

# Package hvfloat

## Positioning, rotating and scaling of objects and captions

### ver 2.10

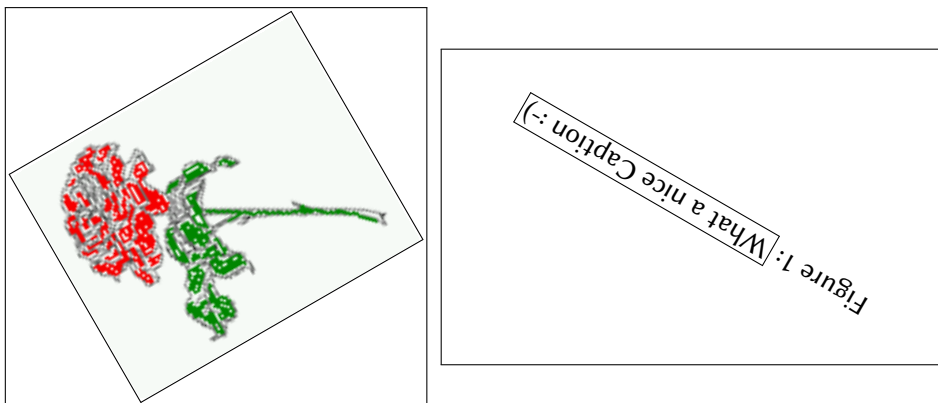
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April 1, 2019

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` and also package `hypcap`.

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`.

## 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 optional `+` is explained in section 15.3 on page 37.

`\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 placement option 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>b</code>	The position of the caption relative to the object. Possible values are <code>left</code> , <code>before</code> , <code>right</code> , <code>after</code> , <code>evenPage</code> , and <code>oddPage</code> . The last two are only valid for the option <code>fullpage</code> .
<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>c</code>	The horizontal placement of the object relative to the document. Possible values are <b>(l)</b> 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>5</code>	The additional width between the object and a left or right placed caption. The default unit is pt.
<code>use0Box</code>	<code>false</code>	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.
<code>nonFloat</code>	<code>false</code>	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.
<code>wide</code>	<code>false</code>	The float can use <code>\textwidth+\marginparwidth</code> as horizontal width.
<code>objectFrame</code>	<code>false</code>	put a frame with no separation around the float object.
<code>style</code>	<code>-</code>	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.:

### 3 The default use of floating environments

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

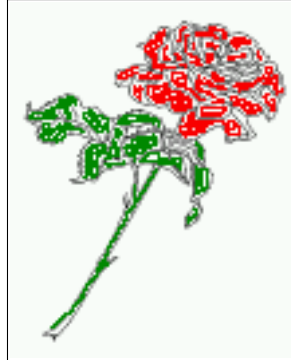


Figure 2: Without any keywords (only the fbox package option)

Code for figure 2:

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

float

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

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

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\\
hvFloatEnv & environment & places object and caption exactly Here\\
\CMD{figcaption} & command & writes a figure caption in a non floating environment\\
\CMD{tabcaption} & command & writes a table caption in a non floating environment\\
\CMD{setDefaultts} & command & sets all options to the defaults\\
\CMD{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}`

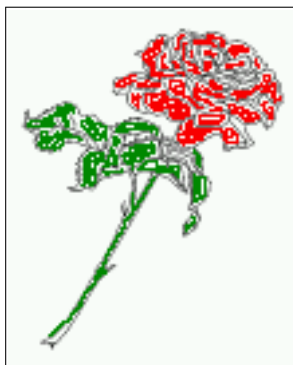
See section 12 for some more informations about tabulars as objects.

## 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{rose}}%
{Default caption width setting, which is the natural width with respect to the current linewidth
.}{fig:width0}
```



float

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

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

For a caption beside an object, the *natural* caption width (without the optional argument `wide`) is given by the current linewidth minus the width of the object and the space between object and caption, which is set by `floatCapSep` (see Table 2 on page 7).

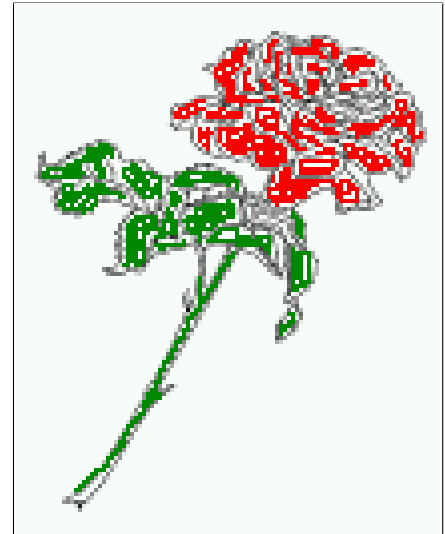
```
\hvFloat[floatPos=!htb,capPos=after,objectFrame]{figure}{\includegraphics[scale=1.5]{rose}}%
{Caption right beside with a \emph{natural} width, which is given by the width of the object,
the separation between object and caption, and the current linewidth.}{fig:width1}
```

float

### 4.2 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.

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.



