page.

[illegible]

Figure 46: Output of right2s2c (pages 2–9)

There can be a problem if there is not enough space on the bottom of the even page. Then the caption will be on the next page which is an odd one. In such a case use a manually `\clearpage` or wait for an update of `hvf`.

Figure 47: Output of even2s2c (pages 2–9)

19.1.3 Using capPos=oddPage — caption on an odd page

There can be a problem if there is not enough space on the bottom of the even page. Then the caption will be on the next page which is an odd one. In such a case use a manually \clearpage or wait for an update of hvfloat.

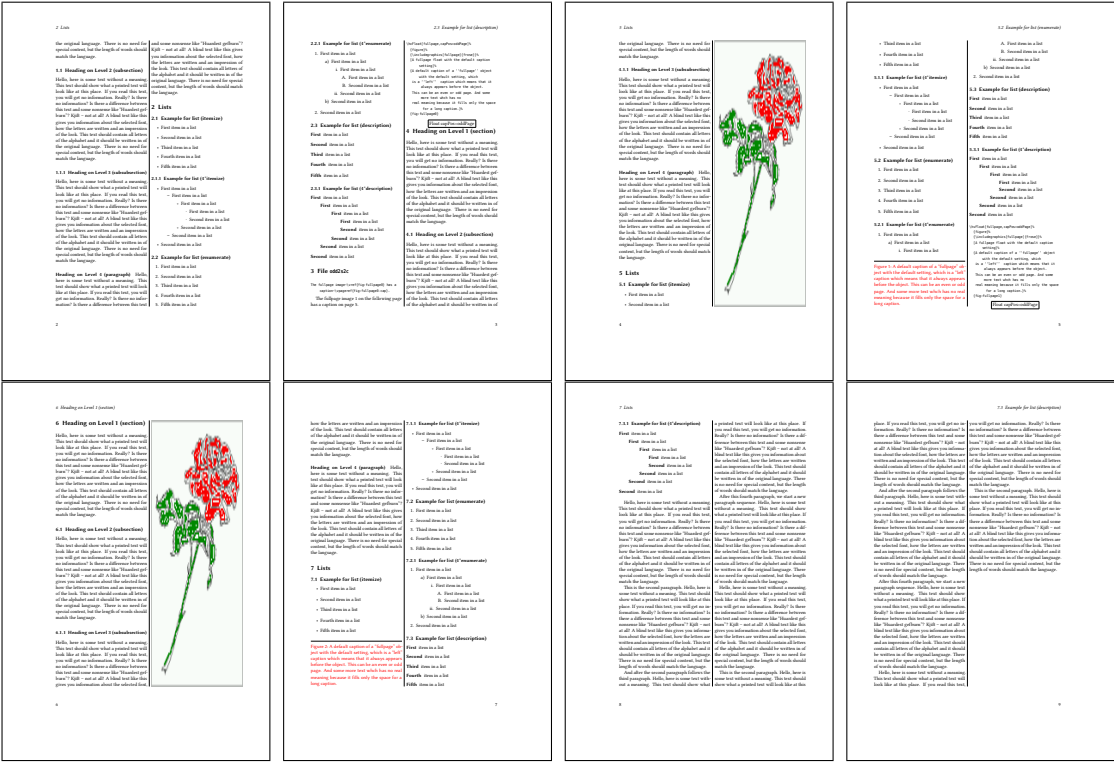


Figure 48: Output of odd2s2c (pages 2–9)

19 Full page objects in twocolumn mode

19.1.4 Using capPos=inner — caption in the inner column

The caption will be printed in the right column for an even page and in the left column for an odd page.

```
\hvflo{[fullpage,capPos=inner]}{figure}{\includegraphics[fullpage]{images/rose}}%  
[A float which needs the complete column width and height.]%  
{A Caption of a “fullpage” object, which follows on the left or right column.  
This can be an even or odd page. And some more text which has no  
real meaning because it fills only the space for a long caption.}{fig:fullpage3-2}
```

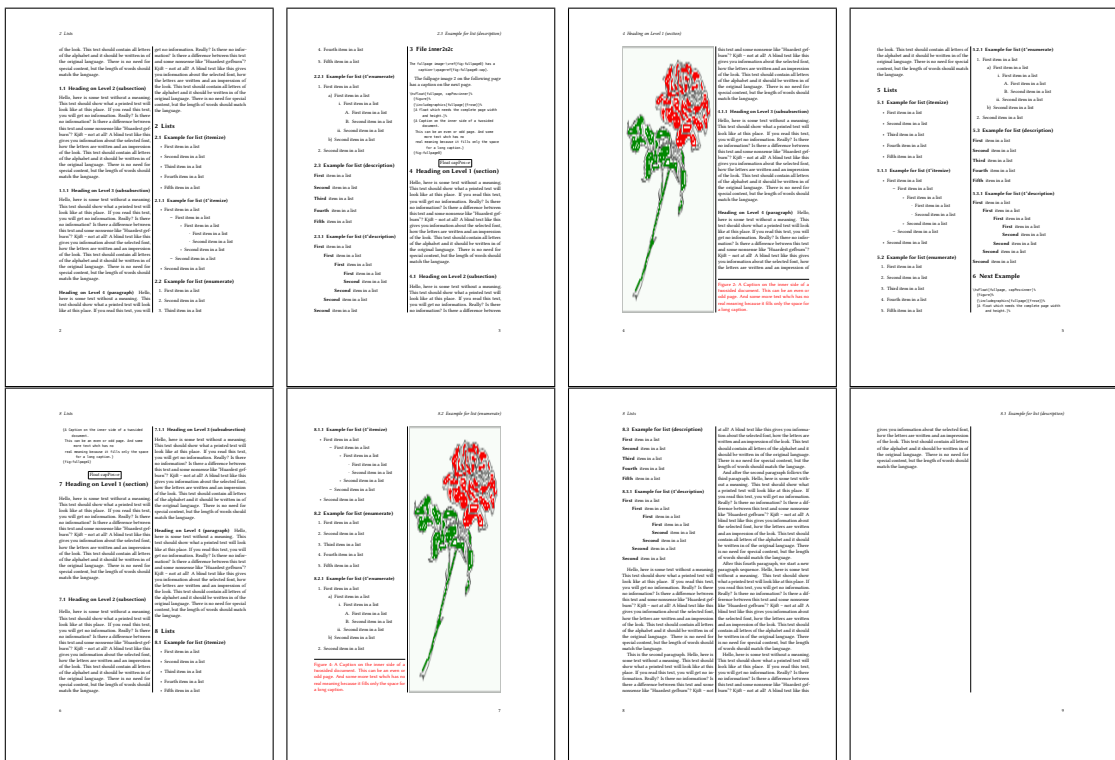


Figure 49: Output of inner2s2c (pages 2–9)

19.1.5 Using capPos=outer — caption on the outer column

The caption will be printed on the left column an odd page, the object can appear before or after this caption.

```
\hvFloat[fullpage, capPos=outer]{figure}%
{\includegraphics[fullpage]{images/rose}}%
[A float which needs the complete page width and height with \texttt{capPos=outer}.]%
{A Caption of a “fullpage” object, which has the caption position in the
outer page. This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}{fig:fullpage2-2a}
```

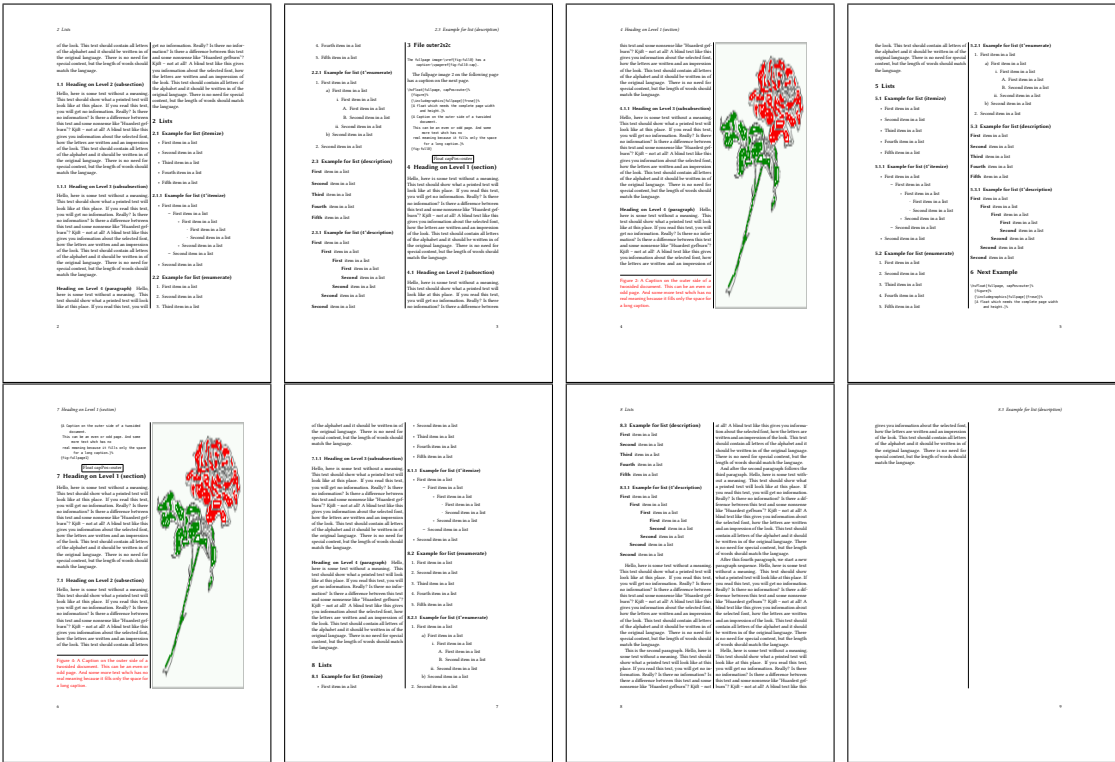


Figure 50: Output of outer2s2c (pages 2–9)

