

Package hvfloat

Rotating and scaling of objects and captions ver 2.14

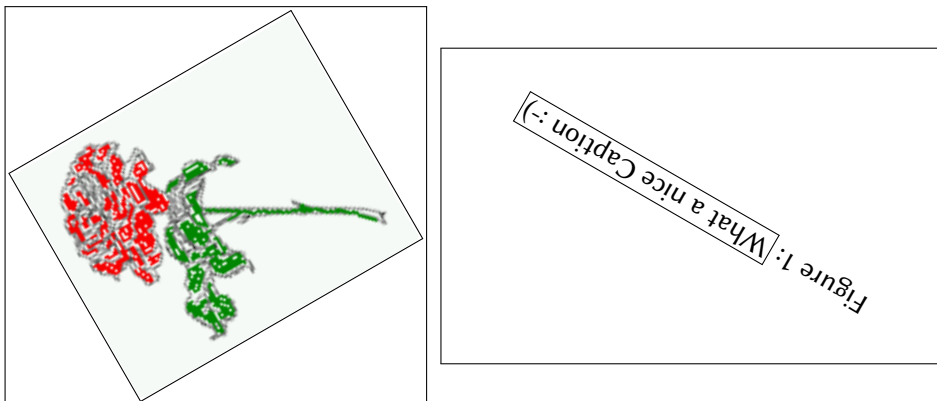
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The package hvfloat defines a macro to place objects and captions of floats in different positions with different rotating angles.

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 10 on page 22 and 18.2 on page 51 and the optional `+` is explained in section 16.3 on page 38.

`\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.

[...] 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. |
| <code>floatCapSep</code> | <code>5pt</code> | The additional width between the object and a left or right placed caption. |

3 The default use of floating environments

| Keyword | Default | Description |
|-------------|---------|--|
| 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 |

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}
```

float

Code for table 3:

```
\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\\
```


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 |
| \setDefault | command | sets all options to the defaults |
| \defhvstyle | command | define a user style |

```

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\\
\CMD{defhvstyle} & 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 13 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}

```

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

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 7).

```

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

4 Caption width



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

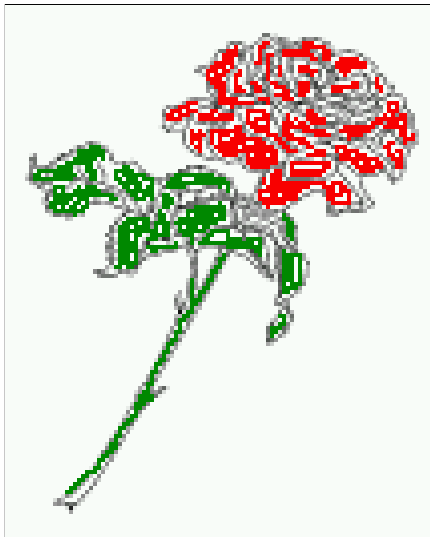


Figure 4: Caption right beside with a *natural* width, which is given by the width of the object, the separation between object and caption, and the current linewidth.

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

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}}%
```

4.3 Identical object and 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.

```
{Caption right beside with a width setting of \texttt{0.9\textbackslash linewidth}
which is too big for this example and therefore corrected
by the macro to the maximal width.}{fig:width3}
```

float

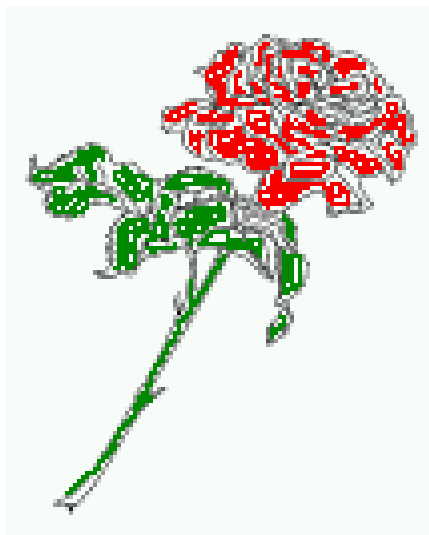


Figure 6: Caption right beside with a width setting of 0.9\linewidth which is too big for this example and therefore corrected by the macro to the maximal width.

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

5 Caption left or right of the object

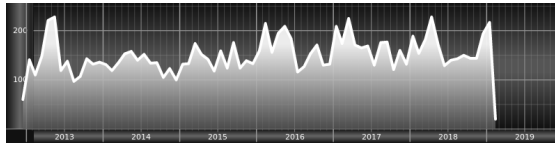


Figure 7: Caption below with a width of the given object which may be a problem if it is a very small object.

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}
```



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.

```
float
capPos=right
```

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}
```

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



```
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

6 Caption inner or outer

placed vertically centered to the object. Important for the height of the object is the surrounding orthogonal rectangle.

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}
```

float



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.

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 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}
```

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.

float
capPos=inner

Now the same Image with capPos=outer . The current pagenumber is 15, an odd 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}
```



float
capPos=outer

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.

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

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

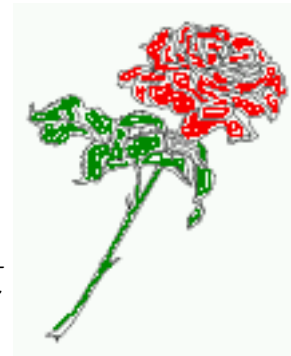


Figure 14: Caption at the bottom right beside the float with a caption width of 0.5\columnwidth and $\text{capPos}=\text{outer}$.

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:

```
\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\textbackslash columnwidth} 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 $\text{capPos}=\text{outer}$

We have an even 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

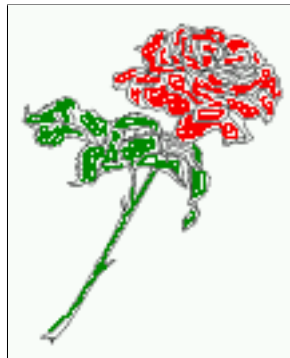


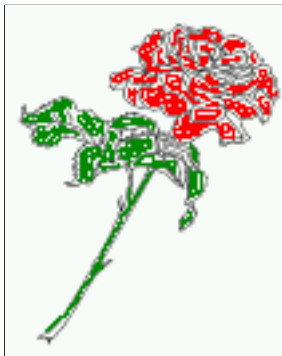
Figure 16: Caption at bottom right beside the float

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 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 20 on the next page).

The code for figure 19:

```
\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 19: 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 :

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

The code for figure 21:

```
\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 21: 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.

9 Wide floats

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

The code for figure 22:

```
\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}
```

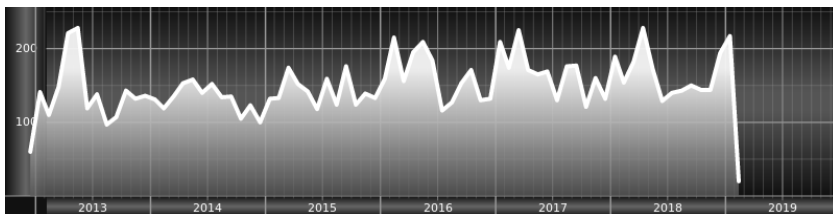
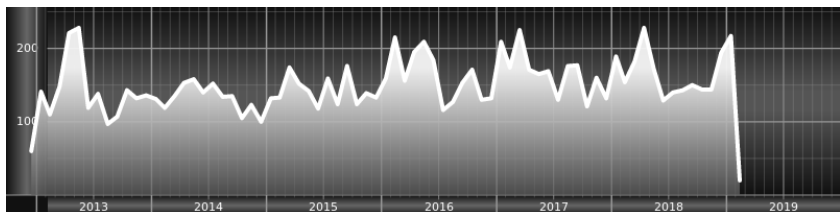


Figure 22: Caption at top right beside the float and object position left and the option `wide`.

The code for figure 23:

```
\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 23: Caption at top left beside the object and object position left and the option `wide`.

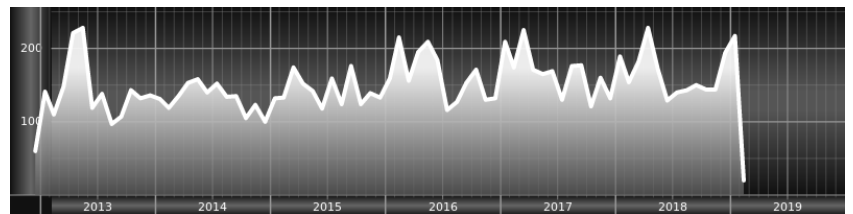


For a twosided document it will place the object always in the margin.

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

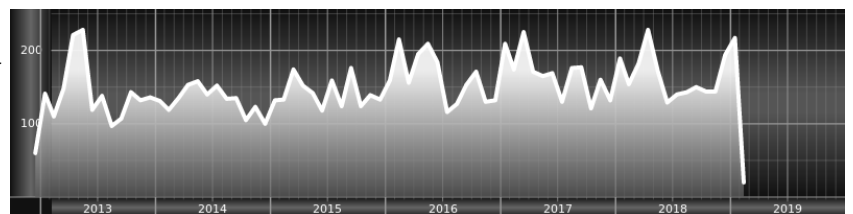


Now we set the same image with the same setting on the next page. The caption will change its side due to the setting `capPos=outer`.

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}.}{fig:81l}
```

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

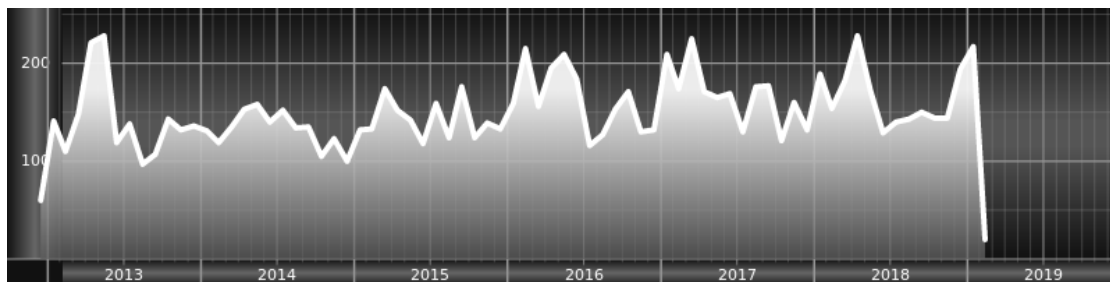


The caption can be typeset completely into the margin with:

11 Full Page Width in Landscape Mode

```
\captionsetup{justification=RaggedRight}
\hvfFloat[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}.}{fig:812}
```

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



10 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 27 on the facing page) is:

```
\hvFloat*[capPos=right]{figure}%
{\includegraphics{images/frose}}%
[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.

11 Full Page Width in Landscape Mode

If you do not want to load the package `lscape` (or `pdflscape`) you can use the `floatPos=p` option to put the image on an own page and rotated by 90 degrees (figure 28).

Code for figure 28:

```
\hvFloat[%
    floatPos=p,
    capPos=bottom,
    rotAngle=90,
    objectPos=center,
```

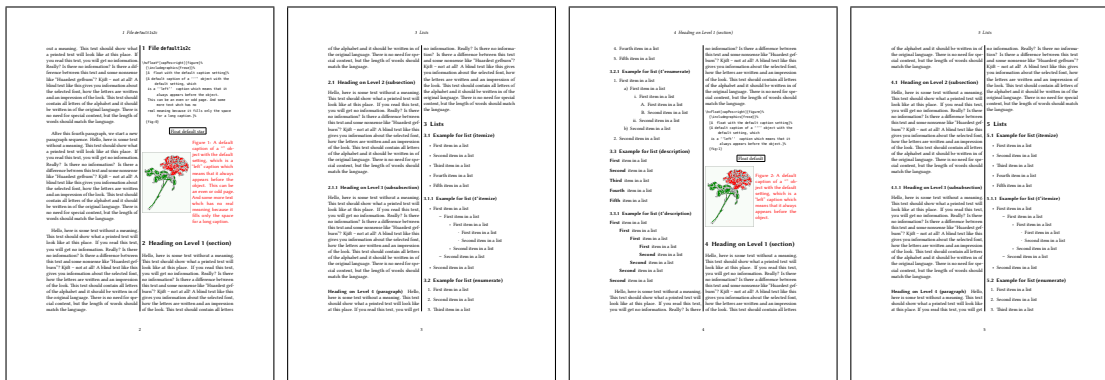


Figure 27: Output of default1s2c (pages 2 –5)

```
{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.