```
\hvFloat[floatPos=!htb,capWidth=0.9]{figure}{\includegraphics{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**



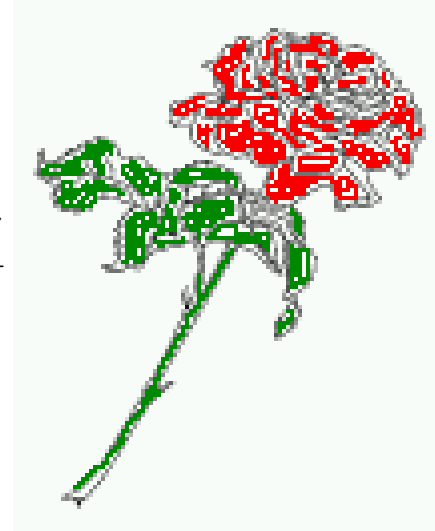
Figure 5: Caption below with a width of 0.9 of the current line width (column width), which is in this special case 376.42744pt. Divide it by 28.82 to get cm.

If such a value like  $0.9\text{\linewidth}$  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]{rose}}%
{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**

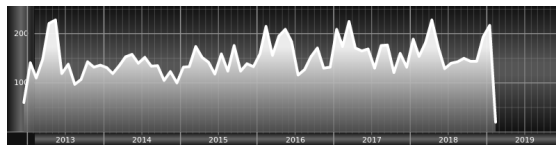
Figure 6: Caption right beside with a width setting of  $0.9\text{\linewidth}$  which is too big for this example and therefore corrected by the macro to the maximal width.



### 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]{CTAN}}%
{Caption below with a width of the given object which may be a problem
if it is a very small object.}{fig:width4}
```



float

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

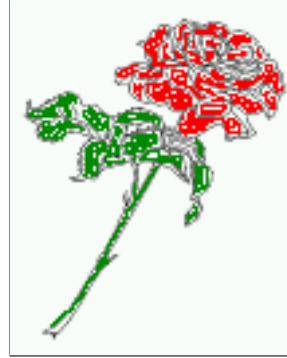
### 4.4 caption width to height of the object

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

```
\hvFloat[floatPos=!htb, capPos=after, capWidth=h, capAngle=90, objectFrame]{figure}{\includegraphics{
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}
```

## 5 Caption left or right of the object

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]{rose}}%  
[Caption beside object and vertically centered]%  
{Caption vertically centered right beside the float with a natural caption width  
(the default). \blindtext}%  
{fig:1}
```

float  
capPos=right



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

### 5.2 Caption left and rotated

Code for figure 10:

```
\hvFloat%
[floatPos=htb,
 capPos=left,
 capWidth=h,% of \columnwidth
 capAngle=90,
 objectFrame
]{figure}{\includegraphics{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 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{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{rose}}%
  [Centered Caption on the inner side]{%
    Caption set with the parameter setting \texttt{capPos=inner}, which will be
    a caption on the right side for an even page and on the left side for
    an odd page.}{fig:20}
```

float  
capPos=inner



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

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

```
\hvFloat[capPos=inner]{figure}{\includegraphics{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:20b}

Figure 13: 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.



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.



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

float

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.

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

Code for figure 15:

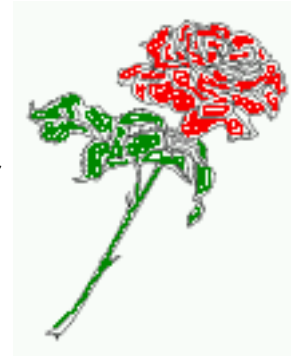
```
\hvFloat[%
  capWidth=0.5,% of \columnwidth
  capPos=outer,% ==> OUTER
  capAngle=0,
  capVPos=bottom,
  objectPos=center]{figure}{\includegraphics{rose}}%
[Centered Caption beside Object]{%
Caption vertically centered right beside the float with a caption
```

## 7 Vertical Position of the 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 `capPos=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{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{rose}}}{Caption at top left beside the float}{fig:5}
```

Figure 17: Caption at  
top left beside the float



float

The code for figure 18:

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



Figure 18: Caption cen-  
tered right beside the  
float

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 decimal number and is preset to 5. The default unit is pt and cannot be changed. 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:

## 8 Horizontal Position of the Float

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

float

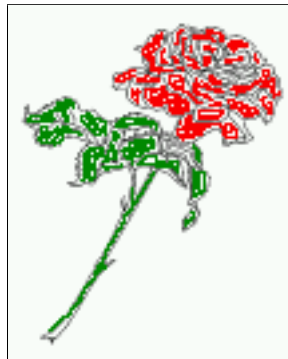


Figure 19: Caption at top right beside the float and object position left

The same with capPos=left :

float  
capPos=left

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



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

The code for figure 21:

```
\hvFloat[%  
    capWidth=0.25,%  
    capPos=before,%  
    capVPos=top,%
```

```

objectPos=right,%
objectFrame,
]{figure}{\includegraphics{rose}}{%
Caption at top left 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]{CTAN}}{%
Caption at top right beside the float and object position left and
the option \texttt{wide}.}{fig:70}