19 Full page objects in twocolumn mode

19.2 Using full page in twocolumn mode

With the star version of \hvfloat The object ist placed over both columns, the whole page. In such a case the only useful caption position is capPos=inner for *inner*.

```
\hvfloat*[fullpage, capPos=inner]{figure}%
{\includegraphics[FullPage]{images/rose}}%
[A float which needs the complete page width and height with \texttt{capPos=outer}.]%
{A caption of a "fullpage" object in twocolumn mode: It uses the star version
of \textbackslash hvfloat. The object goes over both columns.}{fig:two}
```

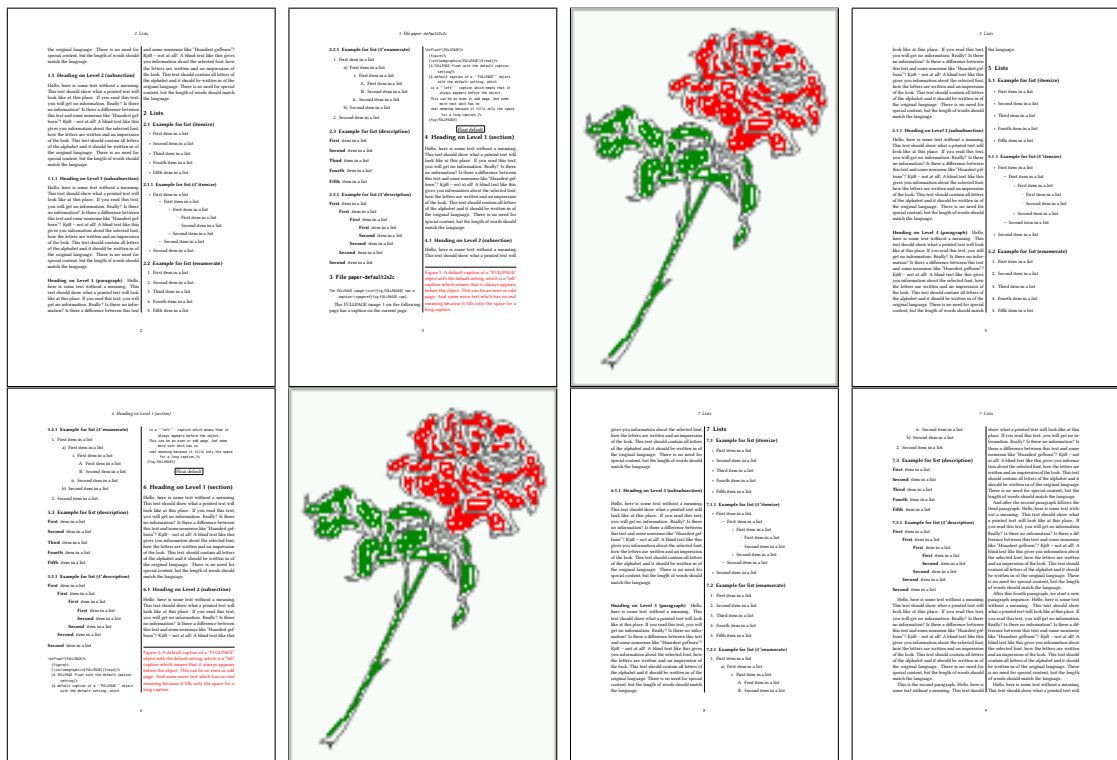


Figure 51: Output of paper-default2s2c (pages 2–9)

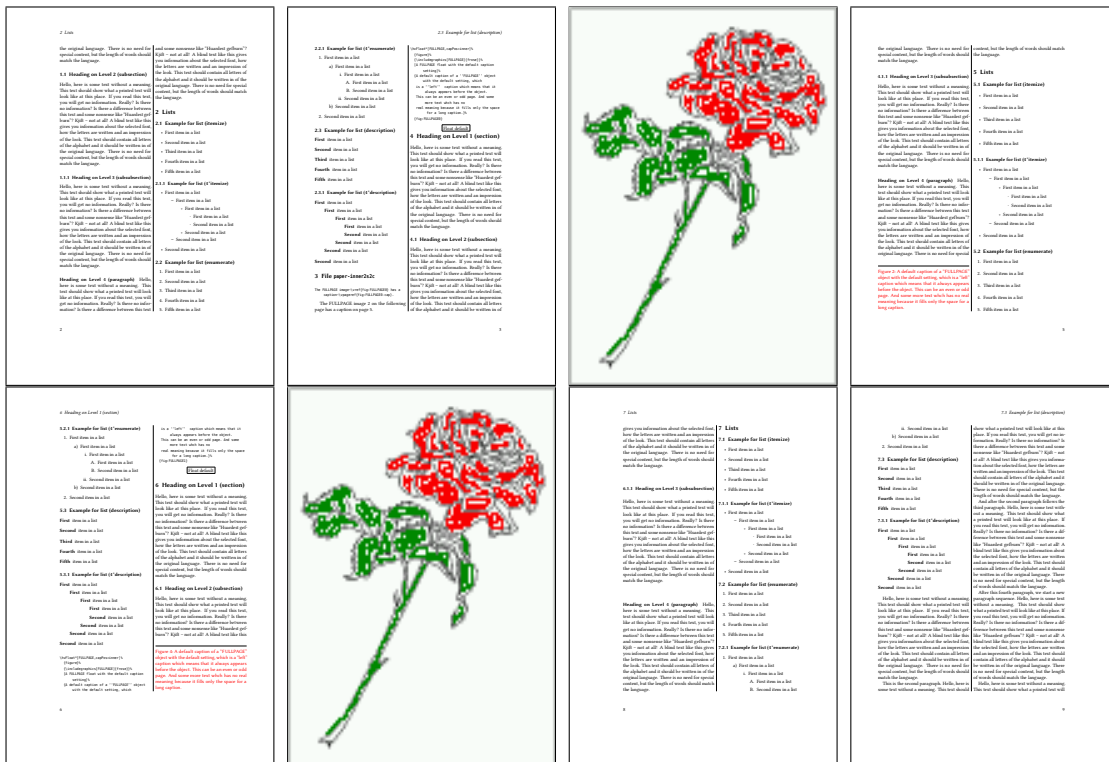


Figure 52: Output of paper-inner2s2c (pages 2–9)

19.3 Multifloats

Multifloats is the name for more than one image and/or tabular in *one* floating environment. Every image and/or tabular has its own caption, which is different to a subcaption. The + symbol defines an additional Object which will be part of the same floating environment. It's up too the user to be sure that one page or one column can hold all defined objects. Every object gets its own caption which is the reason why figures and tabulars and ... can be mixed:

```
\captionsetup{singlelinecheck=false}
\hvFloat[fullpage,multiFloat,capPos=inner]%
+{figure}{\includegraphics[height=0.4\textheight]{images/rose}}%% no 1
[Short caption A]%
{A Caption A of a "fullpage" object, which follows on the left or
right column. This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}%
{multi:demo0}%
+{table}{\begin{tabular}{lr}\hline
Linksbündig & Rechtsbündig\\
L & R & \\
left & right & \\
\multicolumn{2}{c}{Multicolumn}\\
\hline
\end{tabular}}%% no 2
```

20 Subfloat page

```
\end{tabular}}%
[Short Caption B]%
{A Caption B of a ‘‘fullpage’’ object, which follows on the left or
right column. This can be an even or odd page.}%
}%
+{figure}{\includegraphics[height=0.4\textheight]{images/rose}}% no 3
{A Caption C of a ‘‘fullpage’’ object, which follows on the left or
right column.}%
{\multi{demol}}
```

The page with the objects has no additional informations it holds only the figures and/or tabulars. If you want it like subfigures or subtabulars then go to section 18 on page 41. The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