The code for figure 29:

```
\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

float
landscape

float

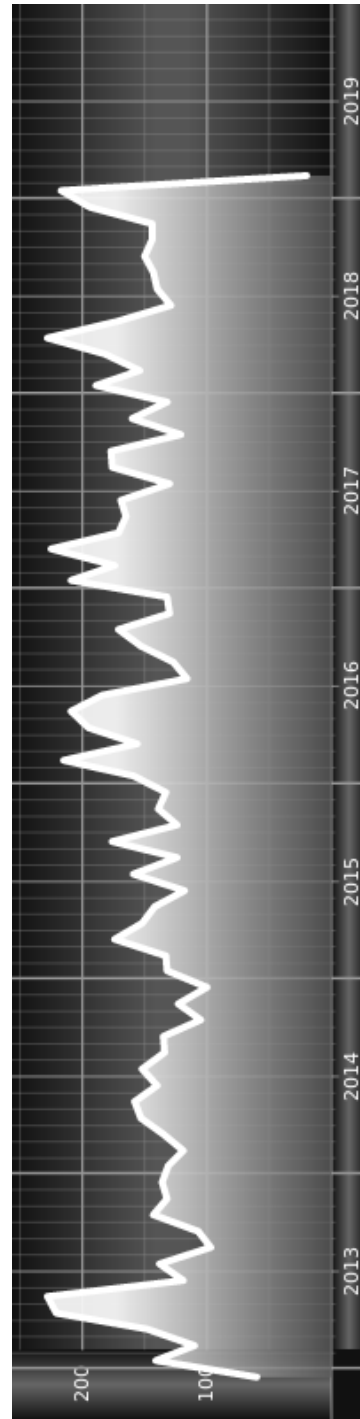
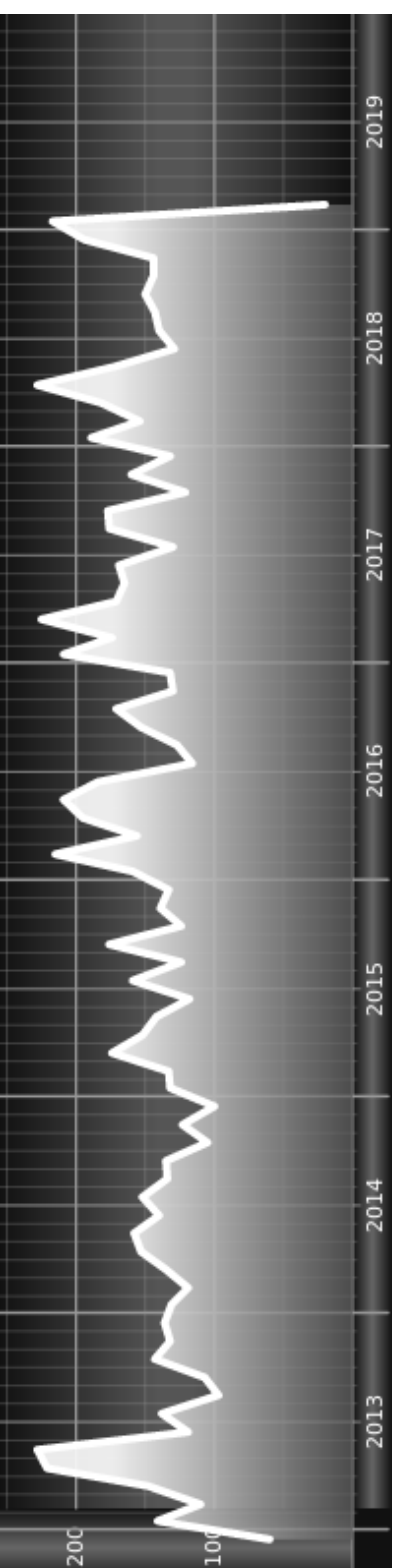


Figure 28: Caption and object in landscape mode. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense 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 29: 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”? Kjiff – 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 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.

12 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.

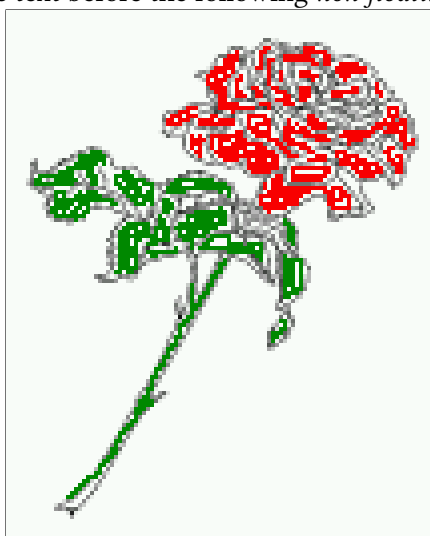


Figure 30: Caption of a “nonfloat” Object, using the nonfloat Package

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

The image 12 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.

13 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,
```

13 Tabulars as Objects

```
capPos=right,  
capVPos=top,  
capWidth=0.3}{table}{ }{Another demonstration of the \texttt{use0Box} Parameter}{table:2}
```

In this case leave the third parameter empty.

float

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 |

float

| Name | Type | Description | Table 5: Demonstration of the use0Box Parameter |
|---------------|-------------|---|--|
| \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 | |

14 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 14:

```
\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

15 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 |

16 Full page objects in onecolumn mode

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 |

16 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 31 on the next page shows the meaning of the optional arguments `fullpage`, `FullPage`, and `FULLPAGE` for `\inclugraphics [...] {tiger}`.

16.1 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:

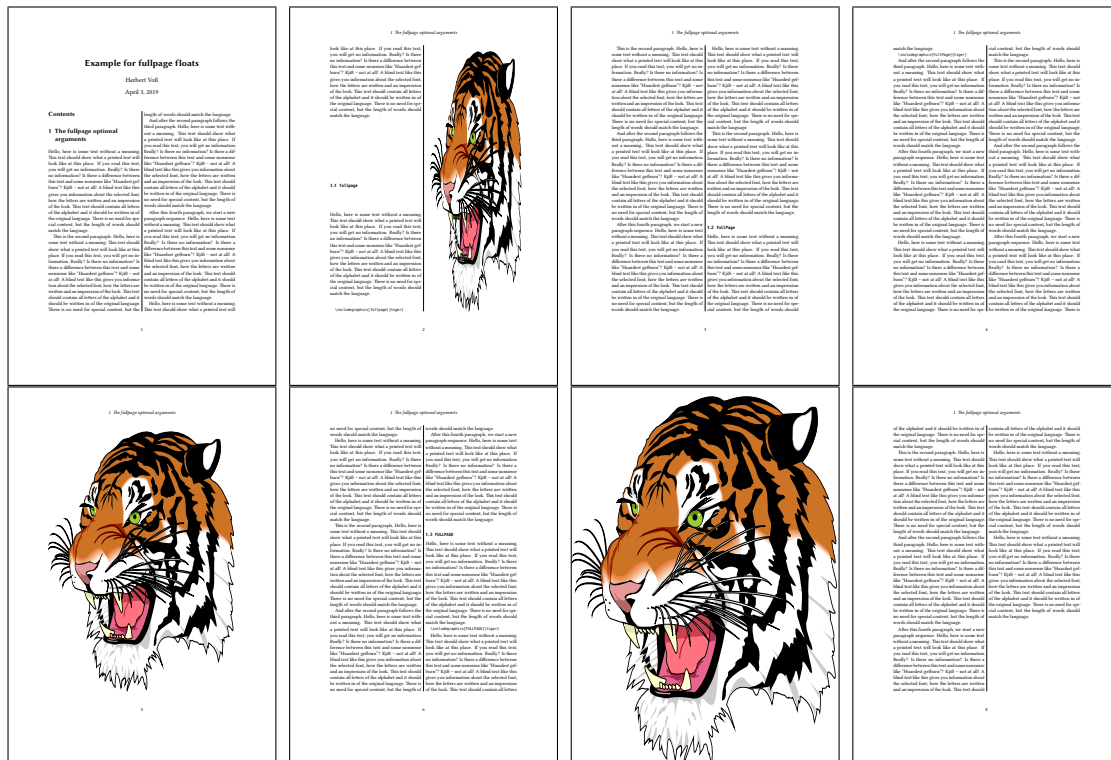


Figure 31: Output of fullpage1s2c (pages 1–8)

16.1.1 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
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 oneseide 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 oneseide mode. Figure 32 on page 33 shows the

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 16.3 on page 38. |
| subFloat | true false | For multiple objects with one main and more subcaptions. See section 17 on page 40. |
| 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. |

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 shows the valid optional arguments for a full page floating object.

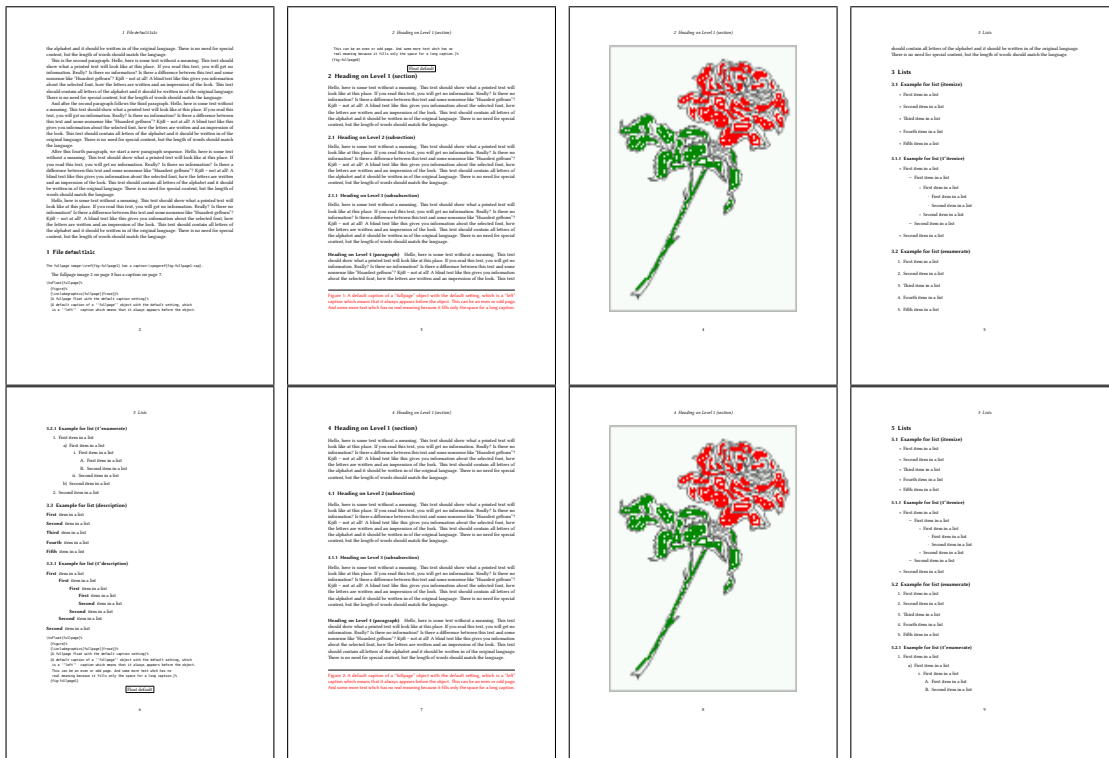


Figure 32: Output of default1s1c (pages 2–9)

16.1.3 Using capPos=evenPage — caption on an even page

With capPos=evenPage the caption will be printed on an even (left) page, the object will always be on an odd (right) page. This option makes only real sense for The twoside mode!

```
\hvFloat[fullpage, capPos=evenPage]%
{figure}%
{\includegraphics[fullpage]{images/frose}}%
[A float with a caption on an even page (left)]%
{A caption on an even (left) page of a “fullpage” object.. \blindtext}
{fig:fullpage3}
```

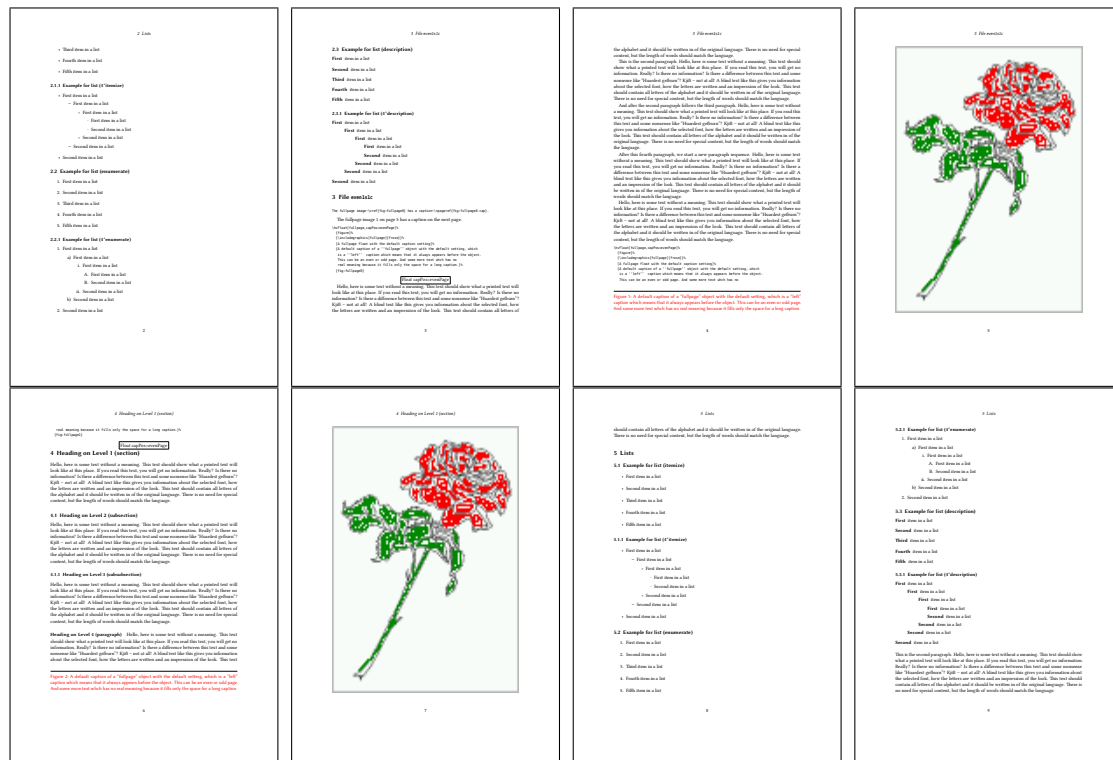


Figure 34: Output of even1s1c (pages 2–9)

16 Full page objects in onecolumn mode

16.1.4 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.

```
\hvFloat[fullpage, capPos=oddPage]%  
{figure}%  
{\includegraphics[fullpage]{images/frose}}%  
[A float that 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}
```

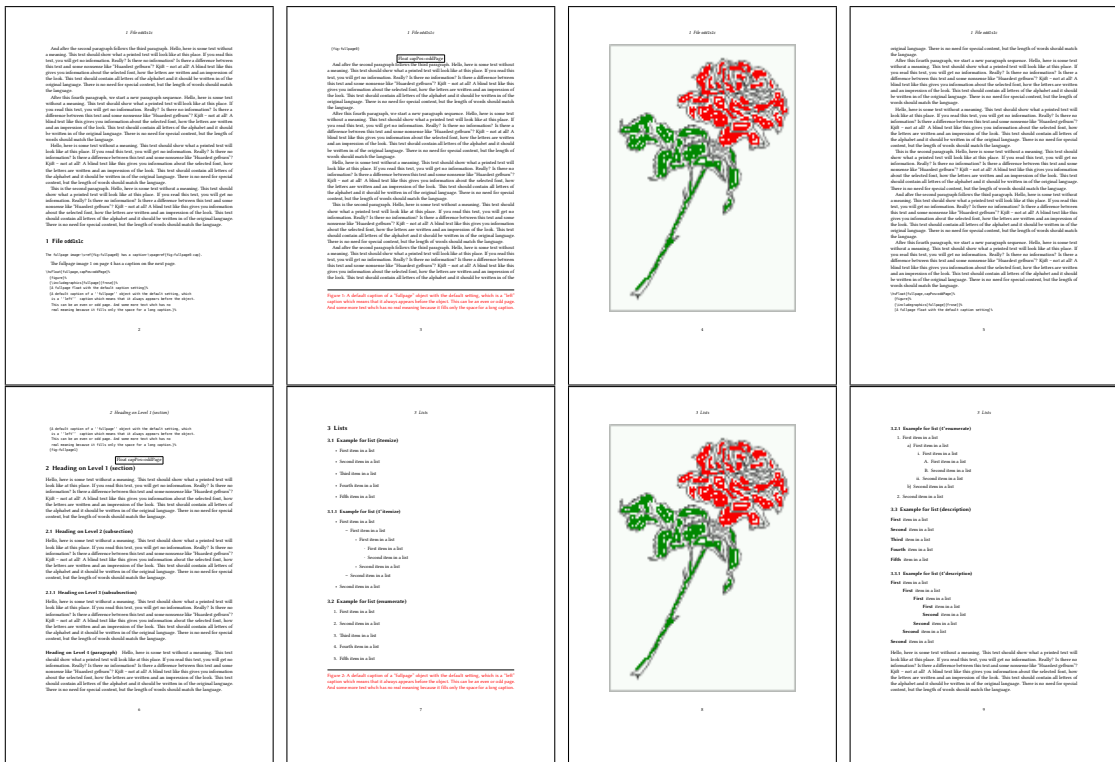


Figure 35: Output of odd1s1c (pages 2–9)

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

These settings make no sense in onecolumn mode.

16.2 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}
```