```

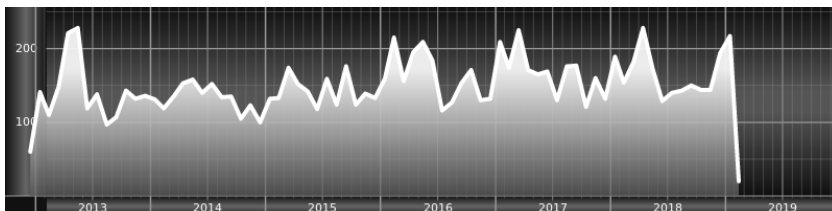


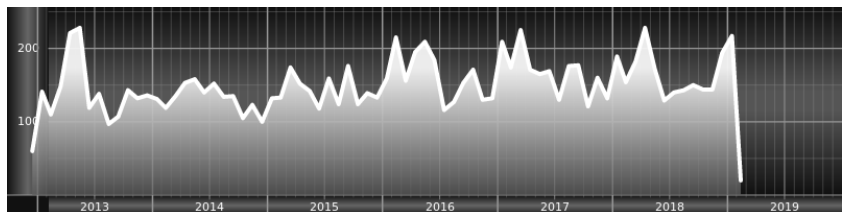
Figure 22: Caption at top right beside the float and object position left and the option wide.

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 23:

```
\hvFloat[wide,
  capPos=left,
  capVPos=top,
  objectPos=right,
]{figure}{\includegraphics[width=0.75\linewidth]{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]{CTAN}}{%
Caption at top and inner beside the float and object position right and
the option \texttt{wide}.}{fig:81}
```

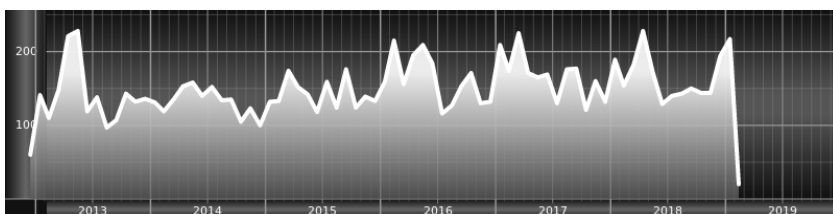


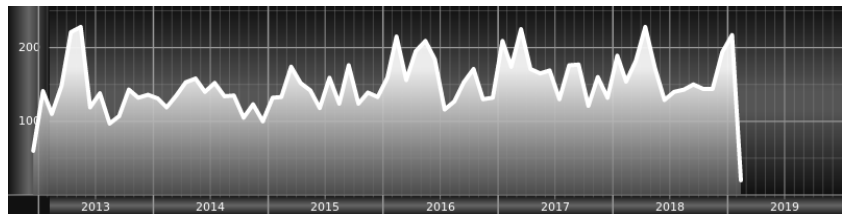
Figure 24: Caption at top and inner beside the float and object position right and the option wide.

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]{CTAN}}{%
Caption at top inner beside the float and object position right and
the option \texttt{wide}.}{fig:811}
```

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



## 10 Full text area in Landscape Mode

If you do not want to load the package `lscape` (or `pdfscape`) you can use the `floatPos=p` option to put the image on an own page and rotated by 90 degrees (figure 26).

Code for figure 26:

```
\hvFloat[%
    floatPos=p,
    capPos=bottom,
    rotAngle=90,
    objectPos=center,
]{figure}{\includegraphics[width=0.9\textheight]{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=left` 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

float landscape
--------------------

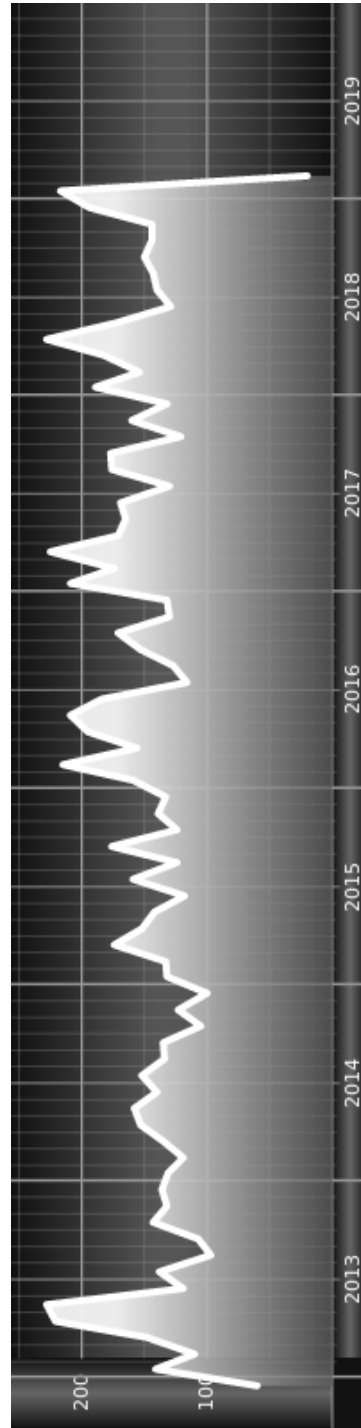


Figure 26: Caption and object in landscape mode. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense 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.

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 27:

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

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

float

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.