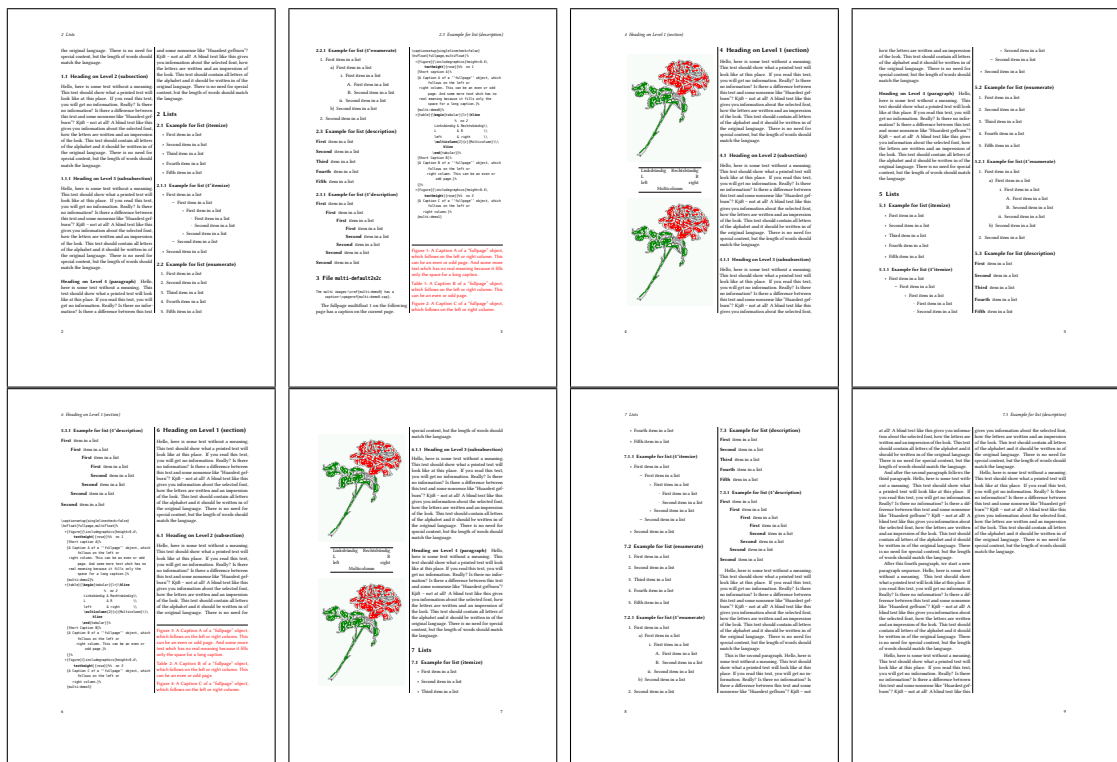


Figure 53: Output of multi-default2s2c (pages 2-9)

20 Subfloat page

A subfloat page can have only one type of floats which will have one main caption and individual subcaptions. Some arguments are ignored for a subfloat, one can leave them empty. The first line defines only the type and the main caption, the object entry is ignored! All additional lines will have the same float type, the reason why the float type entry is ignored.

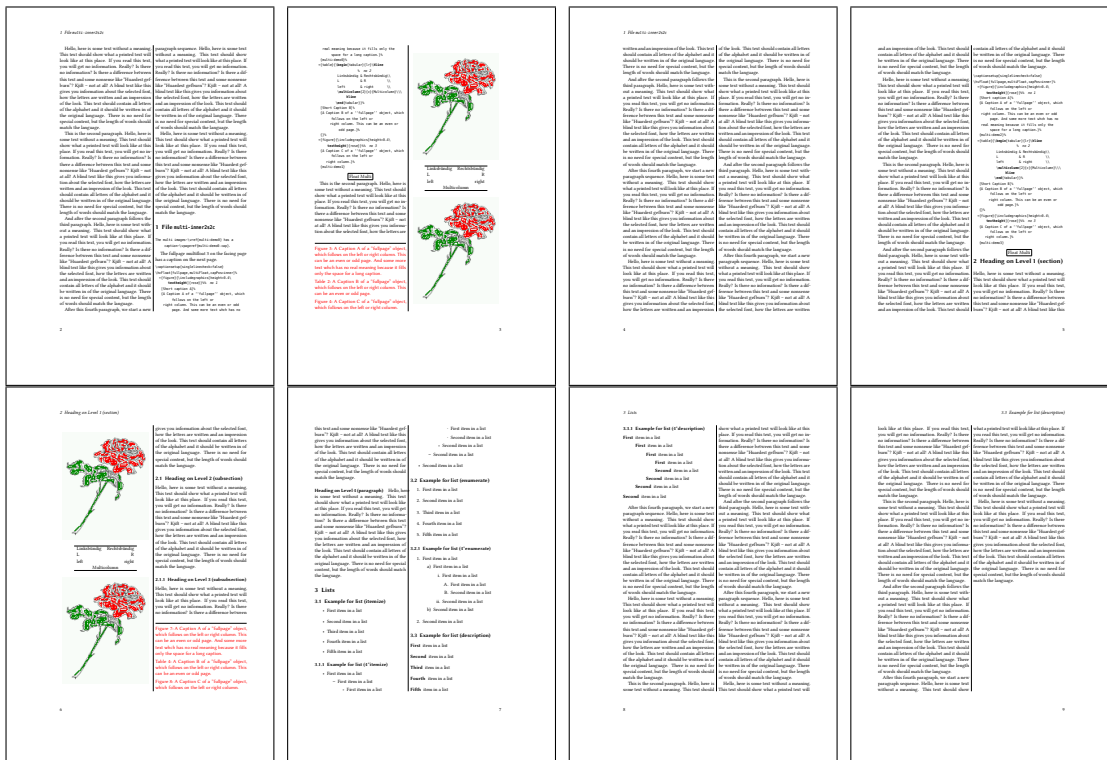


Figure 54: Output of multi-inner2s2c (pages 2-9)

```
\captionsetup[sub]{singlelinecheck}
\hvFloat[fullpage,capPos=before,objectFrame,subFloat]%
+{{figure}}[Short main caption of the objects]% main short lsi entry
{The main caption of a "fullpage" object, which follows on the left or
right column. This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}% main caption
{sub:demo00}%
+{{\includegraphics[height=0.28\textheight]{images/rose}}}%
[Short caption B]%
{A Caption B of a "fullpage" sub object.}% subcaption
}%
+{{\includegraphics[height=0.28\textheight]{images/rose}}}%
{A Caption C of a "fullpage" object, which follows on the left or right column.}%
{sub:demo10}
+{{\includegraphics[height=0.28\textheight]{images/rose}}}%
{A Caption D of a "fullpage" object.}%
{sub:demo20}
```

The keyword subFloat defines the images or tabulars as subfloats. The package subcaption is loaded by default. For the subcaptions the singlelinecheck should be true (see listing).

20 Subfloat page

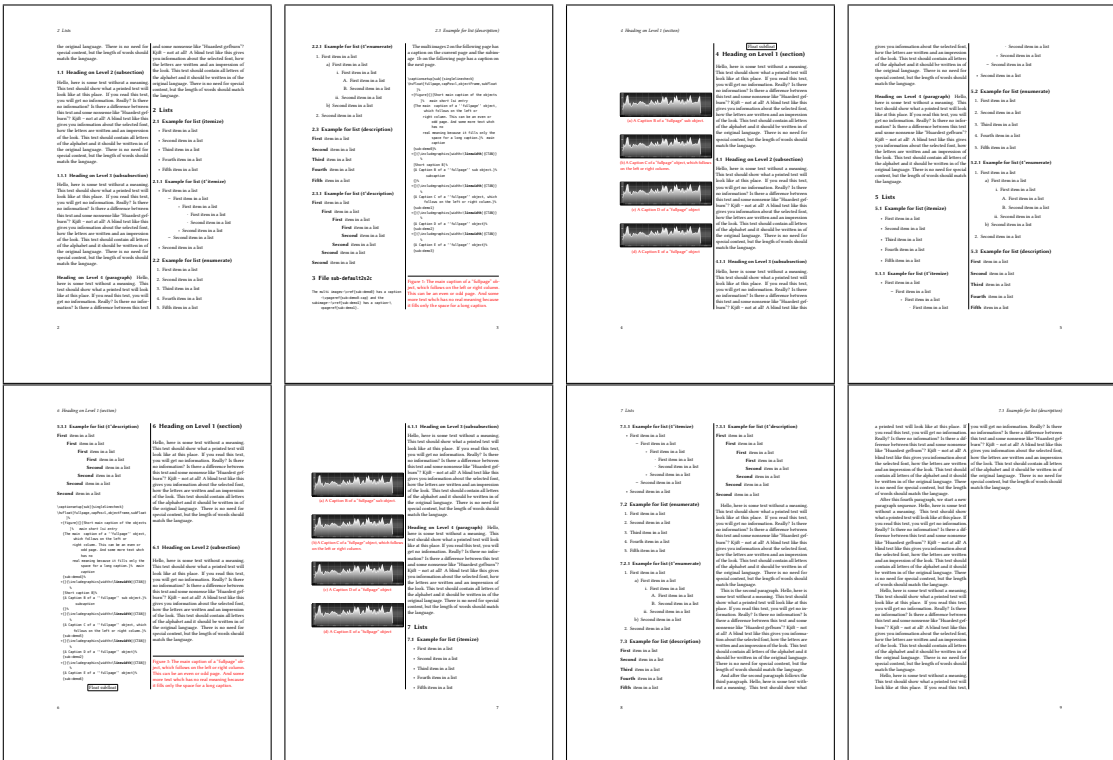


Figure 55: Output of sub-default2s2c (pages 2–9)