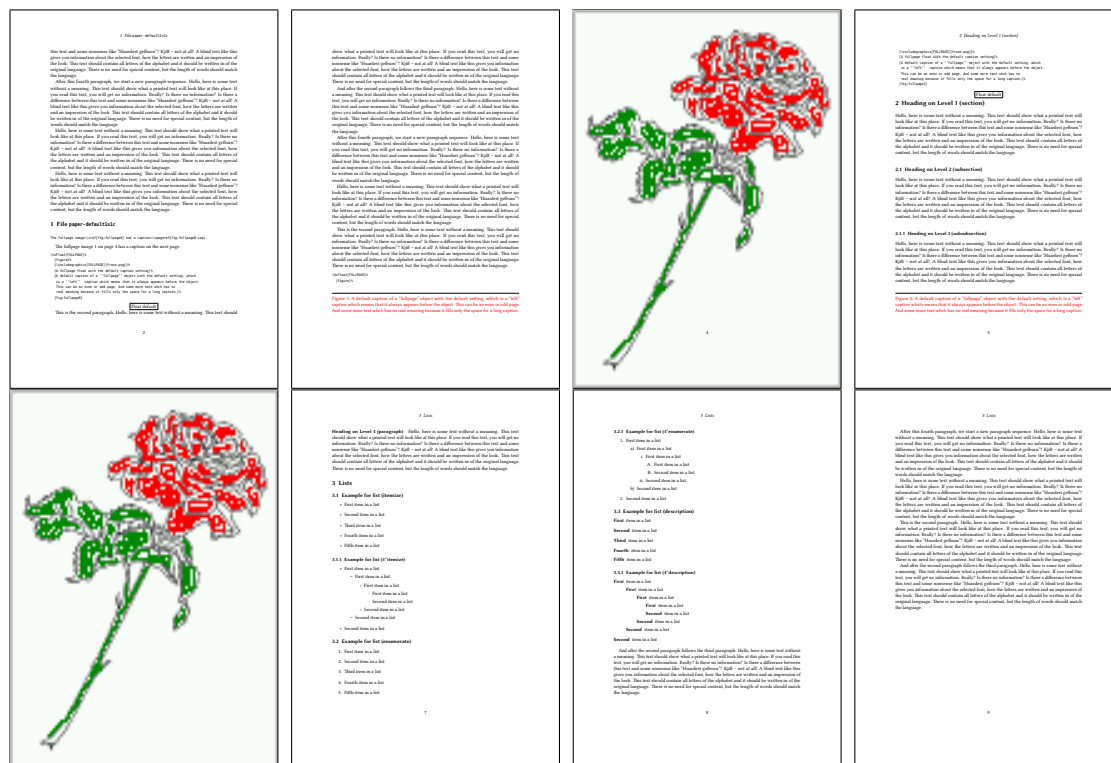


Figure 36: Output of paper-default1s1c (pages 2–9)

16 Full page objects in onecolumn mode

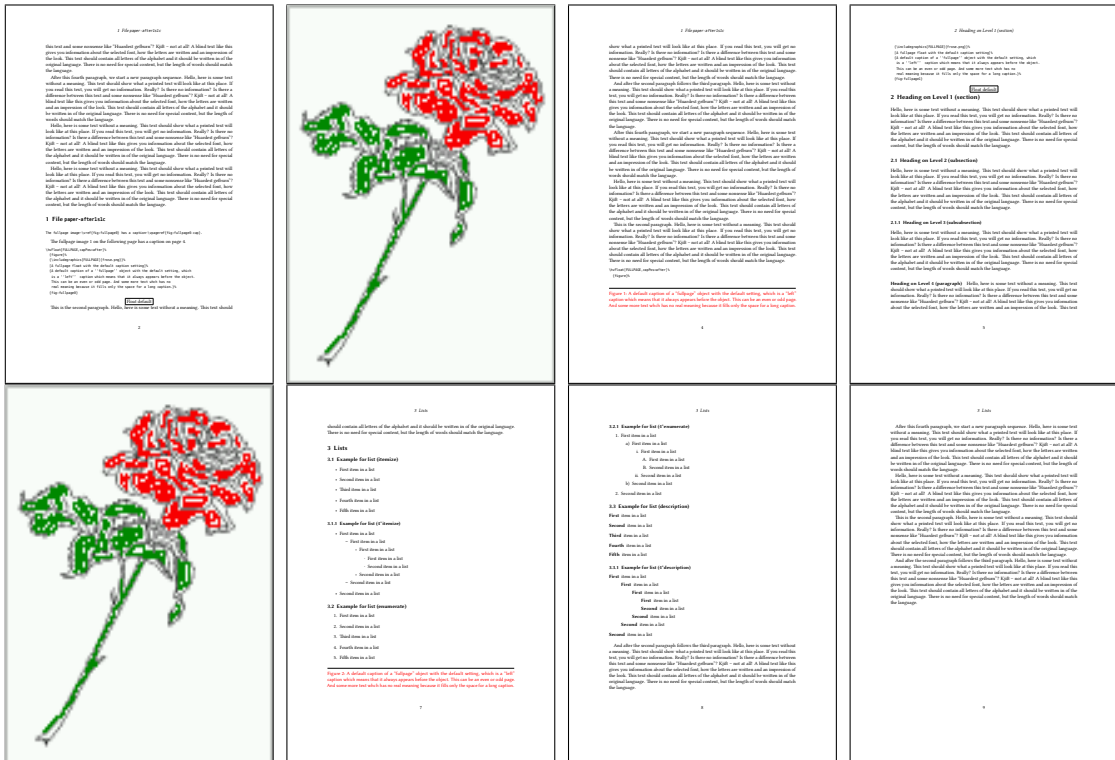


Figure 37: Output of paper-after1s1c (pages 2–9)