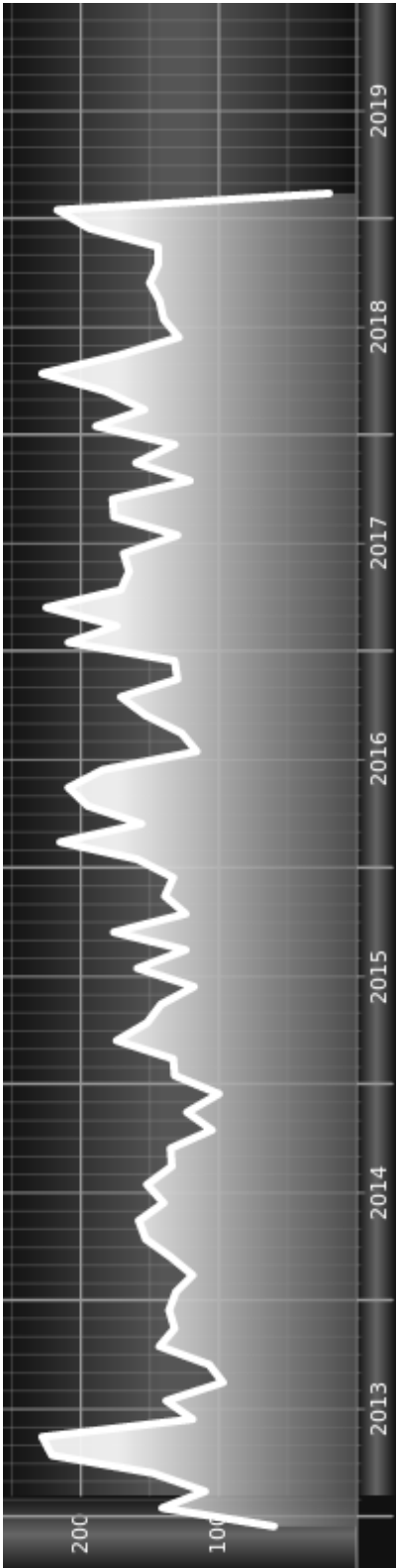


Figure 27: Caption right beside the float and object position left. The caption rotated by  $-90$  degrees. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.



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.

## 11 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]{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.

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

float

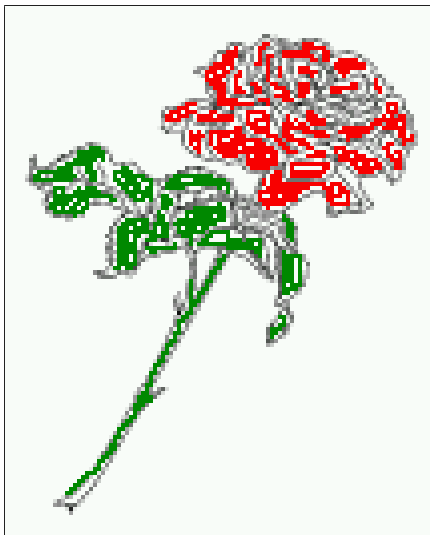


Figure 28: Caption of a “nonfloat” Object, using the nonfloat Package

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

The image 11 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.

## 12 Tabulars as Objects

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

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

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

The code for table 4 and 5 is:

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

\blindtext

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

In this case leave the third parameter empty.

`float`

Table 4: Demonstration of the use0Box Parameter

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

`float`

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

Table 5: Demonstration of the use0Box Parameter

## 13 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 13:

```
\hvFloat[%
  onlyText=true,
  capAngle=90,
  capPos=right,
  capVPos=top,
  capWidth=h]{{\includegraphics{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}}
```

float



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

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.

## 14 Environment hvFloatEnv

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

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

Table 6: A caption for a nice table

left	center	right
L	C	R

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

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

Table 7: A caption for a nice table

left	center	right
L	C	R

## 15 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.

hvfloater defines three additional optional arguments for placing images in a complete column, page or paper:

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

## 15 Full page objects in onecolumn mode

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

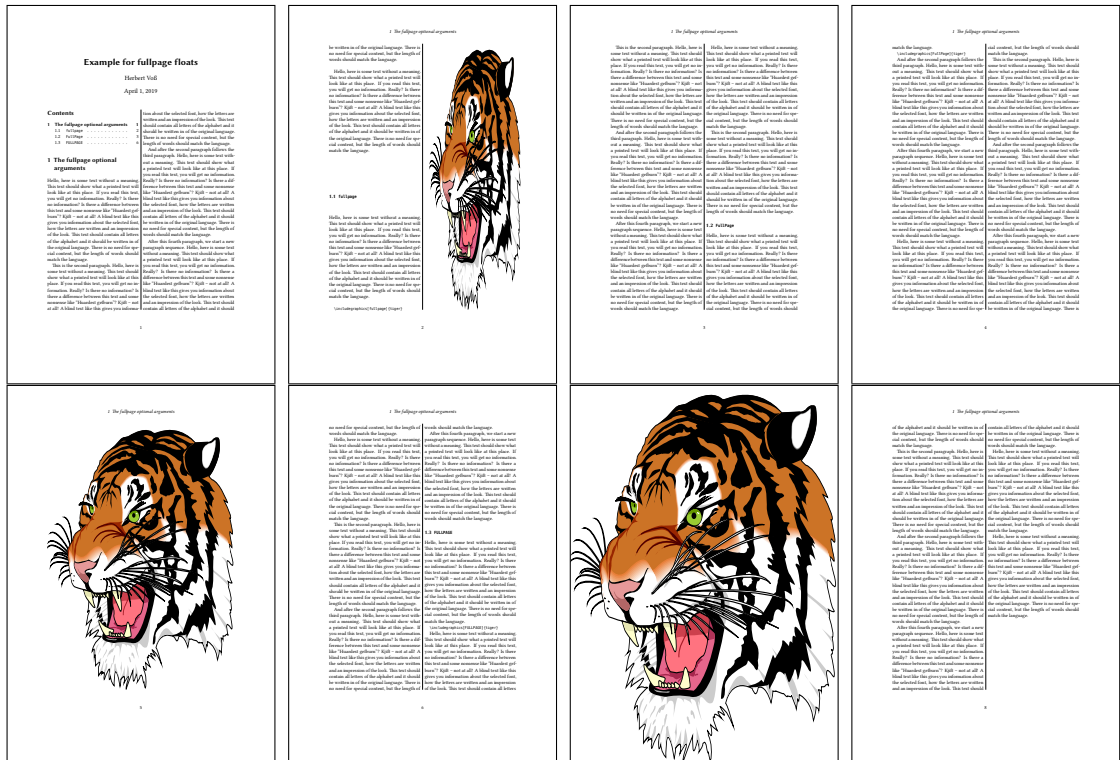


Figure 29: Output of fullpage1s2c (pages 1–8)

### 15.1 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:

### 15.1.1 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=before . For the twoside option it makes more sense to use the setting capPos=beforeEFT

```
\hvFloat[fullpage]%
{figure}%
{\includegraphics[fullpage]{frose}}%
% {\includegraphics[width=\linewidth,height=\textheight,keepaspectratio=false]{rose}}%
[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 oneside document but not the best solution if this document is printed on a duplex machine. In such a case it may make sense to have the captions always on an even (left) page, even though the document is typeset in a oneside mode. Figure 30 on the following page shows the output for a oneside document with a setting capPos=before .