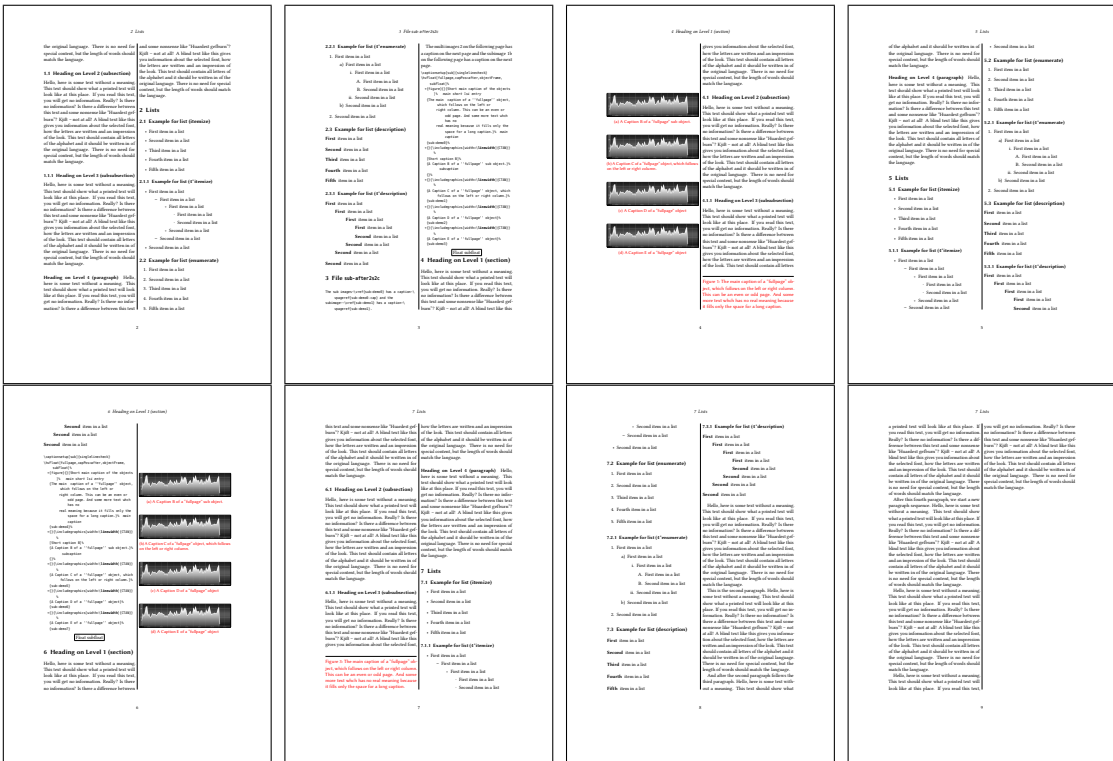


Figure 56: Output of sub-after2s2c (pages 2–9)

21 References to the page

With the command `\pageref` one can have a reference to the page number of a caption. For the `fullpage` option this can be the wrong page if someone wants a reference to the page where the object is set. Let's assume that we use something like

```
\setDefault{
\hvFloat[fullpage,capPos=evenPage]{figure}%
  {\IncludeGraphics{images/frose}}%
  [A float which needs the complete paper width and height.]%
  [A Caption of a "fullpage" object, which follows on the next page.
   This can be an even or odd page. The object uses the complete paper dimensions]%
  {demo:fullpage}
```

The label `demo:fullpage` is used for the *image* and not for the caption! Internally another label called `demo:fullpage-cap` is set on the caption page which can be before or behind the object (depending to the optional argument of `capPos`). For example:

The caption of figure `\ref{demo:fullpage-cap}` is on page `\pageref{demo:fullpage-cap}`, but the image itself is on page `\pageref{demo:fullpage}`.

The caption of figure 58 is on page 58, but the image itself is on page 59. With package `varioref` it is:

With the package `\pack{varioref}` ([url{https://ctan.org/pkg/varioref}](https://ctan.org/pkg/varioref)) one can get something like: see figure `\vref{demo:fullpage}`, which uses a correct page number of the floating object and not the caption page number which is `\vpageref{demo:fullpage-cap}`. The figure `\ref{demo:fullpage}` is on page `\pageref{demo:fullpage}` and the caption on page `\pageref{demo:fullpage-cap}`

With the package `varioref` (<https://ctan.org/pkg/varioref>) one can get something like: see figure 58 on page 59, which uses a correct page number of the floating object and not the caption page number which is on the next page. The figure 58 is on page 59 and the caption on page 58

22 Defining a style

With `\defhvstyle` one can define a special style to get rid of the individual setting:

`\defhvstyle{name}{setting}`

For example:

```
\defhvstyle{RightCaption}{floatPos=htb, capWidth=0.5, capPos=after, capVPos=bottom, objectPos=center}
\hvFloat[style=RightCaption]{figure}{\includegraphics{images/rose}}%
  {Caption vertically centered right beside the float with a caption width of
   \texttt{0.5\textbackslash columnwidth}.}{fig:style}
```



Figure 57: Caption at bottom right beside the float with a caption width of 0.5\columnwidth .

23 Global float setting

Instead of writing the following sequence into the preamble:

```
\makeatletter  
\renewcommand\fps@figure{tb}  
\renewcommand\fps@table{t}  
\makeatother
```

you can change the global setting of floats by loading the package `hvfloat-fps`. It allows optional package options to set the global placement:

```
\usepackage[figure=tb,table=t]{hvfloat-fps}
```

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Figure 58: A Caption of a “fullpage” object, which follows on the next page. This can be an even or odd page. The object uses the complete paper dimensions



Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

And after the second paragraph follows the third paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

After this fourth paragraph, we start a new paragraph sequence. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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Value

- after, 35, 45f

- before, 32f, 44

- evenPage, 32, 36, 48

- false, 41, 54

- h, 13

- inner, 16, 32, 37, 50, 52

- l, 25

- left, 20, 32, 45

- oddPage, 32, 37, 49

- outer, 16, 23, 32, 37, 51

- p, 24

- right, 46

- w, 13

varioref (package), 57

W

w (value), 13

wide (keyword), 9f, 21

X

xkeyval (package), 7

24 The Package Source

```
1 %% $Id: hvfloat.sty 1054 2019-05-13 08:20:11Z herbert $
2 %%
3 \NeedsTeXFormat{LaTeX2e}
4 \ProvidesPackage{hvfloat}[2019/05/13 rotating of floating objects]
5 %%
6 %% IMPORTANT NOTICE:
7 %%
8 %% This is file 'hvfloat.sty',
9 %%
10 %% Herbert Voss <hvoss@tug.org>
11 %%
12 %% This program can be redistributed and/or modified under the terms
13 %% of the LaTeX Project Public License Distributed from CTAN archives
14 %% in directory macros/latex/base/lppl.txt.
15 %%
16 %% DESCRIPTION:
17 %% 'hvfloat' offers rotating of captions and objects for floats
18 %%
19 \def\fileversion{2.15}
20 \def\filedate{2019/05/13}
21 \message{'hvfloat' v\fileversion, \filedate\space (Herbert Voss)}
22 \let\hvFileVersion\fileversion
23 %
24 \newif\ifhv@fbox \hv@fboxfalse
25 \newif\ifhv@hyperref \hv@hyperreffalse
26 \DeclareOption{fbox}{\hv@fboxtrue\setlength{\fboxsep}{1pt}}
27 \DeclareOption{hyperref}{\hv@hyperreftrue}
28
29 \ProcessOptions
30
31 \PassOptionsToPackage{hycap}{caption}
32 \RequirePackage{caption}
33 \PassOptionsToPackage{hycap}{subcaption}
34 \RequirePackage{subcaption}
35 \RequirePackage{atbegshi}
36
37 \RequirePackage{expl3,multido}
38 \RequirePackage{graphicx}
39
40 \RequirePackage{xkeyval}
41 \RequirePackage{ifoddpage}
42 \RequirePackage{afterpage}
43 %\RequirePackage{zref-abspos}
44
45 \ifhv@hyperref
46   \RequirePackage{hyperref}
47   % \RequirePackage{hycap}
48 \fi
49 %
50 %\unitlength=1cm
51 \providecommand*{\LenToUnit[1]{\strip@pt\dimexpr#1*\p@\unitlength}
```