16.3 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}}% 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.}%


```

no 3

no 4

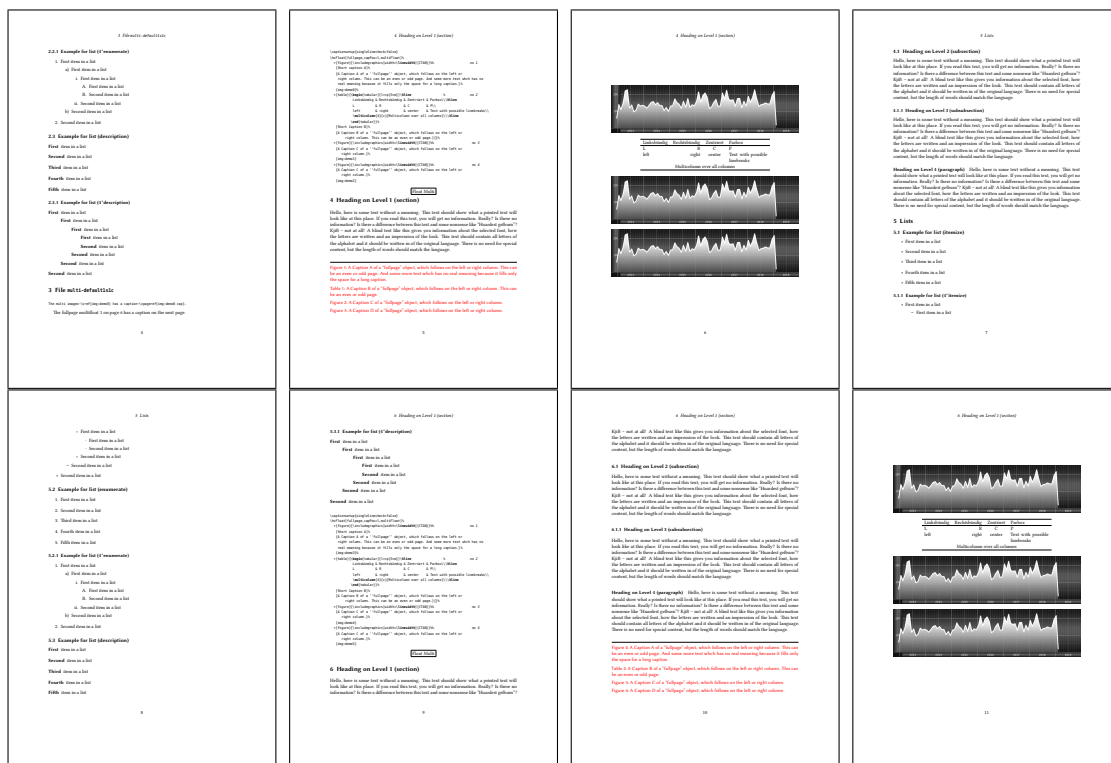


Figure 38: Output of multi-default1s1c (pages 4–11)

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

17 Subfloat page

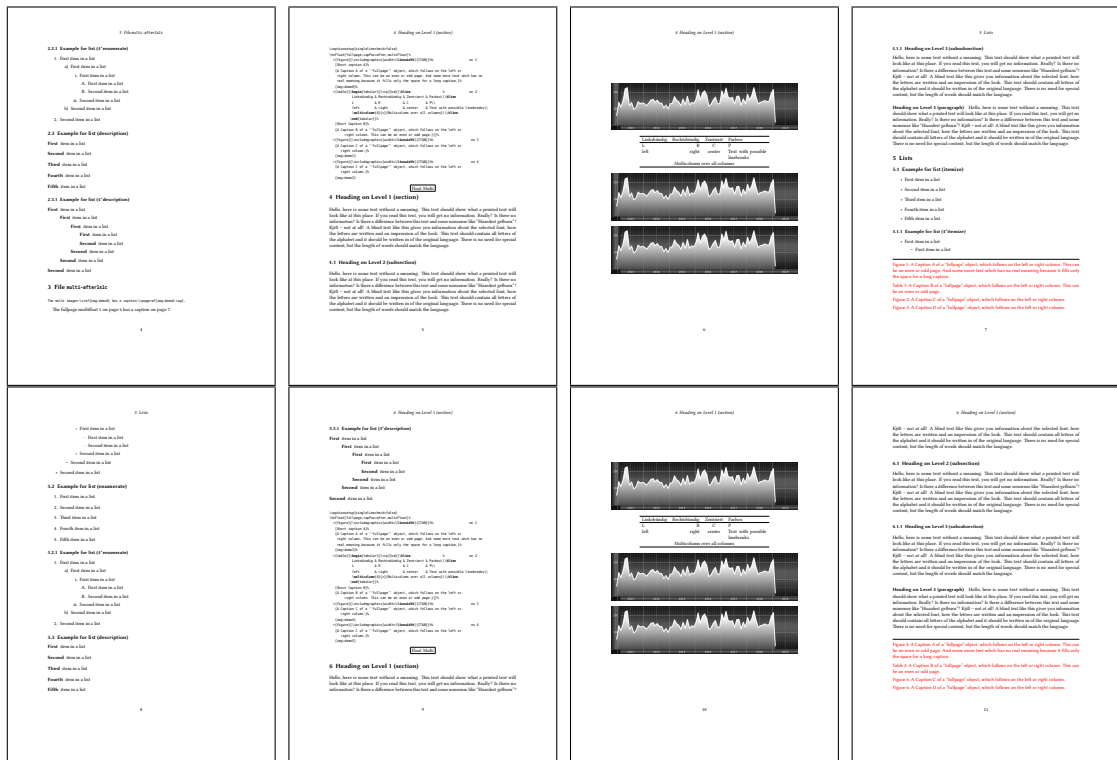


Figure 39: Output of multi-afterls1c (pages 4–11)

tabulars. If you want it like subfigures or subtabulars then go to section 17. The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

17 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
```



```

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]`.

17 Subfloat page

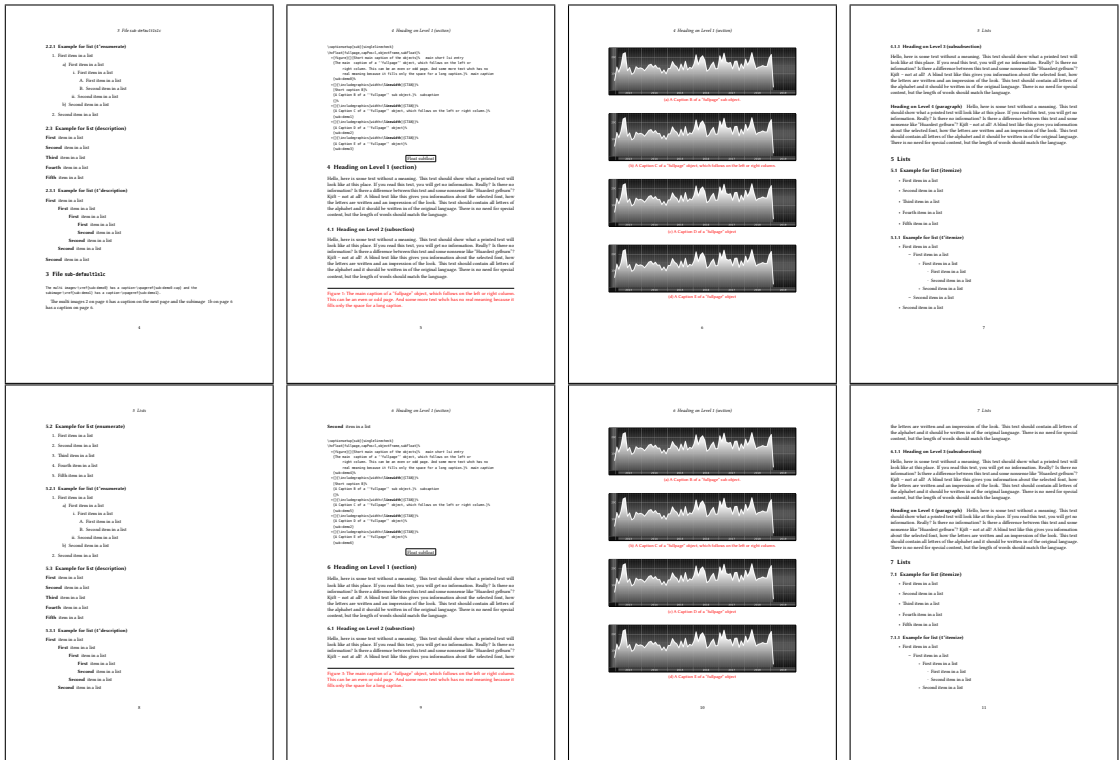


Figure 40: Output of sub-default1s1c (pages 4–11)

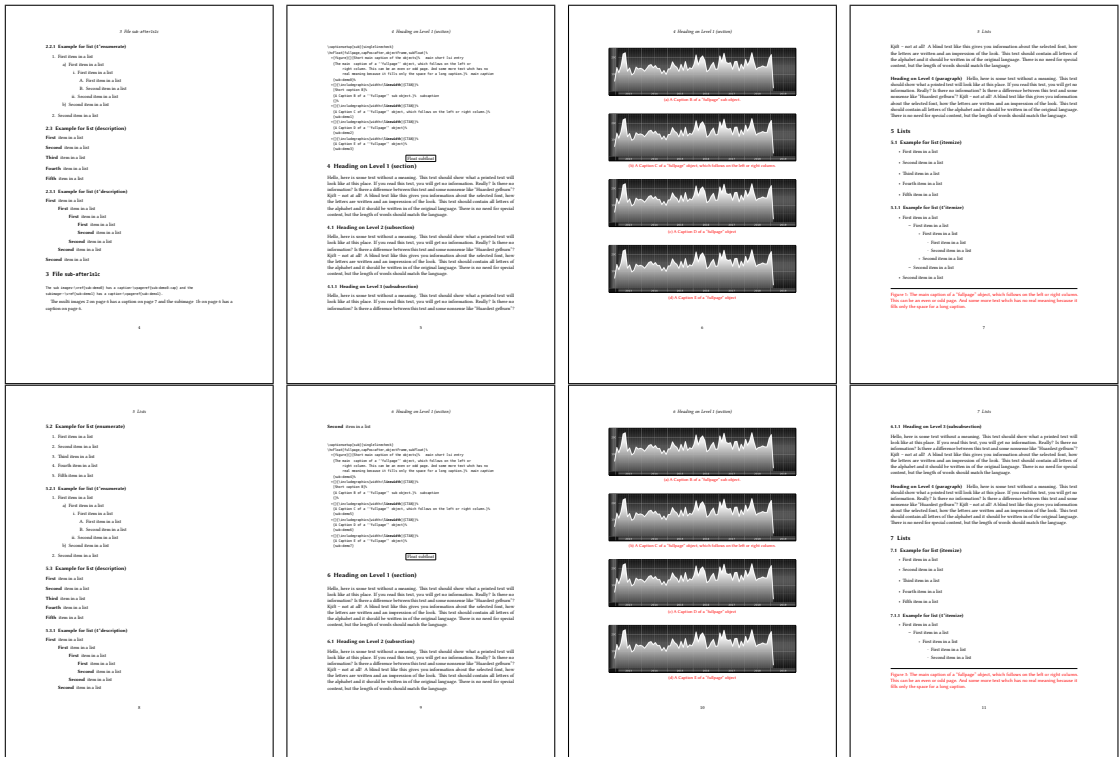


Figure 41: Output of sub-after1s1c (pages 4–11)

18 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 32 shows the valid optional arguments for a full page floating object.

18.1 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 42).

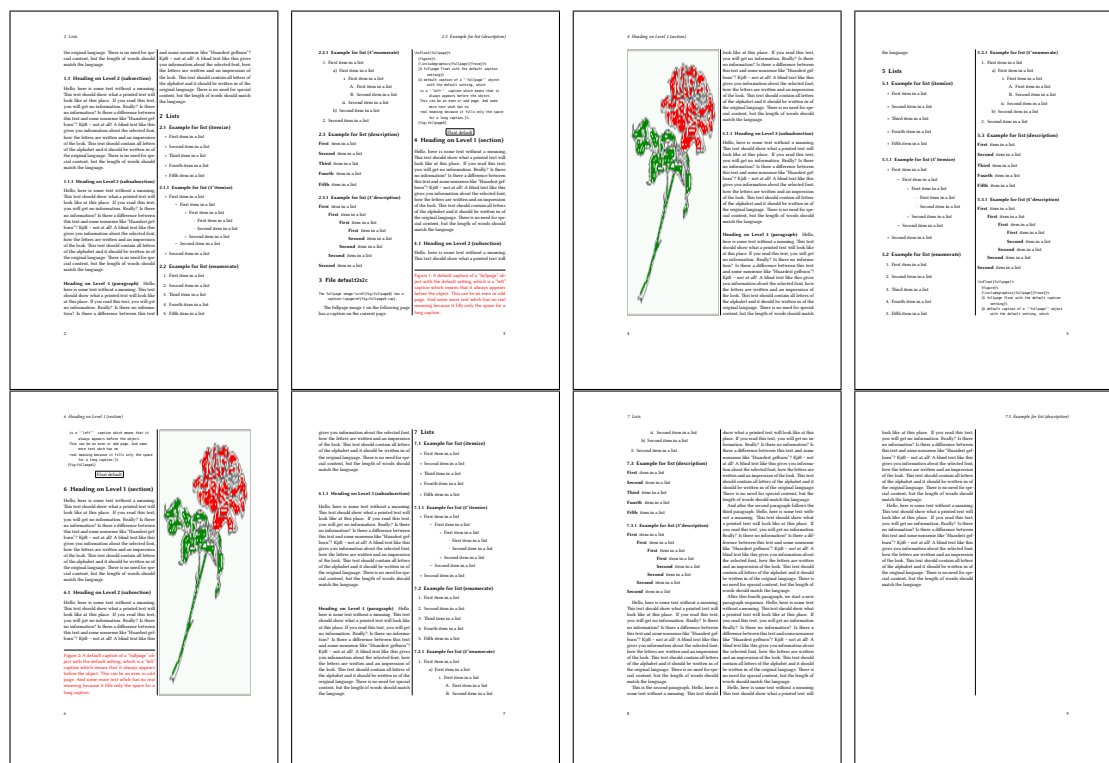


Figure 42: Output of default2s2c (pages 2–9)

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

18 Full page objects in twocolumn mode

{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 42 on the previous 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 43).

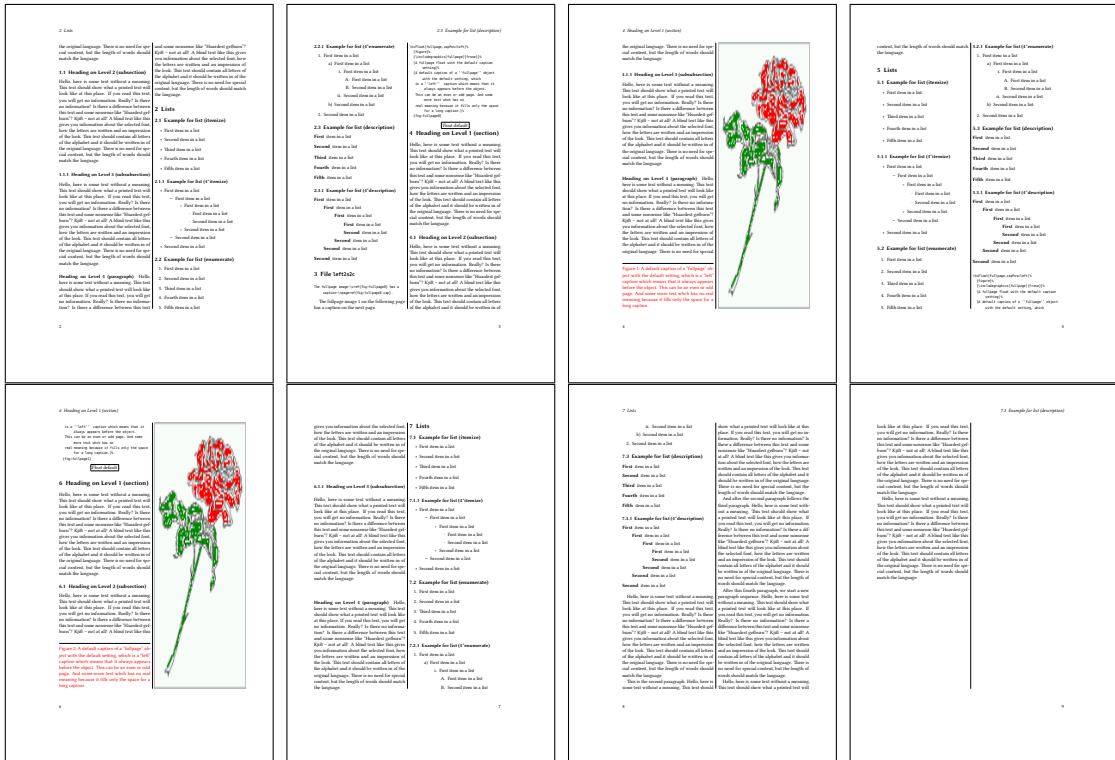


Figure 43: Output of left2s2c (pages 2–9)

18.1.1 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 45 on page 46)

```
\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
```

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

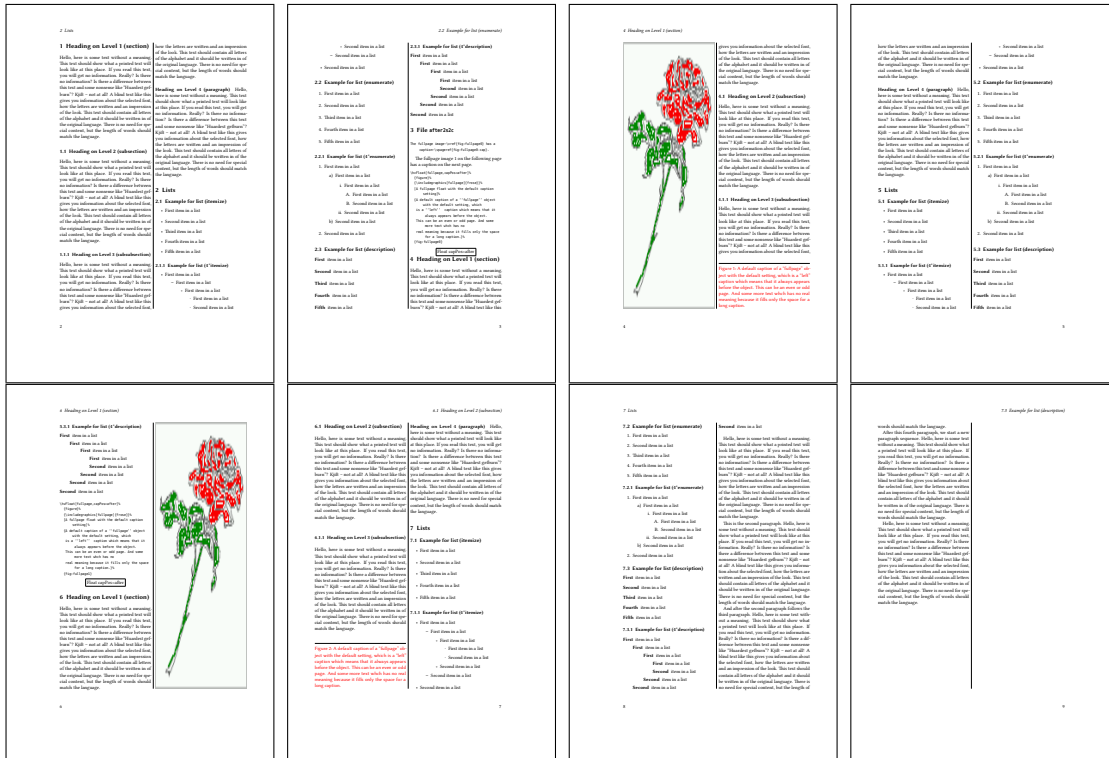


Figure 44: Output of after2s2c (pages 2–9)

The caption and the object can be on different pages (Figure 44). 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.

18 Full page objects in twocolumn mode

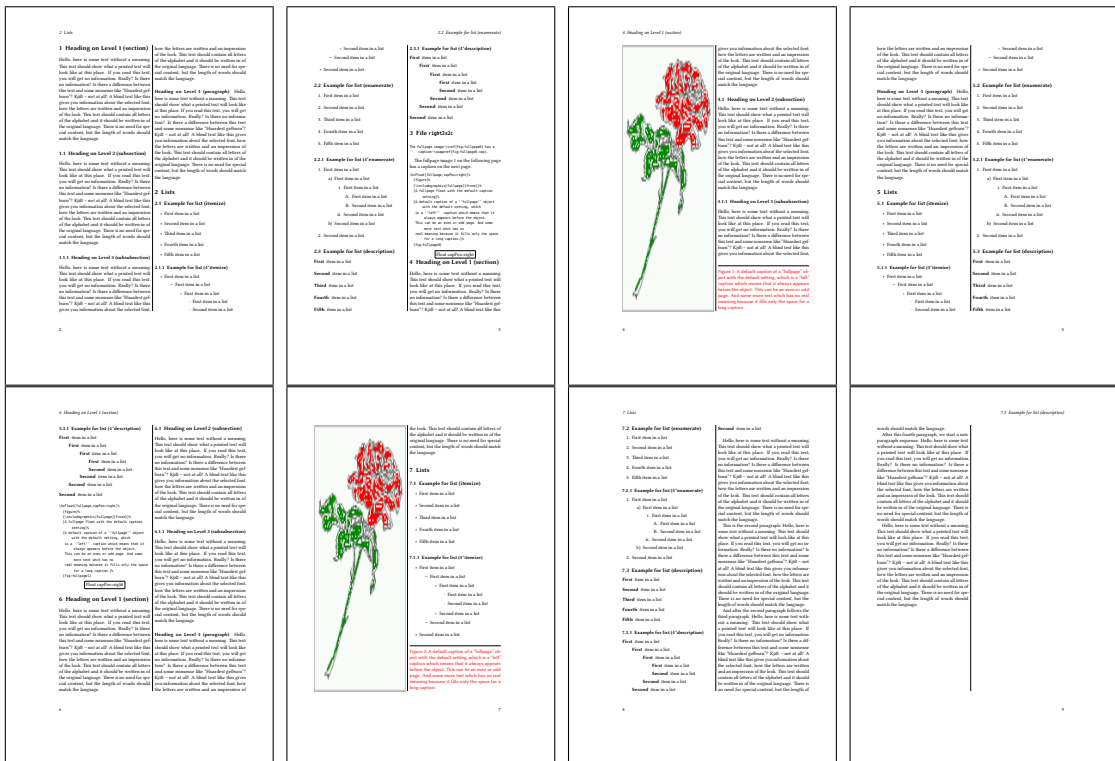


Figure 45: Output of right2s2c (pages 2–9)

18.1.2 Using capPos=evenPage — caption on an even 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 `hvfloater`.

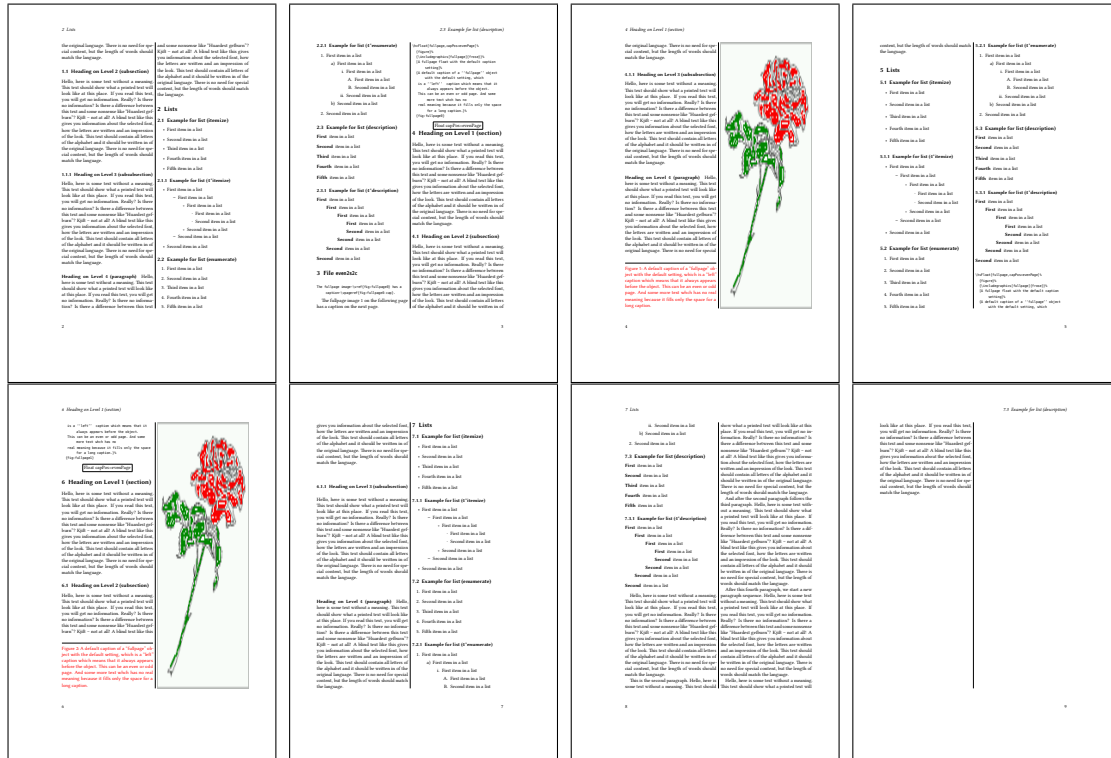


Figure 46: Output of even2s2c (pages 2–9)

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 odd2s2c (pages 2–9)

18.1.4 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.