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

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/column and the object alone a page/column.
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 15.3 on page 37.
subFloat	true false	For multiple objects with one main and more subcaptions. See section 16 on page 39.
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	before after evenPage oddPage	caption before, after, even page, or odd page.

## 15 Full page objects in onecolumn mode

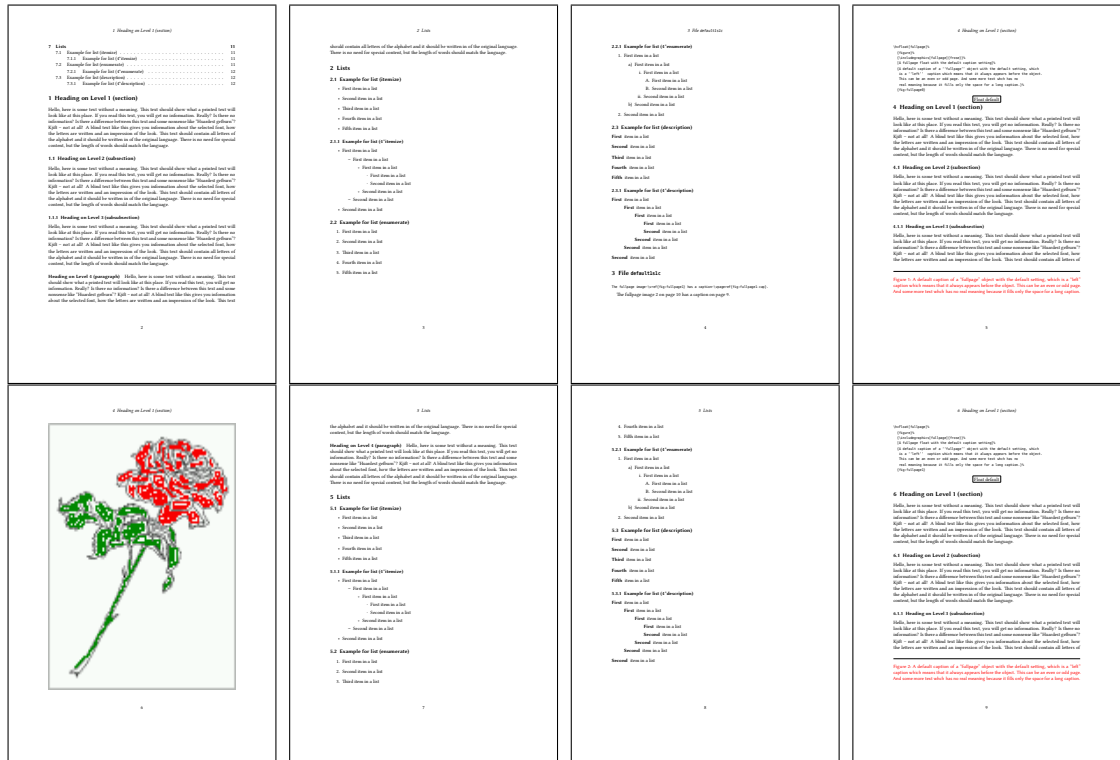


Figure 30: Output of default1s1c (pages 2–9)

### 15.1.2 Using capPos=after

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

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



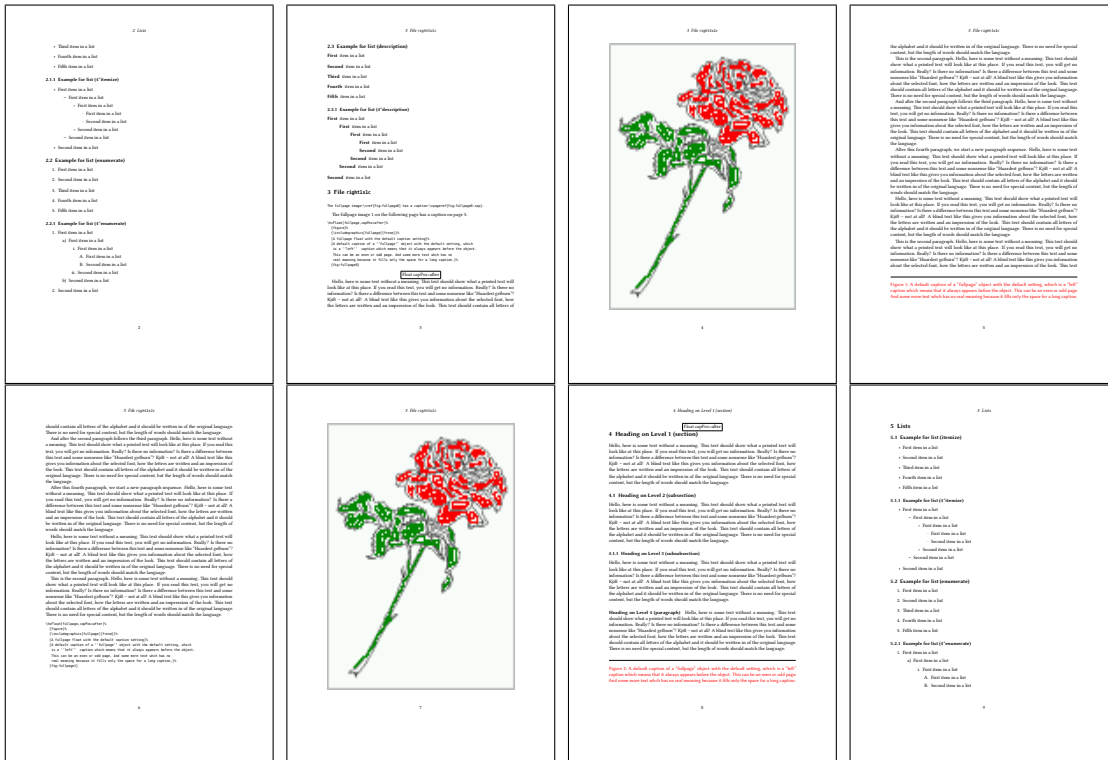


Figure 31: Output of right1s1c (pages 2–9)

### 15.1.3 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]{froze}}%
[A float with a caption on an even page (left)]%
{A caption on an even (left) page of a "fullpage" object.. \blindtext}
{fig:fullpage}
```