24 The Package Source

```

52
53 \newlength\hvObjectWidth
54 \newlength\hvCapWidth
55 \newlength\hvWideWidth
56 \newlength\hvMultiFloatSkip
57 \newlength\hvMaxCapWidth
58 %\newlength\hv@BottomSpace
59 %\AtBeginDocument{%
60 %   \setlength\hv@BottomSpace{\dimexpr\paperheight-\lin-\topmargin-\headheight-\headsep-\textheight}}
61
62 \newsavebox\hvObjectBox
63 \newsavebox\hvCaptionBox
64 \newsavebox\hvOBox
65 \newsavebox\@tempbox
66 \newsavebox\hv@caption@box
67
68 \newif\ifhv@capbeside \hv@capbesidefalse
69
70 \def\hv@Top{top}
71 \def\hv@Bottom{bottom}
72 \def\hv@After{after}
73 \def\hv@Before{before}
74 \def\hv@Right{right}
75 \def\hv@Left{left}
76 \def\hv@Center{center}
77 \def\hv@Outer{outer}
78 \def\hv@Inner{inner}
79 \def\hv@Even{evenPage}
80 \def\hv@Odd{oddPage}
81 \def\hv@Natural{n}
82 \def\hv@Width{w}
83 \def\hv@Height{h}
84 \def\hv@Zero{0}
85 %
86 \def\hv@figure{figure}
87 %
88 \define@key{hvSet}{floatPos}[htbp]{%      LaTeX's position parameters htpb
89   \def\hvSet@floatPos{#1}%
90 }
91 \define@key{hvSet}{rotAngle}[0]{%      rotates caption AND image together
92   \def\hvSet@rotAngle{#1}%
93 }
94 \define@key{hvSet}{capWidth}[n]{%      (n)atural width|object (w)idth|object (h)eight|<scale of \columnwidth
95   >
96   \def\hvSet@capWidth{#1}%
97 }
98 \define@key{hvSet}{capAngle}[0]{%      -360..+360
99   \def\hvSet@capAngle{#1}%
100 }
101 \define@key{hvSet}{capPos}[bottom]{%      (l)eft|(b)ottom|(t)op|(r)ight|(i)nn(er)|(o)uter|(e)ven|o(d)d
102   \def\hvSet@capPos{#1}%      it is relativ to the object, (e),(d) only valid for fullpage float
103   \edef\@tempa{#1}%
104   \ifx\hv@Bottom\@tempa

```



```

104 \hv@capbesidefalse
105 \else
106 \ifx\hv@Top\@tempa
107 \hv@capbesidefalse
108 \else
109 \hv@capbesidetrue
110 \fi
111 \fi
112 }
113 \define@key{hvSet}{capVPos}[center]{% bottom|center|top
114 \def\hvSet@capVPos{#1}% it is relativ to the object
115 }
116 \define@key{hvSet}{objectPos}[center]{% (l)eft|(c)enter|(r)ight|(i)nnner|(o)uter
117 \def\hvSet@objectPos{#1}% it is relativ to the document
118 }
119 \define@key{hvSet}{objectAngle}[0]{% -360..+360
120 \def\hvSet@objectAngle{#1}%
121 }
122 \define@key{hvSet}{floatCapSep}[5pt]{% a width with the unit pt
123 \def\hvSet@floatCapSep{#1}%
124 }
125 \define@key{hvSet}{multiFloatSkip}{\normalbaselineskip}{% a width with the unit pt
126 \setlength\hvMultiFloatSkip{#1}%
127 }
128 \define@boolkey{hvSet}[hv@]{use0Box}[true]{}% use of the hv0Box contents
129 \define@boolkey{hvSet}[hv@]{nonFloat}[true]{}% Do not use float environment
130 \define@boolkey{hvSet}[hv@]{onlyText}[true]{}% Write the caption only as text
131 \define@boolkey{hvSet}[hv@]{wide}[true]{}% Write the caption only as text
132
133
134 \newif\ifhv@fullpage
135 \newif\ifhv@FULLPAGE
136
137 %\define@boolkey{hvSet}[hv@]{fullpage}[true]{}% fullpage float with caption on other page
138 %\define@boolkey{hvSet}[hv@]{FullPage}[true]{}% fullpage float with caption on other page
139 %\define@boolkey{hvSet}[hv@]{FULLPAGE}[true]{}% fullpage float with caption on other page
140
141 \define@key{hvSet}{fullpage}[true]{\global\@nameuse{hv@fullpage#1}}% wegen \afterpage problem
142 \define@key{hvSet}{FULLPAGE}[true]{\global\@nameuse{hv@FULLPAGE#1}}
143
144 \define@boolkey{hvSet}[hv@]{subFloat}[true]{% typeset values as subfloats
145 \ifhv@subFloat\setkeys{hvSet}{multiFloat=false}\fi%
146 }%
147 \define@boolkey{hvSet}[hv@]{multiFloat}[true]{% typeset values as continous floats
148 \ifhv@multiFloat\setkeys{hvSet}{subFloat=false}\fi%
149 }%
150 \define@boolkey{hvSet}[hv@]{separatorLine}[true]{}% separator line for caption of a full page float
151 \define@boolkey{hvSet}[hv@]{objectFrame}[true]{}% a frame around the object with no separation
152 \define@key{hvSet}{style}{%
153 \@ifundefined{hv@#1}%
154 {\errmessage{Custom style '#1' undefined}}%
155 {\begingroup
156 \edef\x{\endgroup\noexpand\setkeys{hvSet}{\@nameuse{hv@#1}}}\x}% use a defined style

```

24 The Package Source

```

157 }
158 \define@key{hvSet}{capFormat}[]{\def\hv@caption@format{#1}}%
159 \define@key{hvSet}{subcapFormat}[]{\def\hv@subcaption@format{#1}}%
160
161 \def\hv@set#1{\begingroup\edef\x{\endgroup\noexpand\setkeys{hvSet}{#1}}\x}
162 \let\hvFloatSet\hv@set
163 %
164 \def\defhvstyle#1#2{\@namedef{hv@#1}{#2}}
165 %
166 \newcommand{\setDefaults}{%
167   \hv@set{%
168     floatPos=htbp, rotAngle=0, capWidth=n, capAngle=0,
169     capPos=bottom, capVPos=center, objectPos=center, objectAngle=0,
170     floatCapSep=5pt, useOBox=false, nonFloat=false,
171     onlyText=false, wide=false, fullpage=false, FULLPAGE=false,
172     multiFloat=false, subFloat=false,
173     separatorLine, objectFrame=false, multiFloatSkip=\normalbaselineskip,
174     capFormat={}, subcapFormat={},
175   }%
176 }
177 \newcommand\reset@special@float{%
178   \hv@set{subFloat=false,%fullpage=false,
179     multiFloat=false,%FULLPAGE=false
180 }%
181
182 \def\hv@vskip{\vspace{\hvMultiFloatSkip}}
183
184 %
185 \newlength\hvAboveCaptionSkip
186 \newlength\hvBelowCaptionSkip
187 \newcount\hv@capPos
188
189 \newlength\fbboxlinewidth
190 \AtBeginDocument{%
191   \setlength\fbboxlinewidth{\dimexpr\linewidth-2\fbboxrule-2\fbboxsep}%
192 }
193 \setlength\belowcaptionskip{\abovecaptionskip}% it is in latex.ltx = 0pt
194 \newcommand\saveCaptionSkip{%
195   \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}
196   \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}
197   \setlength{\abovecaptionskip}{0pt}
198   \setlength{\belowcaptionskip}{0pt}
199 }
200 \newcommand{\restoreCaptionSkip}{%
201   \setlength\abovecaptionskip{\hvAboveCaptionSkip}%
202   \setlength\belowcaptionskip{\hvBelowCaptionSkip}%
203 }
204 %
205 \newcommand\figcaption[2][]{\def\@capytype{figure}%
206   \begingroup
207   \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
208   \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
209   \endgroup}

```

```

210 \newcommand\tabcaption[2][\def\@cuptype{table}%
211 \begingroup
212 \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
213 \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
214 \endgroup}
215 %
216 \newlength\hv@maxImageWidth
217 \AtBeginDocument{\hv@maxImageWidth=\columnwidth}
218
219 \define@key{Gin}{fullpage}[true]{%
220 \def\Gin@ewidth{\columnwidth}%
221 \def\Gin@eheight{\textheight}%
222 \Gin@boolkey{false}{iso}%
223 }
224 \define@key{Gin}{FullPage}[true]{%
225 \def\Gin@ewidth{\textwidth}%
226 \def\Gin@eheight{\textheight}%
227 \Gin@boolkey{false}{iso}%
228 }
229 \define@key{Gin}{FULLPAGE}[true]{%
230 \def\Gin@ewidth{\paperwidth}%
231 \def\Gin@eheight{\paperheight}%
232 \Gin@boolkey{false}{iso}%
233 }
234 \newcommand\IncludeGraphics[2][\%
235 % \newpage
236 %\iffalse
237 \vspace*{\the\dimexpr-\lin-\voffset+\topskip-\headheight-0.5\baselineskip}%
238 \leavevmode\checkoddpages
239 \ifoddpage
240 \hspace*{\dimexpr-\oddsidemargin-\parindent-\lin}%
241 \else
242 \hspace*{\dimexpr-\evensidemargin-\parindent-\lin}%
243 \fi\noindent
244 \includegraphics[#1,width=\paperwidth,height=\paperheight,keepaspectratio=false]{#2}%
245 %\fi
246 % \includepdf[#1%,width=\paperwidth,height=\paperheight,keepaspectratio=false]
247 % {#2}%
248 }
249
250 \newcommand\put@CaptionBox[1][0]{%
251 \ifcase#1
252 \ifhv@fbox
253 \fbox{\parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}}%
254 \else
255 \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}%
256 \fi
257 \or
258 \ifhv@fbox
259 \fbox{\raisebox{-\height}{\usebox{\hvCaptionBox}}}%
260 \else
261 \raisebox{-\height}{\usebox{\hvCaptionBox}}%
262 \fi