```
\hvFloat[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}
```

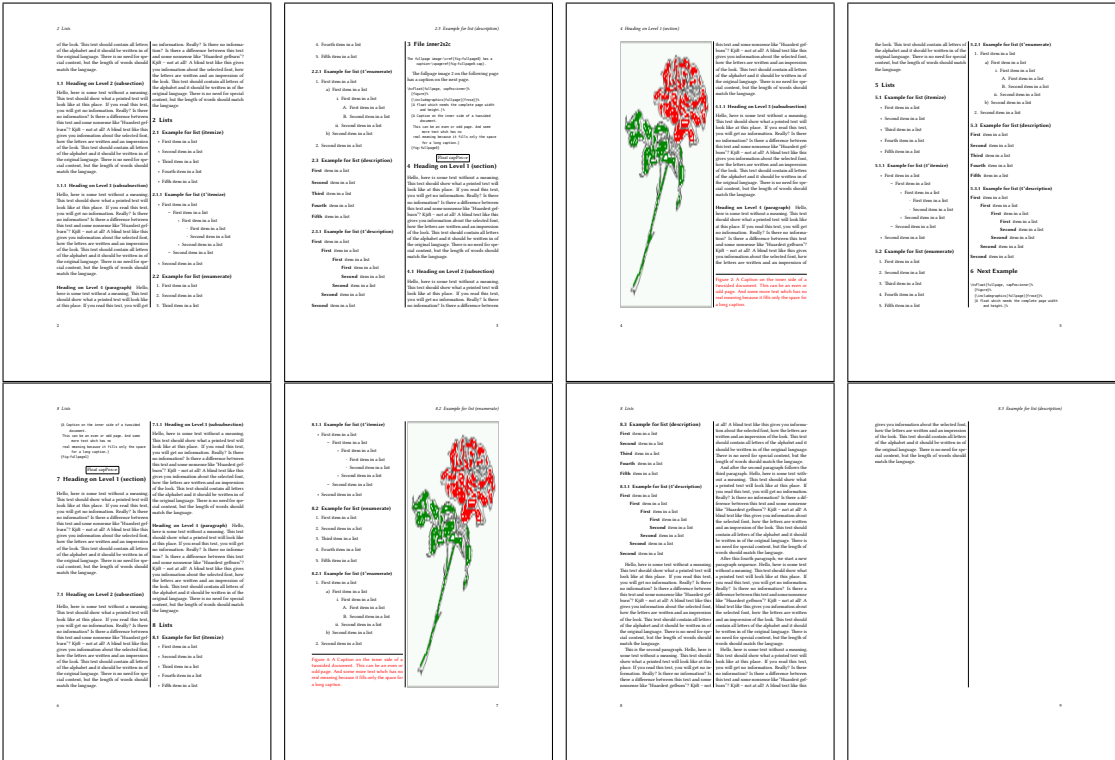


Figure 48: Output of inner2s2c (pages 2–9)

18 Full page objects in twocolumn mode

18.1.5 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}
```

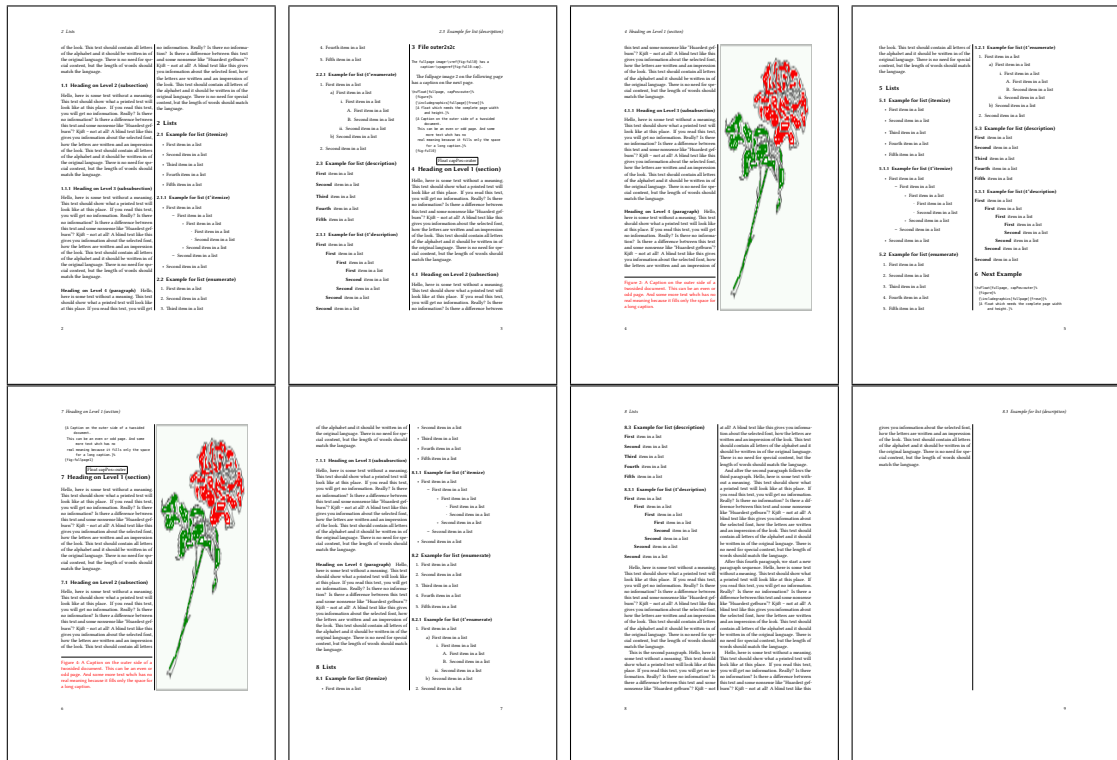


Figure 49: Output of outer2s2c (pages 2–9)

18.2 Using full page in twocolumn mode

With the star version of `\hvfloat` The object is 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}
```

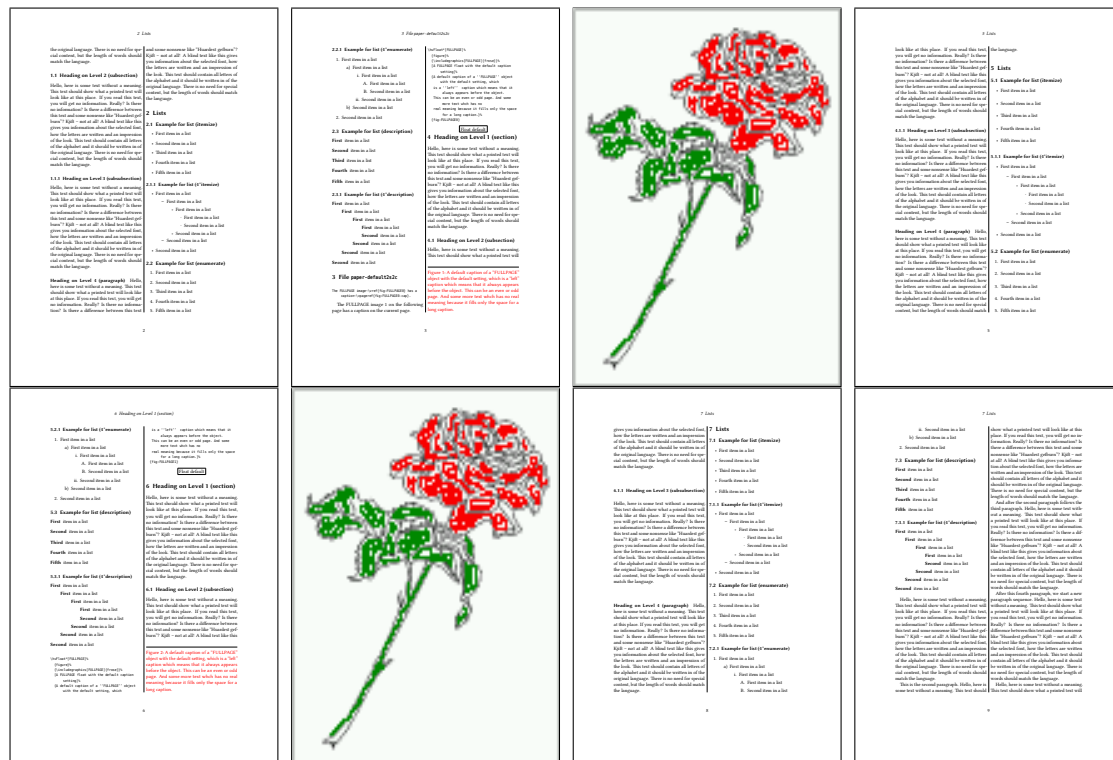


Figure 50: Output of paper-default2s2c (pages 2–9)

18 Full page objects in twocolumn mode

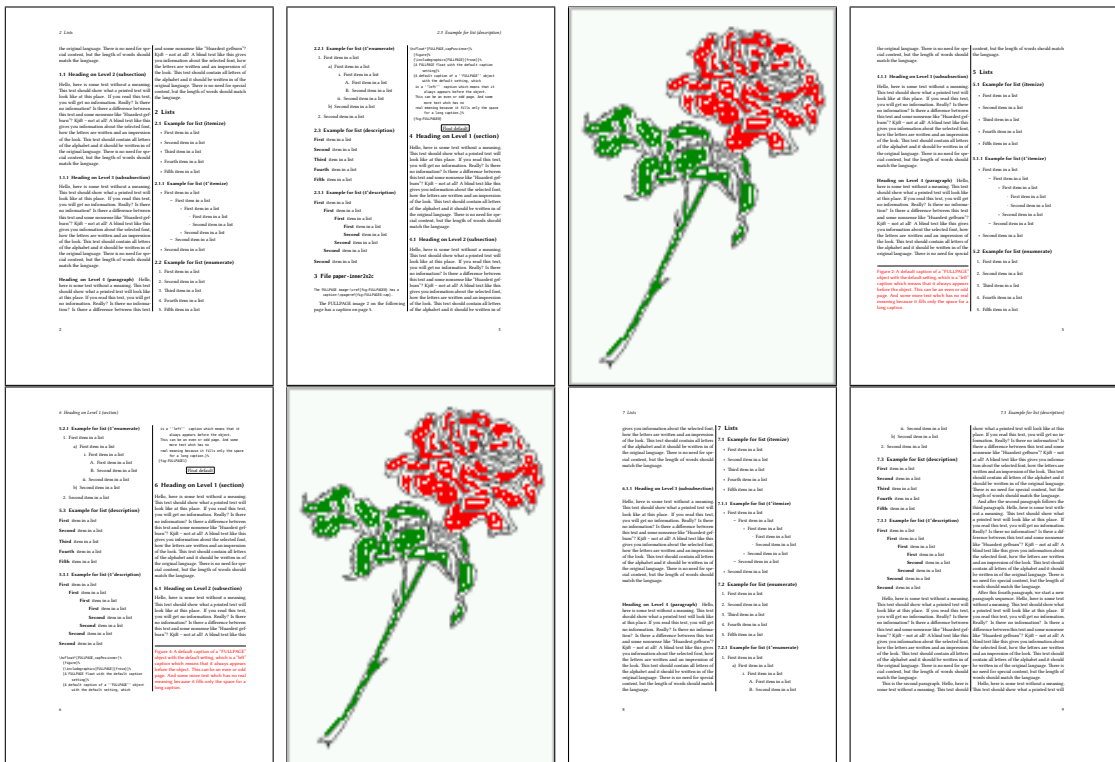


Figure 51: Output of paper-inner2s2c (pages 2–9)

18.3 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
% no 2
```

```

\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 17 on page 40. The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

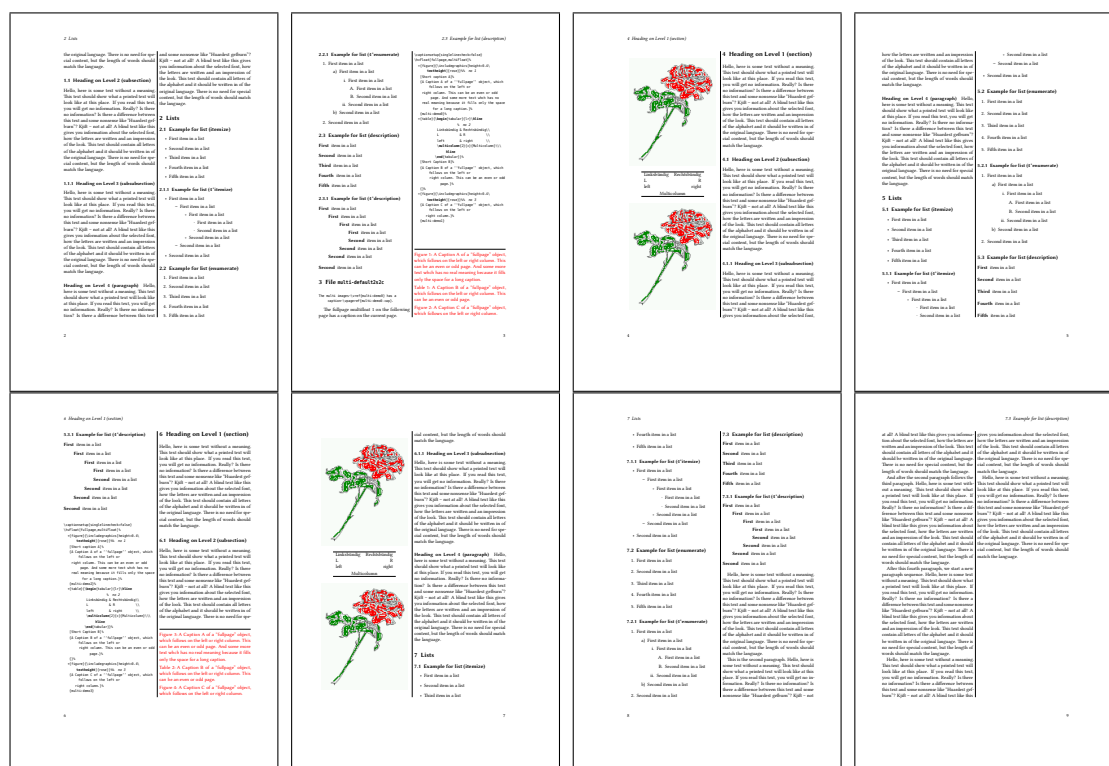


Figure 52: Output of multi-default2s2c (pages 2-9)

19 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.

19 Subfloat page

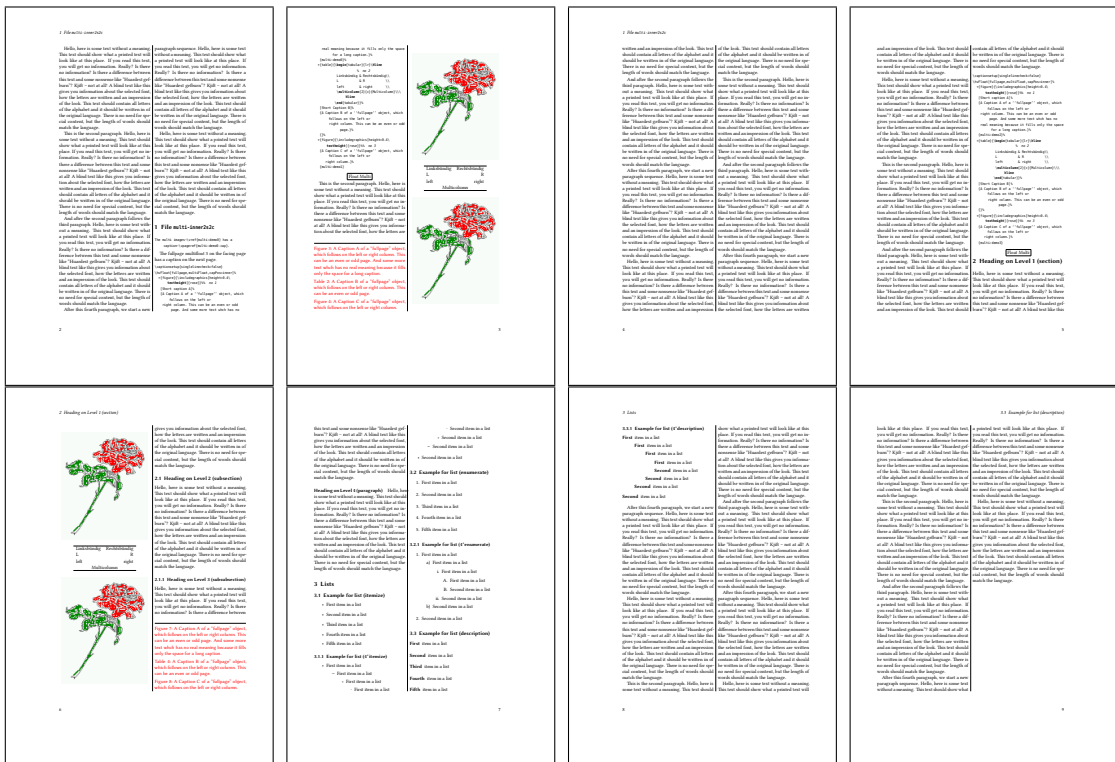


Figure 53: Output of multi-inner2s2c (pages 2-9)