## 15 Full page objects in onecolumn mode

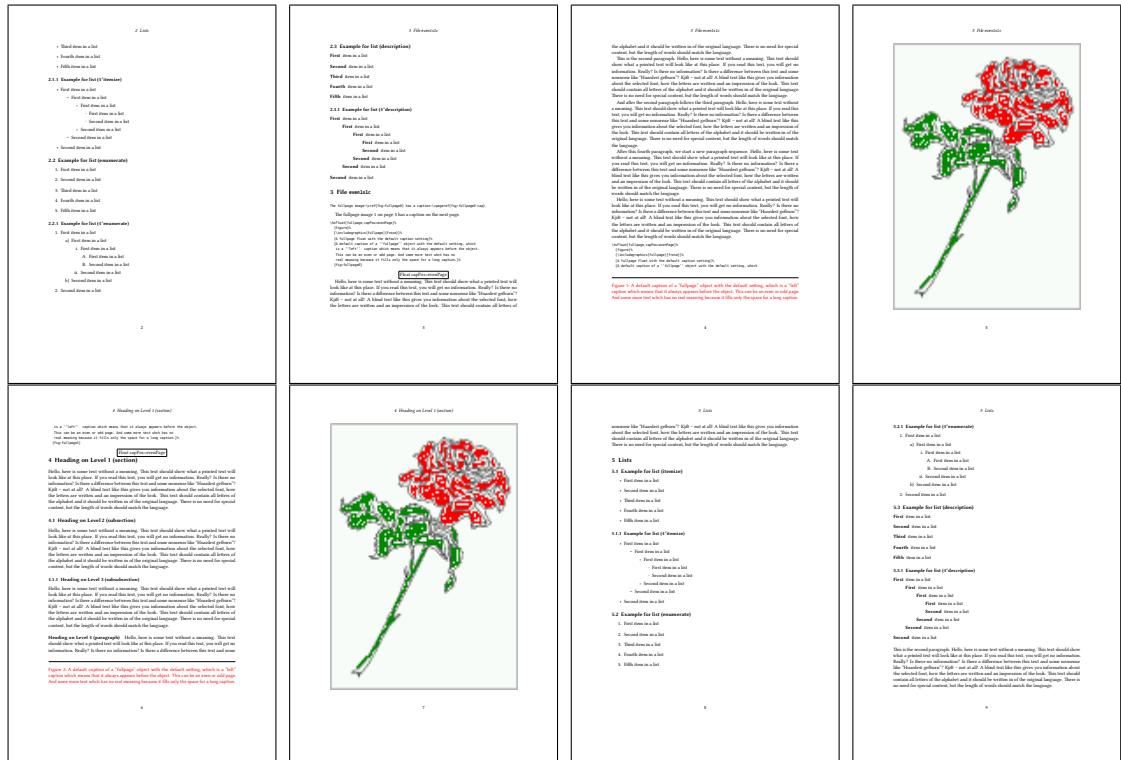


Figure 32: Output of even1s1c (pages 2-9)

### 15.1.4 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]{froze}}%
[A float which needs the complete page width and height.]%
{A Caption on an odd page of a "fullpage" object, which follows on the next page.
This can be an even or odd page. And some more text which has no
real meaning because it fills only the space for a long caption.}
{fig:fullpage2}
```

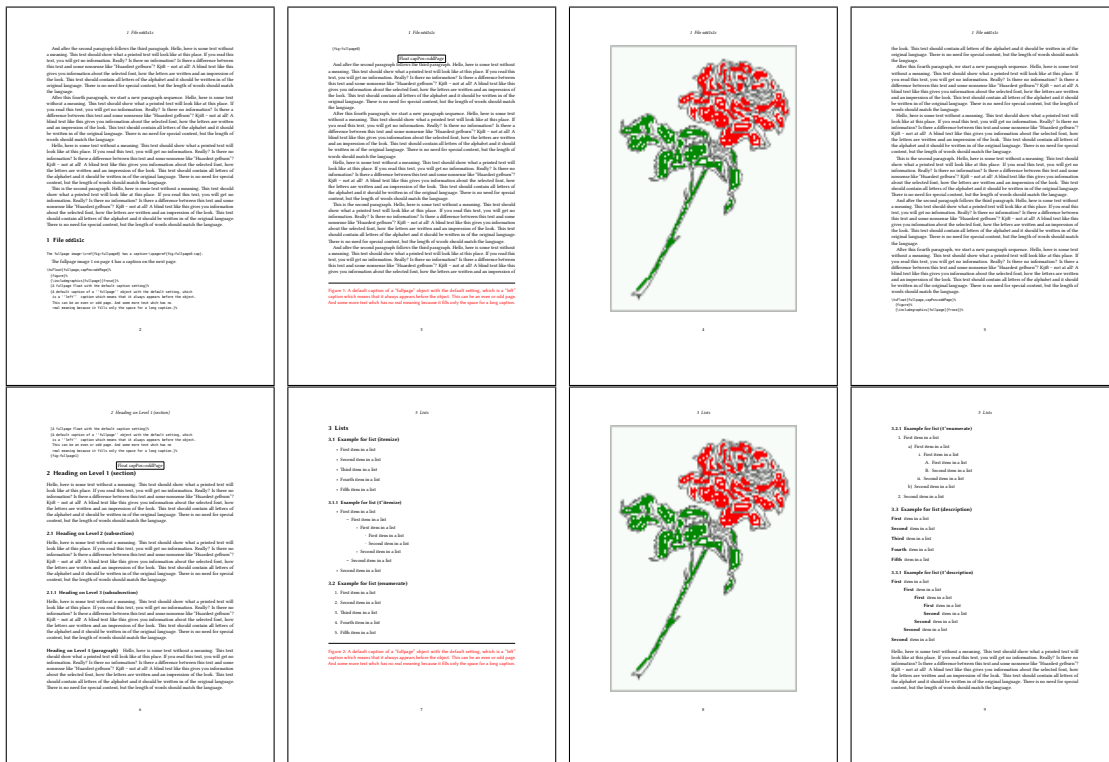


Figure 33: Output of odd1s1c (pages 2–9)

### 15.1.5 Using capPos=inner or capPos=outer — caption on the inner or outer side

These settings make no sense in onecolumn mode.

## 15.2 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}
```