```

24 The Package Source

```

263 \or
264 \ifhv@fbox\fbbox{\usebox{\hvCaptionBox}}\else\usebox{\hvCaptionBox}\fi
265 \fi
266 }
267
268 \newcommand\put@ObjectBox[1][0]{%
269 \ifcase#1
270 \ifhv@fbox
271 \fbbox{\parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}}%
272 \else
273 \parbox{\wd\hvObjectBox}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
274 \fi
275 \or
276 \ifhv@fbox
277 \fbbox{\raisebox{-\height}{\usebox{\hvObjectBox}}}%
278 \else
279 \raisebox{-\height}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
280 \fi
281 \or
282 \ifhv@fbox
283 \fbbox{\usebox{\hvObjectBox}}%
284 \else
285 \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi%
286 \fi
287 \fi
288 }
289
290 \newif\ifhv@star
291 \newif\ifhv@substar
292 \setDefault
293
294 \def\hvFloat{\@ifnextchar*% Main macro
295 {\global\hv@startrue\hv@maxImageWidth=\textwidth\hvFloat@i}%
296 {\global\hv@starfalse\hv@maxImageWidth=\columnwidth\hvFloat@i*}%
297 }
298
299 %\newcommand*{\hvFloat}[5][+]{%
300 % [#1]: keyvalues
301 % #2: type figure | table | ...
302 % #3: float contents
303 % [#4]: short caption
304 % #5: caption
305 % #6: label
306 %
307 \def\hvFloat@i*{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
308
309 \def\do@hvFloat[#1]{%
310 \begingroup
311 \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
312 \hv@maxImageWidth=\textwidth
313 % \hv@capbesidefalse
314 \reset@special@float
315 \setcounter{hv@pfigure}{\value{figure}}%

```

```

316 \setcounter{hv@ptable}{\value{table}}%
317 \gdef\hv@save@setting{#1}%
318 \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
319 \gdef\hv@floatType{figure}%
320 \@ifnextchar+{\do@multiFloat}{\hvFloat@ii{#1}}%
321
322 \ExplSyntaxOn
323
324 \def\do@multiFloat+#1#2{%
325 \clist_set:Nn\l_clist_Type{#1}%
326 \clist_set:Nn\l_clist_Object{#2}%
327 \@ifnextchar[\do@multiFloat@i{\do@multiFloat@ii}%
328 }
329 \def\do@multiFloat@i{#1}#2#3{% lof-caption, caption, label
330 \ifx\relax#1\relax
331 \clist_set:Nn\l_clist_LofCaption{}%
332 \else
333 \clist_set:Nn\l_clist_LofCaption{#1}%
334 \fi
335 \clist_set:Nn\l_clist_Caption{#2}%
336 \ifx\relax#3\relax
337 \clist_set:Nn\l_clist_Label{}%
338 \else
339 \clist_set:Nn\l_clist_Label{#3}%
340 \fi
341 \@ifnextchar+{\do@multiFloat@ii}{}%
342 }
343 \def\do@multiFloat@ii+#1#2{%
344 \clist_put_right:Nn\l_clist_Type{#1}%
345 \clist_put_right:Nn\l_clist_Object{#2}%
346 \@ifnextchar[\do@multiFloat@iii{\do@multiFloat@iii[]}%
347 }
348
349 \def\do@multiFloat@iii{#1}#2#3{% lof-caption, caption, label
350 \ifx\relax#1\relax
351 \clist_put_right:Nn\l_clist_LofCaption{}%
352 \else
353 \clist_put_right:Nn\l_clist_LofCaption{#1}%
354 \fi
355 \clist_put_right:Nn\l_clist_Caption{#2}%
356 \ifx\relax#3\relax
357 \clist_put_right:Nn\l_clist_Label{}%
358 \else
359 \clist_put_right:Nn\l_clist_Label{#3}%
360 \fi
361 \@ifnextchar+{\do@multiFloat@ii%
362 {\def\hvSet@CapWidth{n}%
363 \do@@@hvFloat}%
364 }
365 \ExplSyntaxOff
366
367
368 \newcounter{hv@pfigure}

```

24 The Package Source

```

369 \newcounter{hv@ptable}
370 \newcounter{subhv@pfigure}
371 \newcounter{subhv@ptable}
372
373 \def\drawSepLine{%
374   \par\noindent
375   \if@twocolumn\rule{\columnwidth}{0.4pt}\else\rule{\linewidth}{0.4pt}\fi
376   \vspace{0pt}%
377 }
378
379 \newcount\hv@cmta
380 \newcount\hv@cmtb
381
382
383 \def\hvFloat@ii[#1]#2#3{%
384   \hv@maxImageWidth=\textwidth
385   % \hv@capbesidefalse
386   \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
387   \gdef\hv@floatType{#2}%
388   \ifx\relax#2\relax \setkeys{hvSet}{nonFloat=true}\fi
389   \gdef\hv@floatObject{#3}%
390   \@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}%
391 }
392 \def\do@hvFloat[#1]#2#3{%
393   \gdef\hv@shortCap{#1}%
394   \gdef\hv@longCap{#2}%
395   \gdef\hv@label{#3}%
396   \ifhv@fullpage
397     \def\hvSet@CapWidth{n}% relative value
398     \do@@@hvFloat% fullpage with caption on other page
399   \else
400     \ifhv@FULLPAGE
401       \def\hvSet@CapWidth{n}% relative value
402       \do@@@hvFloat% fullpage with caption on other page
403     \else
404       \do@@@hvFloat
405     \fi
406   \fi
407 }
408 %
409 \def\do@@@hvFloat{% no special float page
410   \def\@tempa{90}%
411   \ifx\hvSet@rotAngle\@tempa
412     \setlength\hvMaxCapWidth{\textheight}%
413   \else
414     \setlength\hvMaxCapWidth{\hvWideWidth}%
415   \fi
416 %
417 % First we save the object in \hvObjectBox
418 %
419 \ifx\hvSet@objectAngle\hv@Zero % rotate the object?
420   \savebox{\hvObjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@floatObject\fi}%
421 \else

```

```

422 \savebox{\hvObjectBox}{%
423 \rotatebox{\hvSet@objectAngle}{%
424 \ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi
425 }%
426 }%
427 \fi
428 \setlength\hvObjectWidth{\wd\hvObjectBox}%
429 %
430 % Now we save the caption with its defined \hvCapWidth
431 %
432 \ifx\hvSet@capWidth\hv@Width% captionwidth=objectwidth
433 \setlength\hvCapWidth{\hvObjectWidth}%
434 \else
435 \ifx\hvSet@capWidth\hv@Height% captionwidth=objectheight
436 \setlength\hvCapWidth{\ht\hvObjectBox}%
437 \else
438 \ifx\hvSet@capWidth\hv@Natural% captionwidth=\linewidth-\objectwidth-separation
439 \ifhv@capbeside
440 \ifhv@wide
441 \setlength\hvCapWidth{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
442 \else
443 \ifhv@star
444 \setlength\hvCapWidth{\the\dimexpr\textwidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
445 \else
446 \setlength\hvCapWidth{\the\dimexpr\linewidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
447 \fi
448 \fi
449 \else
450 \setlength\hvCapWidth{\columnwidth}%
451 \fi
452 \else
453 \ifhv@capbeside
454 \ifhv@wide
455 \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
456 \setlength\@tempdima{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
457 \else
458 \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
459 \setlength\@tempdima{\the\dimexpr\columnwidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
460 \fi
461 \ifdim\hvCapWidth>\@tempdima
462 \setlength\hvCapWidth{\@tempdima}%
463 \fi
464 \else
465 \ifhv@wide
466 \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
467 \else
468 \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
469 \fi
470 \fi
471 \fi
472 \fi
473 \fi
474 \saveCaptionSkip % we put this space ourselves

```

```

475 \ifx\hvSet@capAngle\hv@Zero      % need rotation?
476   \sbox\hvCaptionBox{% NO rotation
477     \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
478     \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
479     \ifhv@nonFloat
480     \ifhv@onlyText\hv@longCap
481     \else
482       \ifx\hv@floatType\hv@figure
483         \ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
484       \else
485         \ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
486       \fi
487     \fi
488   \else
489     \let\@captype\hv@floatType
490     \expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
491   \fi
492   \expandafter\label\expandafter{\hv@label}%
493   \end{minipage}%
494 }%
495 \else
496   \sbox\hvCaptionBox{% Rotation
497     \rotatebox{\hvSet@capAngle}{%
498       \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
499       \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
500       \ifhv@nonFloat
501       \ifhv@onlyText\hv@longCap
502       \else
503         \ifx\hv@floatType\hv@figure
504           \ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
505         \else
506           \ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
507         \fi
508       \fi
509     \else
510       \let\@captype\hv@floatType
511       \expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
512     \fi
513     \label{\hv@label}%
514     \end{minipage}%
515   }% \rotatebox
516 }% \sbox
517 \fi
518 %
519 % now we have the object and the caption with the right
520 % rotated angles saved in different boxes
521 %%
522 \restoreCaptionSkip% save old values
523 \def\fps@figure{\hvSet@floatPos}%
524 \ifhv@nonFloat
525   \begin{group}% Start the nonfloat part