```
\captionset[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).

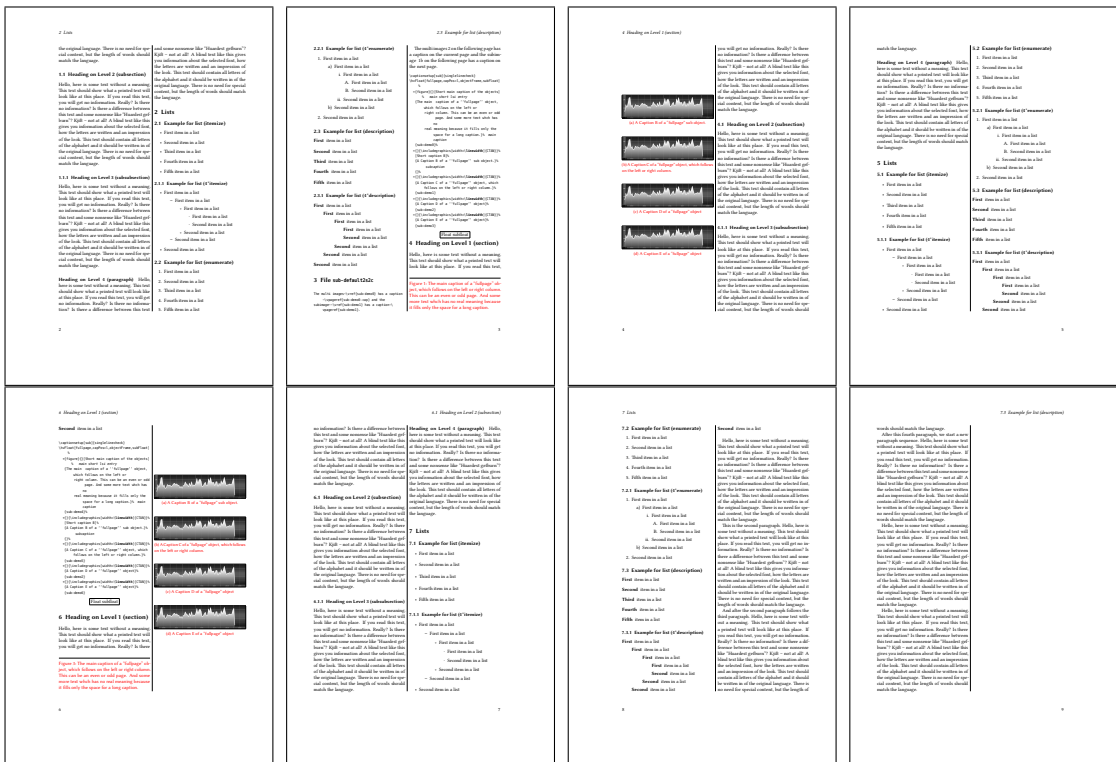


Figure 54: Output of sub-default2s2c (pages 2–9)

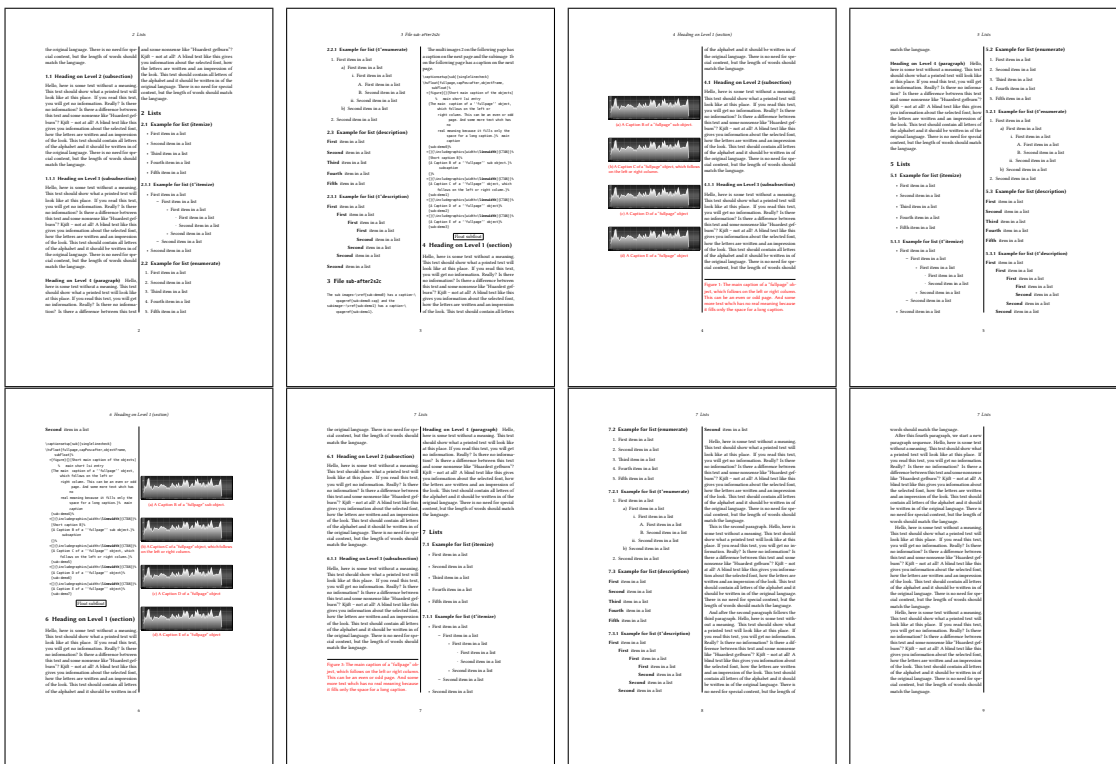


Figure 55: Output of sub-after2s2c (pages 2–9)

20 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 57 is on page 57, but the image itself is on page 58. 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 57 on page 58, which uses a correct page number of the floating object and not the caption page number which is on the next page. The figure 57 is on page 58 and the caption on page 57

21 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 56: Caption at bottom right beside the float with a caption width of 0.5\columnwidth .

22 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 `hvfloa-fps`. It allows optional package options to set the global placement:

```
\usepackage[figure=tb,table=t]{hvfloa-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 57: 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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- left, 18f, 31, 44

- oddPage, 30, 36, 48

- outer, 14f, 21, 30, 36, 50

- p, 22

- right, 45

- w, 11

varioref (package), 56

W

w (value), 11

wide (keyword), 8f, 20

X

xkeyval (package), 6

23 The Package Source

```

1  %% $Id: hvfloat.sty 1042 2019-04-08 18:34:25Z herbert $
2  %%
3  \NeedsTeXFormat{LaTeX2e}
4  \ProvidesPackage{hvfloat}[2019/04/08 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{2.14}
20 \def\filedate{2019/05/10}
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{hypcap}{caption}
32 \RequirePackage{caption}
33 \PassOptionsToPackage{hypcap}{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{hypcap}
48 \fi
49 %
50 %\unitlength=1cm
51 \providecommand*{\LenToUnit[1]{\strip@pt\dimexpr#1*\p@/\unitlength}

```

```

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-1in-\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 htbp
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

```

23 The Package Source

```

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)nner|(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 \define@boolkey{hvSet}[hv@]{fullpage}[true]{% fullpage float with caption on other page
133 %\define@boolkey{hvSet}[hv@]{FullPage}[true]{% fullpage float with caption on other page
134 \define@boolkey{hvSet}[hv@]{FULLPAGE}[true]{% fullpage float with caption on other page
135 \define@boolkey{hvSet}[hv@]{subFloat}[true]{% typeset values as subfloats
136 \ifhv@subFloat\setkeys{hvSet}{multiFloat=false}\fi%
137 }%
138 \define@boolkey{hvSet}[hv@]{multiFloat}[true]{% typeset values as continous floats
139 \ifhv@multiFloat\setkeys{hvSet}{subFloat=false}\fi%
140 }%
141 \define@boolkey{hvSet}[hv@]{separatorLine}[true]{% separator line for caption of a full page float
142 \define@boolkey{hvSet}[hv@]{objectFrame}[true]{% a frame around the object with no separation
143 \define@key{hvSet}{style}{%
144 \@ifundefined{hv@#1}%
145 {\errmessage{Custom style '#1' undefined}}%
146 {\begingroup
147 \edef\x{\endgroup\noexpand\setkeys{hvSet}{\@nameuse{hv@#1}}\x}% use a defined style
148 }
149 \def\hv@set#1{\begingroup\edef\x{\endgroup\noexpand\setkeys{hvSet}{#1}}\x}
150 \let\hvFloatSet\hv@set
151 %
152 \def\defhvstyle#1#2{\@namedef{hv@#1}{#2}}
153 %
154 \newcommand{\setDefaults}{%
155 \hv@set{%
156 floatPos=htbp, rotAngle=0, capWidth=n, capAngle=0,

```