```



```

526 \else
527   \ifhv@star
528     \@nameuse{\hv@floatType*}%   Start the floating environment *****
529   \else
530     \begin{\hv@floatType} %   Start the floating environment
531     \fi
532   \fi
533   \checkoddpage
534   \ifx\hvSet@objectPos\hv@Right\raggedleft\fi
535   \ifx\hvSet@objectPos\hv@Center
536     \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
537   \fi
538   \ifx\hvSet@objectPos\hv@Outer
539     \ifoddpage\raggedleft\fi
540   \fi
541   \ifx\hvSet@objectPos\hv@Inner
542     \ifoddpage\else\raggedleft\fi
543   \fi
544   %
545   % to rotate object and caption together, we save all in another box
546   % the caption comes first, if its on the left or the top
547   % 0 caption left, inner and odd page, oneside inner
548   % 1 caption top
549   % 2 caption right, inner and even page, oneside outer
550   % 3 caption bottom
551   %
552   \ifx\hvSet@capPos\hv@Left
553     \hv@@capPos=0
554   \else
555     \ifx\hvSet@capPos\hv@Top
556       \hv@@capPos=1
557     \else
558       \ifx\hvSet@capPos\hv@Right
559         \hv@@capPos=2
560       \else
561         \ifx\hvSet@capPos\hv@Bottom
562           \hv@@capPos=3
563         \else
564           \ifx\hvSet@capPos\hv@Inner
565             \ifoddpageoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
566           \else
567             \ifx\hvSet@capPos\hv@Outer
568               \ifoddpageoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
569             \else
570               \ifx\hvSet@capPos\hv@Before
571                 \hv@@capPos=0 % same as cappos=right
572               \else
573                 \ifx\hvSet@capPos\hv@After
574                   \hv@@capPos=2 % same as capPos=right
575                 \fi
576               \fi
577             \fi
578           \fi

```

```

579     \fi
580   \fi
581 \fi
582 \fi
583 %%%
584 \savebox{\@tempboxa}{%          ***** @tempbox  start
585   \expandafter\ifcase\the\hv@capPos% 0 is LEFT    START \ifcase
586     \ifx\hvSet@capVPos\hv@Center
587       \put@CaptionBox
588       \hspace{\hvSet@floatCapSep}% capfloatsep
589       \put@ObjectBox
590     \else
591       \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
592         \put@CaptionBox[1]%
593         \hspace{\hvSet@floatCapSep}% capfloatsep
594         \put@ObjectBox[1]%
595       \else% caption on bottom
596         \put@CaptionBox[2]%
597         \hspace{\hvSet@floatCapSep}% capfloatsep
598         \put@ObjectBox[2]%
599       \fi
600     \fi% end caption left
601   \or%1 is top
602     \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
603     \begin{minipage}{\wd\hvCaptionBox}%
604       \else
605     \begin{minipage}{\wd\hvObjectBox}%
606       \fi
607     \centering
608     \ifhv@fbox
609     \fbox{\usebox{\hvCaptionBox}}\[\hvBelowCaptionSkip]%
610     \fbox{\usebox{\hvObjectBox}}%
611     \else
612     \usebox{\hvCaptionBox}\[\hvBelowCaptionSkip]%
613     \usebox{\hvObjectBox}%
614     \fi
615     \end{minipage}%
616   \or %2 is right
617     \ifx\hvSet@capVPos\hv@Center
618       \put@ObjectBox
619       \hspace{\hvSet@floatCapSep}%
620       \put@CaptionBox
621     \else
622     \ifx\hvSet@capVPos\hv@Top
623       \put@ObjectBox[1]%
624       \hspace{\hvSet@floatCapSep}% capfloatsep
625       \put@CaptionBox[1]%
626     \else
627       \put@ObjectBox[2]%
628       \hspace{\hvSet@floatCapSep}% capfloatsep
629       \put@CaptionBox[2]%
630     \fi
631   \fi

```

```

632 \or %3 bottom
633 \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
634 \begin{minipage}{\wd\hvCaptionBox}%
635 \else
636 \begin{minipage}{\wd\hvObjectBox}%
637 \fi
638 \centering
639 \ifhv@fbox
640 \fbox{\usebox{\hvObjectBox}}\[\hvAboveCaptionSkip]%
641 \fbox{\usebox{\hvCaptionBox}}%
642 \else
643 \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\[\hvAboveCaptionSkip]%
644 \usebox{\hvCaptionBox}%
645 \fi
646 \end{minipage}%
647 \fi% \ifcase\the\hv@capPos
648 }% End savebox Object and caption %%%%%%%%% @tempboxa
649 %
650 % now we rotate the object and caption, if needed
651 %
652 \ifhv@wide
653 \ifoddpageoroneside\else\ifoddpage\else\hspace*{-\marginparwidth}\fi\fi% <- for wide and left page
654 \fi
655 \ifx\hvSet@rotAngle\hv@Zero
656 \usebox{\@tempboxa}%
657 \else
658 \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}%
659 \fi
660 \ifhv@nonFloat
661 \ifx\hvSet@objectPos\hv@Center
662 \ifhv@nonFloat
663 \hspace{\fill}%
664 \fi
665 \fi
666 \endgroup% End the nonfloat part
667 \else
668 \ifhv@star
669 \@nameuse{end\hv@floatType*}% End the floating environment
670 \else
671 \end{\hv@floatType}% End the floating environment
672 \fi
673 \fi
674 \endgroup% startet at main \hvFloat
675 }
676 %
677 \newenvironment{hvFloatEnv}[1][\textwidth]
678 {\minipage{#1}\center}
679 {\endcenter\endminipage}
680 %
681
682 \ExplSyntaxOn
683 \let\clist@item@Nn\clist_item:Nn
684 \let\l@clist@Type\l_clist_Type

```

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```

685 \let\l@clist@LofCaption\l_clist_LofCaption
686 \let\l@clist@Label\l_clist_Label
687 \let\clist@count@N\clist_count:N
688 \ExplSyntaxOff
689
690 \def\do@@@hvFloat{% special float page: caption <-> fullpage image
691 \ifx\hvSet@capPos\hv@After \hv@capPos=1
692 \else
693 \ifx\hvSet@capPos\hv@Even \hv@capPos=2
694 \else
695 \ifx\hvSet@capPos\hv@Odd \hv@capPos=3
696 \else
697 \ifx\hvSet@capPos\hv@Inner \hv@capPos=4
698 \else
699 \ifx\hvSet@capPos\hv@Outer \hv@capPos=5
700 \else
701 \ifx\hvSet@capPos\hv@Right \hv@capPos=6 % only for twocolumn mode
702 \else
703 \ifx\hvSet@capPos\hv@Left \hv@capPos=7 % only for twocolumn mode
704 \else
705 \hv@capPos=0
706 \fi
707 \fi
708 \fi
709 \fi
710 \fi
711 \fi
712 \fi
713 \checkoddpage
714 \set@caption@object% set caption and object into a box
715 \ifcase\hv@capPos% caption before object 0-> _always_ left
716 \setBottomCaption\setPageObject
717 \or% caption after object 1-> _always_ right
718 \setPageObject\setBottomCaption
719 \or% caption on even page 2-> left page
720 \ifoddpage
721 \afterpage{\setBottomCaption\setPageObject}%
722 \else% we are on an even page
723 % \zsavposy{hv@currentPos}%
724 % \ifdim\the\dimexpr\zposy{hv@currentPos}sp-\hv@BottomSpace-1cm>\ht\TBox % enough space*
725 % \setBottomCaption\setPageObject
726 % \else
727 % \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
728 % \fi
729 \fi
730 \or% caption on odd page 3->right page
731 \if@twoside
732 \if@twocolumn
733 \ifoddpage
734 \if@firstcolumn% on right side
735 \setBottomCaption\setPageObject
736 \else
737 \afterpage{\setPageObject\setBottomCaption}% start next column

```

```

738     \fi
739 \else% left (even) page
740     \if@firstcolumn
741         \afterpage{\setPageObject\setBottomCaption}% start next column
742     \else
743         \setPageObject\setBottomCaption
744     \fi
745 \fi
746 \else % onecolumn
747     \ifoddpage
748         \setPageObject\setBottomCaption
749     \else% even page
750         \afterpage{\setPageObject\setBottomCaption}%
751     \fi
752 \fi
753 \else % oneside
754     \if@twocolumn
755         \ifoddpage
756             \if@firstcolumn% on right side
757                 \setBottomCaption\setPageObject
758             \else
759                 \setPageObject\setBottomCaption
760             \fi
761         \else
762             \if@firstcolumn% on left side
763                 \afterpage{\setPageObject\setBottomCaption}%
764             \else
765                 \setPageObject\setBottomCaption
766             \fi
767         \fi
768     \else % onecolumn
769         \ifoddpage
770             \setBottomCaption\setPageObject
771         \else
772             \afterpage{\setBottomCaption\setPageObject}%
773         \fi
774     \fi
775 \fi
776 \or% caption on the inner column 4->inner
777 \set@caption@object
778 \if@twocolumn
779     \ifoddpage
780         \if@firstcolumn% on right side
781         \setBottomCaption\setPageObject
782     \else % right column on right side
783         \setPageObject\setBottomCaption% start next firstcolumn next page
784     \fi
785 \else
786     \if@firstcolumn% on left side
787         \afterpage{\afterpage{\setBottomCaption\setPageObject}}% start next page/first column
788     \else% left page/column
789         \setBottomCaption\setPageObject% start on same page/column
790     \fi

```

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```

791     \fi
792     \else % onecolumn
793         \setBottomCaption\setPageObject
794     \fi
795 \or%          caption on the outer column 5->outer
796     \set@caption@object
797     \if@twocolumn
798         \ifoddpage
799             \if@firstcolumn
800                 \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
801             \else
802                 \afterpage{\setBottomCaption\setPageObject}%
803             \fi
804         \else% even page (left)
805             \if@firstcolumn
806                 \setBottomCaption\setPageObject
807             \else
808
809             \fi
810         \fi
811     \else% onecolumn
812         \setBottomCaption\setPageObject
813     \fi
814 \or%          caption after object on same page 6->right for twocolumn
815     \if@twocolumn
816         \if@firstcolumn
817             \afterpage{\setPageObject\setBottomCaption}%
818         \else
819             \setPageObject\setBottomCaption
820         \fi
821     \else% always caption _after_ object for onecolumn
822         \setPageObject\setBottomCaption
823     \fi
824 \or%          caption before object on same page 7->left for twocolumn
825     \if@twocolumn
826         \if@firstcolumn
827             \setBottomCaption\setPageObject
828         \else
829             \afterpage{\setBottomCaption\setPageObject}
830         \fi
831     \else%          onecolumn -> same as before
832         \setBottomCaption\setPageObject
833     \fi
834 \fi
835 \endgroup% startet at main \hvFloat
836 }%
837 %
838 \def\setBottomCaption{%
839     \begin{\hv@floatType}[!b]
840     \ifhv@separatorLine\drawSepLine\fi
841     \par
842     \usebox\hvCaptionBox
843     \end{\hv@floatType}%

```

```

844 }
845
846 \def\setPageObject{%
847   \ifhv@star
848     \begin{\hv@floatType*}[p]%
849   \else
850     \begin{\hv@floatType}[p]%
851   \fi
852   \ifhv@FULLPAGE
853     \vspace*{\the\dimexpr-\lin-\voffset-\topmargin-\headheight-\headsep}%-0.5\baselineskip}%
854     \checkoddpage
855     \if@twoside
856       \ifoddpage
857         \hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
858       \else
859         \hspace*{\the\dimexpr-\evensidemargin-\parindent-\lin}%
860       \fi
861     \else
862       \hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
863     \fi
864     %\put(0,0){
865     \AtBeginShipoutNext{\thispagestyle{empty}}%
866     \usebox\hvObjectBox}%
867   \else
868     \usebox\hvObjectBox
869   \fi
870   \ifhv@star
871     \end{\hv@floatType*}%
872   \else
873     \end{\hv@floatType}%
874   \fi
875 }
876
877 \ExplSyntaxOn
878
879 \def\getMultiCaptionAndLabel{%
880   \global\sbox\hvCaptionBox{\minipage[b]{\linewidth}%
881     \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
882     \setlength\belowcaptionskip{5pt}%
883     \setlength\abovecaptionskip{0pt}%
884     \hv@cntb=\clist_count:N\l_clist_Type
885     \advance\hv@cntb by \@ne
886     \hv@cнта=1
887     \loop
888       \edef\@capter{\clist_item:Nn\l_clist_Type{\hv@cнта}}%
889       \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cнта}}%
890       \ifx\@tempa\@empty
891         \caption{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
892       \else
893         \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
894       \fi
895       \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
896       \ifx\@tempa\@empty

```

```

897     \else
898       \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cmta}-cap}\fi
899       \advance\hv@cmta by \@ne
900       \ifnum\hv@cmta<\hv@cmtb
901         \repeat
902       \endminipage}%
903   }
904   \def\getMultiObjectAndLabel{%
905     \global\sbox\hvObjectBox{\minipage{\linewidth}%
906       \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
907       \ifx\hvSet@objectPos\hv@Right\raggedleft\else
908         \ifx\hvSet@objectPos\hv@Left\raggedleft\else
909           \ifx\hvSet@objectPos\hv@Center\centering
910         \fi\fi\fi
911       \hv@cmtb=\clist_count:N\l_clist_Type
912       \advance\hv@cmtb by \@ne
913       \hv@cmta=1
914       \loop
915         \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cmta}}%
916         \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
917         \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cmta}}%
918         \ifx\@tempa\@empty
919           \else
920             \refstepcounter{\@cptype}%
921             \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cmta}}%
922           \fi
923         \ifnum\hv@cmta<\clist_count:N\l_clist_Type\par\hv@vskip\fi
924         \advance\hv@cmta by \@ne
925         \ifnum\hv@cmta<\hv@cmtb
926           \repeat
927       \endminipage}%
928   }
929
930   \def\getMultiSubCaptionAndLabel{%
931     \global\sbox\hvCaptionBox{\minipage{\linewidth}%
932       \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
933       \setlength\belowcaptionskip{5pt}%
934       \setlength\abovecaptionskip{0pt}%
935       \xdef\@cptype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
936       \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{1}}%
937       \ifx\@tempa\@empty
938         \caption{\clist_item:Nn\l_clist_Caption{1}}%
939       \else
940         \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{1}}%
941       \fi
942       \edef\@tempa{\clist_item:Nn\l_clist_Label{1}}%
943       \ifx\@tempa\@empty\else\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{1}-cap}\fi
944     \endminipage}%
945   }
946
947   \def\getMultiSubObjectAndLabel{%
948     \global\sbox\hvObjectBox{\minipage{\linewidth}%
949       \ifx\relax\hv@subcaption@format\relax\else\captionsetup[sub]{\hv@subcaption@format}\fi

```



```

950 \ifx\hvSet@objectPos\hv@Right\raggedleft\else
951 \ifx\hvSet@objectPos\hv@Left\raggedleft\else
952 \ifx\hvSet@objectPos\hv@Center\centering
953 \fi\fi\fi
954 \hv@cntb=\clist_count:N\l_clist_Caption
955 \advance\hv@cntb by \@ne
956 \hv@cmta=2
957 \xdef\@capttype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
958 \loop
959 \def\@tempa{\clist_item:Nn\l_clist_Object{\hv@cmta}}%
960 \ifhv@objectFrame\frame{\@tempa}\else\@tempa\fi
961 \begin{group}
962 \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cmta}}%
963 \ifx\@tempa\@empty
964 \subcaption{\clist_item:Nn\l_clist_Caption{\hv@cmta}}%
965 \else
966 \expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cmta}}%
967 \fi
968 \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cmta}}%
969 \ifx\@tempa\@empty
970 \else
971 \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cmta}}%
972 \fi
973 \end{group}
974 \ifnum\hv@cmta<\clist_count:N\l_clist_Type\par\hv@vskip\fi
975 \advance\hv@cmta by \@ne
976 \ifnum\hv@cmta<\hv@cntb
977 \repeat
978 \edef\@tempa{\clist_item:Nn\l_clist_Label{1}}% the main label at the end
979 \ifx\@tempa\@empty
980 \else
981 \refstepcounter{\@capttype}
982 \expandafter\label\expandafter{\@tempa}%
983 \fi
984 \endminipage}%
985 }
986 \ExplSyntaxOff
987
988 \def\getSingleCaptionAndLabel{%
989 \global\sbox\hvCaptionBox{\minipage{\linewidth}%
990 \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
991 \setlength\belowcaptionskip{5pt}%
992 \setlength\abovecaptionskip{0pt}%
993 \edef\@capttype{\hv@floatType}%
994 \expandafter\ifx\expandafter\relax\hv@shortCap\relax
995 \caption{\hv@longCap}%
996 \else
997 \caption[\hv@shortCap]{\hv@longCap}%
998 \fi
999 \expandafter\ifx\expandafter\relax\hv@label\relax\else\label{\hv@label-cap}\fi
1000 \endminipage}%
1001 }
1002

```

24 The Package Source

```

1003 \def\set@caption@object{%    first caption, then object
1004   \ifhv@multiFloat
1005     \getMultiCaptionAndLabel
1006   \else
1007     \ifhv@subFloat
1008       \getMultiSubCaptionAndLabel
1009     \else
1010       \getSingleCaptionAndLabel
1011     \fi
1012   \fi
1013 \edef\@capttype{hv@p\hv@floatType}%
1014 \ifhv@multiFloat
1015   \getMultiObjectAndLabel
1016 \else
1017   \ifhv@subFloat
1018     \getMultiSubObjectAndLabel
1019   \else
1020     \global\sbox\hvObjectBox{%
1021       \refstepcounter{\@capttype}%
1022       \ifhv@objectFrame\frame{\hv@floatObject}\else\hv@floatObject\fi
1023       \expandafter\ifx\expandafter\relax\hv@label\relax
1024         \else
1025           \expandafter\label\expandafter{\hv@label}%
1026         \fi
1027     }%
1028   \fi
1029 \fi
1030 }
1031 %
1032 \endinput

```