```

157     capPos=bottom, capVPos=center, objectPos=center, objectAngle=0,
158     floatCapSep=5pt, useOBox=false, nonFloat=false,
159     onlyText=false, wide=false, fullpage=false, FULLPAGE=false,
160     multiFloat=false, subFloat=false,
161     separatorLine, objectFrame=false, multiFloatSkip=\normalbaselineskip,
162 }%
163 }
164 \newcommand\reset@special@float{%
165   \hv@set{subFloat=false, fullpage=false, multiFloat=false, FULLPAGE=false}}
166
167 \def\hv@vskip{\vspace{\hvMultiFloatSkip}}
168
169 %
170 \newlength\hvAboveCaptionSkip
171 \newlength\hvBelowCaptionSkip
172 \newcount\hv@@capPos
173
174 \newlength\fbboxlinewidth
175 \AtBeginDocument{%
176   \setlength\fbboxlinewidth{\dimexpr\linewidth-2\fbboxrule-2\fbboxsep}%
177 }
178 \setlength\belowcaptionskip{\abovecaptionskip}% it is in latex.ltx = 0pt
179 \newcommand\saveCaptionSkip{%
180   \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}
181   \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}
182   \setlength{\abovecaptionskip}{0pt}
183   \setlength{\belowcaptionskip}{0pt}
184 }
185 \newcommand\restoreCaptionSkip{%
186   \setlength\abovecaptionskip{\hvAboveCaptionSkip}%
187   \setlength\belowcaptionskip{\hvBelowCaptionSkip}%
188 }
189 %
190 \newcommand\figcaption[2][\def\@capttype{figure}%
191   \begingroup\ifx\relax#1\relax \caption{#2}\else\caption{#1}{#2}\fi\endgroup}
192 \newcommand\tabcaption[2][\def\@capttype{table}%
193   \begingroup\ifx\relax#1\relax \caption{#2}\else\caption{#1}{#2}\fi\endgroup}
194 %
195 \newlength\hv@maxImageWidth
196 \AtBeginDocument{\hv@maxImageWidth=\columnwidth}
197
198 \define@key{Gin}{fullpage}[true]{%
199   \def\Gin@ewidth{\columnwidth}%
200   \def\Gin@eheight{\textheight}%
201   \Gin@boolkey{false}{iso}%
202 }
203 \define@key{Gin}{FullPage}[true]{%
204   \def\Gin@ewidth{\textwidth}%
205   \def\Gin@eheight{\textheight}%
206   \Gin@boolkey{false}{iso}%
207 }
208 \define@key{Gin}{FULLPAGE}[true]{%
209   \def\Gin@ewidth{\paperwidth}%

```

23 The Package Source

```

210 \def\Gin@eheight{\paperheight}%
211 \Gin@boolkey{false}{iso}%
212 }
213 \newcommand\IncludeGraphics[2][{}]{%
214 % \newpage
215 %\iffalse
216 \vspace*{\the\dimexpr-\lin-\voffset+\topskip-\headheight-0.5\baselineskip}%
217 \leavevmode\checkoddpage
218 \ifoddpage
219 \hspace*{\dimexpr-\oddsidemargin-\parindent-\lin}%
220 \else
221 \hspace*{\dimexpr-\evensidemargin-\parindent-\lin}%
222 \fi\noindent
223 \includegraphics[#1,width=\paperwidth,height=\paperheight,keepaspectratio=false]{#2}%
224 %\fi
225 % \includepdf[#1],width=\paperwidth,height=\paperheight,keepaspectratio=false]
226 % {#2}%
227 }
228
229 \newcommand\put@CaptionBox[1][0]{%
230 \ifcase#1
231 \ifhv@fbox
232 \fbox{\parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}}%
233 \else
234 \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}%
235 \fi
236 \or
237 \ifhv@fbox
238 \fbox{\raisebox{-\height}{\usebox{\hvCaptionBox}}}%
239 \else
240 \raisebox{-\height}{\usebox{\hvCaptionBox}}%
241 \fi
242 \or
243 \ifhv@fbox\fbox{\usebox{\hvCaptionBox}}\else\usebox{\hvCaptionBox}\fi
244 \fi
245 }
246
247 \newcommand\put@ObjectBox[1][0]{%
248 \ifcase#1
249 \ifhv@fbox
250 \fbox{\parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}}%
251 \else
252 \parbox{\wd\hvObjectBox}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
253 \fi
254 \or
255 \ifhv@fbox
256 \fbox{\raisebox{-\height}{\usebox{\hvObjectBox}}}%
257 \else
258 \raisebox{-\height}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
259 \fi
260 \or
261 \ifhv@fbox
262 \fbox{\usebox{\hvObjectBox}}%

```

```

263     \else
264     \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi%
265     \fi
266 \fi
267 }
268
269 \newif\ifhv@star
270 \newif\ifhv@substar
271 \setDefaults
272
273 \def\hvFloat{\@ifnextchar*%      Main macro
274     {\hv@startrue\hv@maxImageWidth=\textwidth\hvFloat@i}%
275     {\hv@starfalse\hv@maxImageWidth=\columnwidth\hvFloat@i*}%
276 }
277
278 %\newcommand*{\hvFloat}[5][+]{%
279 % [#1]: keyvalues
280 % #2: type figure | table | ...
281 % #3: float contents
282 % [#4]: short caption
283 % #5: caption
284 % #6: label
285 %
286 \def\hvFloat@i*{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
287
288 \def\do@hvFloat[#1]{%
289     \begingroup
290     \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
291     \hv@maxImageWidth=\textwidth
292     \hv@capbesidefalse
293     \reset@special@float
294     \setcounter{hv@pfigure}{\value{figure}}%
295     \setcounter{hv@ptable}{\value{table}}%
296     \gdef\hv@save@setting{#1}%
297     \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
298     \gdef\hv@floatType{figure}%
299     \@ifnextchar+{\do@multiFloat}{\hvFloat@ii[#1]}%
300 }
301 \ExplSyntaxOn
302
303 \def\do@multiFloat+#1#2{%
304     \clist_set:Nn\l_clist_Type{{#1}}%
305     \clist_set:Nn\l_clist_Object{{#2}}%
306     \@ifnextchar[\do@multiFloat@i{\do@multiFloat@i[]}%
307 }
308 \def\do@multiFloat@i[#1]#2#3{% lof-caption, caption, label
309     \ifx\relax#1\relax
310         \clist_set:Nn\l_clist_LofCaption{{}}%
311     \else
312         \clist_set:Nn\l_clist_LofCaption{{#1}}%
313     \fi
314     \clist_set:Nn\l_clist_Caption{{#2}}%
315     \ifx\relax#3\relax

```

23 The Package Source

```

316   \clist_set:Nn\l_clist_Label{}}%
317   \else
318     \clist_set:Nn\l_clist_Label{#{3}}%
319   \fi
320   \@ifnextchar+{\do@multiFloat@ii}{}%
321 }
322 \def\do@multiFloat@ii+#1#2{%
323   \clist_put_right:Nn\l_clist_Type{#{1}}%
324   \clist_put_right:Nn\l_clist_Object{#{2}}%
325   \@ifnextchar[\do@multiFloat@iii{\do@multiFloat@iii[]}%
326 }
327
328 \def\do@multiFloat@iii[#1]#2#3{%  lof-caption, caption, label
329   \ifx\relax#1\relax
330     \clist_put_right:Nn\l_clist_LofCaption{}}%
331   \else
332     \clist_put_right:Nn\l_clist_LofCaption{#{1}}%
333   \fi
334   \clist_put_right:Nn\l_clist_Caption{#{2}}%
335   \ifx\relax#3\relax
336     \clist_put_right:Nn\l_clist_Label{}}%
337   \else
338     \clist_put_right:Nn\l_clist_Label{#{3}}%
339   \fi
340   \@ifnextchar+\do@multiFloat@ii%
341   {\def\hvSet@CapWidth{n}%
342    \do@@@hvFloat}%
343 }
344 \ExplSyntaxOff
345
346
347 \newcounter{hv@pfigure}
348 \newcounter{hv@ptable}
349 \newcounter{subhv@pfigure}
350 \newcounter{subhv@ptable}
351
352 \def\drawSepLine{%
353   \par\noindent
354   \if@twocolumn\rule{\columnwidth}{0.4pt}\else\rule{\linewidth}{0.4pt}\fi
355   \vspace{0pt}%
356 }
357
358 \newcount\hv@cna
359 \newcount\hv@cna
360
361
362 \def\hvFloat@ii[#1]#2#3{%
363   \hv@maxImageWidth=\textwidth
364   \hv@capbesidefalse
365   \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
366   \gdef\hv@floatType{#2}%
367   \ifx\relax#2\relax \setkeys{hvSet}{nonFloat=true}\fi
368   \gdef\hv@floatObject{#3}%

```

```

369 \ifnextchar[{\do@hvFloat}{\do@hvFloat[]}%
370 }
371 \def\do@hvFloat[#1]#2#3{%
372 \gdef\hv@shortCap{#1}%
373 \gdef\hv@longCap{#2}%
374 \gdef\hv@label{#3}%
375 \ifhv@fullpage
376 \def\hvSet@CapWidth{n}% relative value
377 \do@@@hvFloat% fullpage with caption on other page
378 \else
379 \ifhv@FULLPAGE
380 \def\hvSet@CapWidth{n}% relative value
381 \do@@@hvFloat% fullpage with caption on other page
382 \else
383 \do@@@hvFloat
384 \fi
385 \fi
386 }
387 %
388 \def\do@@@hvFloat{% no special float page
389 \def\@tempa{90}%
390 \ifx\hvSet@rotAngle\@tempa
391 \setlength\hvMaxCapWidth{\textheight}%
392 \else
393 \setlength\hvMaxCapWidth{\hvWideWidth}%
394 \fi
395 %
396 % First we save the object in \hvObjectBox
397 %
398 \ifx\hvSet@objectAngle\hv@Zero % rotate the object?
399 \savebox{\hvObjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@floatObject\fi}%
400 \else
401 \savebox{\hvObjectBox}{%
402 \rotatebox{\hvSet@objectAngle}{%
403 \ifhv@use0Box\usebox{\hv0Box}\else\hv@floatObject\fi
404 }%
405 }%
406 \fi
407 \setlength\hvObjectWidth{\wd\hvObjectBox}%
408 %
409 % Now we save the caption with its defined \hvCapWidth
410 %
411 \ifx\hvSet@capWidth\hv@Width% captionwidth=objectwidth
412 \setlength\hvCapWidth{\hvObjectWidth}%
413 \else
414 \ifx\hvSet@capWidth\hv@Height% captionwidth=objectheight
415 \setlength\hvCapWidth{\ht\hvObjectBox}%
416 \else
417 \ifx\hvSet@capWidth\hv@Natural% captionwidth=\linewidth-\objectwidth-separation
418 \ifhv@capbeside
419 \ifhv@wide
420 \setlength\hvCapWidth{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
421 \else

```

23 The Package Source

```

422         \setlength\hvCapWidth{\the\dimexpr\columnwidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
423         \fi
424     \else
425         \setlength\hvCapWidth{\columnwidth}%
426     \fi
427 \else
428     \ifhv@capbeside
429         \ifhv@wide
430             \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
431             \setlength\@tempdima{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
432         \else
433             \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
434             \setlength\@tempdima{\the\dimexpr\columnwidth-\hvObjectWidth-\hvSet@floatCapSep\relax}%
435         \fi
436         \ifdim\hvCapWidth>\@tempdima
437             \setlength\hvCapWidth{\@tempdima}%
438         \fi
439     \else
440         \ifhv@wide
441             \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
442         \else
443             \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
444         \fi
445     \fi
446 \fi
447 \fi
448 \fi
449 \saveCaptionSkip          % we put this space ourselve
450 \ifx\hvSet@capAngle\hv@Zero    % need rotation?
451     \sbox\hvCaptionBox{%    NO rotation
452         \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
453             \ifhv@nonFloat
454             \ifhv@onlyText\hv@longCap
455         \else
456             \ifx\hv@floatType\hv@figure
457                 \ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
458             \else
459                 \ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
460             \fi
461         \fi
462     \else
463         \let\@captype\hv@floatType
464         \expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
465     \fi
466     \expandafter\label\expandafter{\hv@label}%
467     \end{minipage}%
468 }%
469 \else
470     \sbox\hvCaptionBox{%    Rotation
471         \rotatebox{\hvSet@capAngle}{%
472             \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
473             \ifhv@nonFloat

```

```

474 \ifhv@onlyText\hv@longCap
475 \else
476 \ifx\hv@floatType\hv@figure
477 \ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
478 \else
479 \ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
480 \fi
481 \fi
482 \else
483 \let\@capttype\hv@floatType
484 \expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[
485 \fi
486 \label{\hv@label}%
487 \end{minipage}%
488 }% rotatebox
489 }% \sbox
490 \fi
491 %
492 % now we have the object and the caption with the right
493 % rotated angles saved in different boxes
494 %%
495 \restoreCaptionSkip% save old values
496 \def\fps@figure{\hvSet@floatPos}%
497 \ifhv@nonFloat
498 \begin{group}% Start the nonfloat part
499 \checkoddpage
500 \else
501 \begin{\hv@floatType}% Start the floating environment
502 \checkoddpage
503 \fi
504 \ifx\hvSet@objectPos\hv@Right\raggedleft\fi
505 \ifx\hvSet@objectPos\hv@Center
506 \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
507 \fi
508 \ifx\hvSet@objectPos\hv@Outer
509 \ifoddpage\raggedleft\fi
510 \fi
511 \ifx\hvSet@objectPos\hv@Inner
512 \ifoddpage\else\raggedleft\fi
513 \fi
514 %
515 % to rotate object and caption together, we save all in another box
516 % the caption comes first, if its on the left or the top
517 % 0 caption left, inner and odd page, oneside inner
518 % 1 caption top
519 % 2 caption right, inner and even page, oneside outer
520 % 3 caption bottom
521 %
522 \ifx\hvSet@capPos\hv@Left
523 \hv@capPos=0
524 \else
525 \ifx\hvSet@capPos\hv@Top

```

23 The Package Source

```

526     \hv@@capPos=1
527   \else
528     \ifx\hvSet@capPos\hv@Right
529       \hv@@capPos=2
530   \else
531     \ifx\hvSet@capPos\hv@Bottom
532       \hv@@capPos=3
533   \else
534     \ifx\hvSet@capPos\hv@Inner
535       \ifoddpagoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
536   \else
537     \ifx\hvSet@capPos\hv@Outer
538       \ifoddpagoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
539   \else
540     \ifx\hvSet@capPos\hv@Before
541       \hv@@capPos=0 % same as capPos=right
542   \else
543     \ifx\hvSet@capPos\hv@After
544       \hv@@capPos=2 % same as capPos=right
545     \fi
546   \fi
547 \fi
548 \fi
549 \fi
550 \fi
551 \fi
552 \fi
553 %%%
554 \savebox{\@tempboxa}{%
555   \expandafter\ifcase\the\hv@@capPos% 0 is LEFT    START \ifcase
556   \ifx\hvSet@capVPos\hv@Center
557     \put@CaptionBox
558     \hspace{\hvSet@floatCapSep}% capfloatsep
559     \put@ObjectBox
560   \else
561     \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
562       \put@CaptionBox[1]%
563       \hspace{\hvSet@floatCapSep}% capfloatsep
564       \put@ObjectBox[1]%
565     \else% caption on bottom
566       \put@CaptionBox[2]%
567       \hspace{\hvSet@floatCapSep}% capfloatsep
568       \put@ObjectBox[2]%
569     \fi
570   \fi% end caption left
571 \or%1 is top
572   \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
573 \begin{minipage}{\wd\hvCaptionBox}%
574   \else
575 \begin{minipage}{\wd\hvObjectBox}%
576   \fi
577   \centering
578   \ifhv@fbox

```



```

579 \fbox{\usebox{\hvCaptionBox}}\[\hvBelowCaptionSkip]%
580 \fbox{\usebox{\hvObjectBox}}%
581 \else
582 \usebox{\hvCaptionBox}\[\hvBelowCaptionSkip]%
583 \usebox{\hvObjectBox}%
584 \fi
585 \end{minipage}%
586 \or %2 is right
587 \ifx\hvSet@capVPos\hv@Center
588 \put@ObjectBox
589 \hspace{\hvSet@floatCapSep}%
590 \put@CaptionBox
591 \else
592 \ifx\hvSet@capVPos\hv@Top
593 \put@ObjectBox[1]%
594 \hspace{\hvSet@floatCapSep}% capfloatsep
595 \put@CaptionBox[1]%
596 \else
597 \put@ObjectBox[2]%
598 \hspace{\hvSet@floatCapSep}% capfloatsep
599 \put@CaptionBox[2]%
600 \fi
601 \fi
602 \or %3 bottom
603 \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
604 \begin{minipage}{\wd\hvCaptionBox}%
605 \else
606 \begin{minipage}{\wd\hvObjectBox}%
607 \fi
608 \centering
609 \ifhv@fbox
610 \fbox{\usebox{\hvObjectBox}}\[\hvAboveCaptionSkip]%
611 \fbox{\usebox{\hvCaptionBox}}%
612 \else
613 \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\[\hvAboveCaptionSkip]%
614 \usebox{\hvCaptionBox}%
615 \fi
616 \end{minipage}%
617 \fi% \ifcase\ the\hv@capPos
618 }% End savebox Object and caption
619 %
620 % now we rotate the object and caption, if needed
621 %
622 \ifhv@wide
623 \ifoddpageoroneside\else\ifoddpage\else\hspace*{-\marginparwidth}\fi\fi% <- for wide and left page
624 \fi
625 \ifx\hvSet@rotAngle\hv@Zero
626 \usebox{\@tempboxa}%
627 \else
628 \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}%
629 \fi
630 \ifhv@nonFloat
631 \ifx\hvSet@objectPos\hv@Center

```

23 The Package Source

```

632     \ifhv@nonFloat
633     \hspace{\fill}%
634     \fi
635   \fi
636   \endgroup% End the nonfloat part
637 \else
638   \end{\hv@floatType}% End the floating environment
639   \fi
640   \endgroup% startet at main \hvFloat
641 }
642 %
643 \newenvironment{hvFloatEnv}[1][\textwidth]
644   {\minipage{#1}\center}
645   {\endcenter\endminipage}
646 %
647
648 \ExplSyntaxOn
649 \let\clist@item@Nn\clist_item:Nn
650 \let\l@clist@Type\l_clist_Type
651 \let\l@clist@LofCaption\l_clist_LofCaption
652 \let\l@clist@Label\l_clist_Label
653 \let\clist@count@N\clist_count:N
654 \ExplSyntaxOff
655
656 \def\do@@@hvFloat{% special float page: caption <-> fullpage image
657   \ifx\hvSet@capPos\hv@After \hv@@capPos=1
658   \else
659     \ifx\hvSet@capPos\hv@Even \hv@@capPos=2
660     \else
661       \ifx\hvSet@capPos\hv@Odd \hv@@capPos=3
662       \else
663         \ifx\hvSet@capPos\hv@Inner \hv@@capPos=4
664         \else
665           \ifx\hvSet@capPos\hv@Outer \hv@@capPos=5
666           \else
667             \ifx\hvSet@capPos\hv@Right \hv@@capPos=6 % only for twocolumn mode
668             \else
669               \ifx\hvSet@capPos\hv@Left \hv@@capPos=7 % only for twocolumn mode
670               \else
671                 \hv@@capPos=0
672               \fi
673             \fi
674           \fi
675         \fi
676       \fi
677     \fi
678   \fi
679   \checkoddpage
680   \set@caption@object% set caption and object into a box
681   \ifcase\hv@@capPos% caption before object 0-> _always_ left
682     \setBottomCaption\setPageObject
683   \or% caption after object 1-> _always_ right
684     \setPageObject\setBottomCaption

```

```

685 \or% caption on even page 2-> left page
686 \ifoddpage
687 \afterpage{\setBottomCaption\setPageObject}%
688 \else% we are on an even page
689 % \zsaveposy{hv@currentPos}%
690 % \ifdim\the\dimexpr\zposy{hv@currentPos}sp-\hv@BottomSpace-1cm>\ht\TBox % enough space*
691 \setBottomCaption\setPageObject
692 % \else
693 % \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
694 % \fi
695 \fi
696 \or% caption on odd page 3->right page
697 \if@twoside
698 \if@twocolumn
699 \ifoddpage
700 \if@firstcolumn% on right side
701 \setBottomCaption\setPageObject
702 \else
703 \afterpage{\setPageObject\setBottomCaption}% start next column
704 \fi
705 \else% left (even) page
706 \if@firstcolumn
707 \afterpage{\setPageObject\setBottomCaption}% start next column
708 \else
709 \setPageObject\setBottomCaption
710 \fi
711 \fi
712 \else % onecolumn
713 \ifoddpage
714 \setPageObject\setBottomCaption
715 \else
716 \afterpage{\setPageObject\setBottomCaption}%
717 \fi
718 \fi
719 \else % oneside
720 \if@twocolumn
721 \ifoddpage
722 \if@firstcolumn% on right side
723 \setBottomCaption\setPageObject
724 \else
725 \setPageObject\setBottomCaption
726 \fi
727 \else
728 \if@firstcolumn% on left side
729 \afterpage{\setPageObject\setBottomCaption}%
730 \else
731 \setPageObject\setBottomCaption
732 \fi
733 \fi
734 \else % onecolumn
735 \ifoddpage
736 \setBottomCaption\setPageObject
737 \else

```

23 The Package Source

```

738     \afterpage{\setBottomCaption\setPageObject}%
739     \fi
740   \fi
741 \fi
742 \or%           caption on the inner column 4->inner
743   \set@caption@object
744   \if@twocolumn
745     \ifoddpage
746       \if@firstcolumn% on right side
747       \setBottomCaption\setPageObject
748       \else           % right column on right side
749       \setPageObject\setBottomCaption% start next firstcolumn next page
750       \fi
751     \else
752       \if@firstcolumn% on left side
753       \afterpage{\afterpage{\setBottomCaption\setPageObject}}% start next page/first column
754       \else% left page/column
755       \setBottomCaption\setPageObject% start on same page/column
756       \fi
757     \fi
758   \else % onecolumn
759     \setBottomCaption\setPageObject
760   \fi
761 \or%           caption on the outer column 5->outer
762   \set@caption@object
763   \if@twocolumn
764     \ifoddpage
765       \if@firstcolumn
766       \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
767       \else
768       \afterpage{\setBottomCaption\setPageObject}%
769       \fi
770     \else% even page (left)
771     \if@firstcolumn
772     \setBottomCaption\setPageObject
773     \else
774     \fi
775   \fi
776 \fi
777 \else% onecolumn
778   \setBottomCaption\setPageObject
779 \fi
780 \or%           caption after object on same page 6->right for twocolumn
781   \if@twocolumn
782     \if@firstcolumn
783     \afterpage{\setPageObject\setBottomCaption}%
784     \else
785     \setPageObject\setBottomCaption
786     \fi
787   \else% always caption _after_ object for onecolumn
788   \setPageObject\setBottomCaption
789 \fi
790 \or%           caption before object on same page 7->left for twocolumn

```

```

791 \if@twocolumn
792 \if@firstcolumn
793 \setBottomCaption\setPageObject
794 \else
795 \afterpage{\setBottomCaption\setPageObject}
796 \fi
797 \else% onecolumn -> same as before
798 \setBottomCaption\setPageObject
799 \fi
800 \fi
801 \endgroup% startet at main \hvFloat
802 }%
803 %
804 \def\setBottomCaption{%
805 \begin{\hv@floatType}[!b]
806 \ifhv@separatorLine\drawSepLine\fi
807 \par
808 \usebox\hvCaptionBox
809 \end{\hv@floatType}%
810 }
811
812 \def\setPageObject{%
813 \ifhv@star
814 \begin{\hv@floatType*}[p]%
815 \else
816 \begin{\hv@floatType}[p]%
817 \fi
818 \ifhv@FULLPAGE
819 \vspace*{\the\dimexpr-\lin-\voffset-\topmargin-\headheight-\headsep}%-0.5\baselineskip}%
820 \checkoddpages
821 \if@twoside
822 \ifoddpage
823 \hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
824 \else
825 \hspace*{\the\dimexpr-\evensidemargin-\parindent-\lin}%
826 \fi
827 \else
828 \hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
829 \fi
830 %\put(0,0){
831 \AtBeginShipoutNext{\thispagestyle{empty}}%
832 \usebox\hvObjectBox}%
833 \else
834 \usebox\hvObjectBox
835 \fi
836 \ifhv@star
837 \end{\hv@floatType*}%
838 \else
839 \end{\hv@floatType}%
840 \fi
841 }
842
843 \ExplSyntaxOn

```

```

844
845 \def\getMultiCaptionAndLabel{%
846   \global\sbox\hvCaptionBox{\minipage[b]{\linewidth}%
847     \setlength\belowcaptionskip{5pt}%
848     \setlength\abovecaptionskip{0pt}%
849     \hv@cntb=\clist_count:N\l_clist_Type
850     \advance\hv@cntb by \@ne
851     \hv@cнта=1
852     \loop
853       \edef\@captive{\clist_item:Nn\l_clist_Type{\hv@cнта}}%
854       \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cнта}}%
855       \ifx\@tempa\@empty
856         \caption{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
857       \else
858         \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
859       \fi
860       \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
861       \ifx\@tempa\@empty
862       \else
863         \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cнта}-cap}\fi
864       \advance\hv@cнта by \@ne
865     \ifnum\hv@cнта<\hv@cntb
866     \repeat
867   \endminipage}%
868 }
869 \def\getMultiObjectAndLabel{%
870   \global\sbox\hvObjectBox{\minipage{\linewidth}%
871     \ifx\hvSet@objectPos\hv@Right\raggedleft\else
872     \ifx\hvSet@objectPos\hv@Left\raggedleft\else
873     \ifx\hvSet@objectPos\hv@Center\centering
874     \fi\fi\fi
875     \hv@cntb=\clist_count:N\l_clist_Type
876     \advance\hv@cntb by \@ne
877     \hv@cнта=1
878     \loop
879       \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cнта}}%
880       \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
881       \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
882       \ifx\@tempa\@empty
883       \else
884         \refstepcounter{\@captive}%
885         \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
886       \fi
887       \ifnum\hv@cнта<\clist_count:N\l_clist_Type\par\hv@vskip\fi
888       \advance\hv@cнта by \@ne
889     \ifnum\hv@cнта<\hv@cntb
890     \repeat
891   \endminipage}%
892 }
893
894 \def\getMultiSubCaptionAndLabel{%
895   \global\sbox\hvCaptionBox{\minipage{\linewidth}%
896     \setlength\belowcaptionskip{5pt}%

```

```

897 \setlength\abovecaptionskip{0pt}%
898 \xdef\@captype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
899 \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{1}}%
900 \ifx\@tempa\@empty
901 \caption{\clist_item:Nn\l_clist_Caption{1}}%
902 \else
903 \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{1}}%
904 \fi
905 \edef\@tempa{\clist_item:Nn\l_clist_Label{1}}%
906 \ifx\@tempa\@empty\else\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{1}-cap}\fi
907 \endminipage}%
908 }
909
910 \def\getMultiSubObjectAndLabel{%
911 \global\sbox\hvObjectBox{\minipage{\linewidth}%
912 \ifx\hvSet@objectPos\hv@Right\raggedleft\else
913 \ifx\hvSet@objectPos\hv@Left\raggedleft\else
914 \ifx\hvSet@objectPos\hv@Center\centering
915 \fi\fi\fi
916 \hv@cntb=\clist_count:N\l_clist_Caption
917 \advance\hv@cntb by \@ne
918 \hv@cna=2
919 \xdef\@captype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
920 \loop
921 \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cna}}%
922 \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
923 \begingroup
924 \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cna}}%
925 \ifx\@tempa\@empty
926 \subcaption{\clist_item:Nn\l_clist_Caption{\hv@cna}}%
927 \else
928 \expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cna}}%
929 \fi
930 \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cna}}%
931 \ifx\@tempa\@empty
932 \else
933 \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cna}}%
934 \fi
935 \endgroup
936 \ifnum\hv@cna<\clist_count:N\l_clist_Type\par\hv@vskip\fi
937 \advance\hv@cna by \@ne
938 \ifnum\hv@cna<\hv@cntb
939 \repeat
940 \edef\@tempa{\clist_item:Nn\l_clist_Label{1}}% the main label at the end
941 \ifx\@tempa\@empty
942 \else
943 \refstepcounter{\@captype}
944 \expandafter\label\expandafter{\@tempa}%
945 \fi
946 \endminipage}%
947 }
948 \ExplSyntaxOff
949

```

23 The Package Source

```

950 \def\getSingleCaptionAndLabel{%
951   \global\sbox\hvCaptionBox{\minipage{\linewidth}%
952     \setlength\belowcaptionskip{5pt}%
953     \setlength\abovecaptionskip{0pt}%
954     \edef\@captype{\hv@floatType}%
955     \expandafter\ifx\expandafter\relax\hv@shortCap\relax
956       \caption{\hv@longCap}%
957     \else
958       \caption[\hv@shortCap]{\hv@longCap}%
959     \fi
960   \expandafter\ifx\expandafter\relax\hv@label\relax\else\label{\hv@label-cap}\fi
961   \endminipage}%
962 }
963
964 \def\set@caption@object{%   first caption, then object
965   \ifhv@multiFloat
966     \getMultiCaptionAndLabel
967   \else
968     \ifhv@subFloat
969       \getMultiSubCaptionAndLabel
970     \else
971       \getSingleCaptionAndLabel
972     \fi
973   \fi
974   \edef\@captype{\hv@p\hv@floatType}%
975   \ifhv@multiFloat
976     \getMultiObjectAndLabel
977   \else
978     \ifhv@subFloat
979       \getMultiSubObjectAndLabel
980     \else
981       \global\sbox\hvObjectBox{%
982         \refstepcounter{\@captype}%
983         \ifhv@objectFrame\frame{\hv@floatObject}\else\hv@floatObject\fi
984         \expandafter\ifx\expandafter\relax\hv@label\relax
985           \else
986             \expandafter\label\expandafter{\hv@label}%
987           \fi
988       }%
989     \fi
990   \fi
991 }
992 %
993 \endinput

```