## 15 Full page objects in onecolumn mode

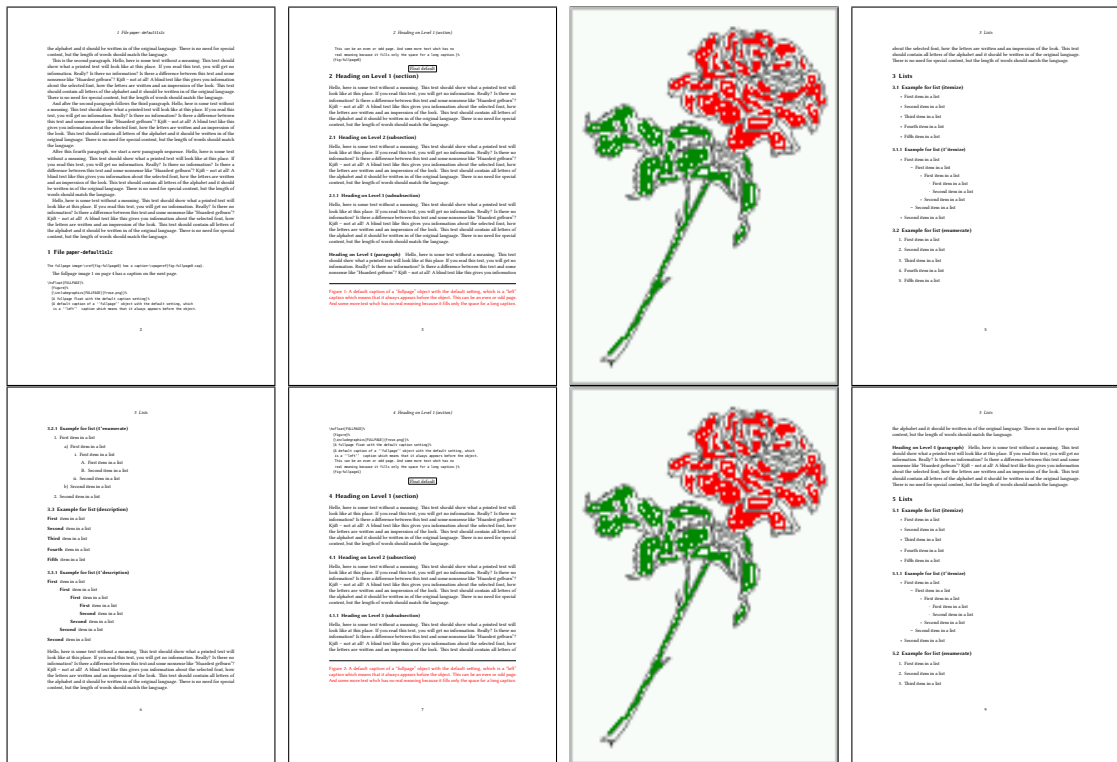


Figure 34: Output of paper-default1s1c (pages 2–9)



Figure 35: Output of paper-right1s1c (pages 2–9)

### 15.3 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

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

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 16 on page 39](#). The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

## 15 Full page objects in onecolumn mode

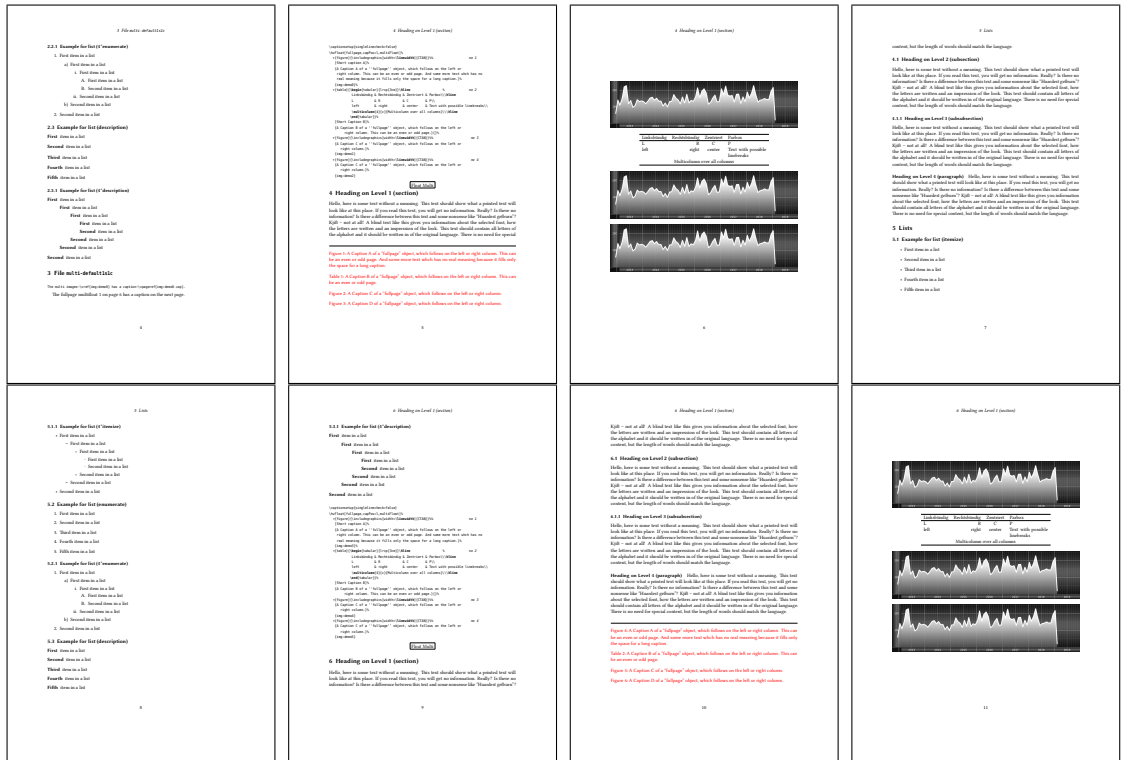


Figure 36: Output of multi-default1s1c (pages 4–11)

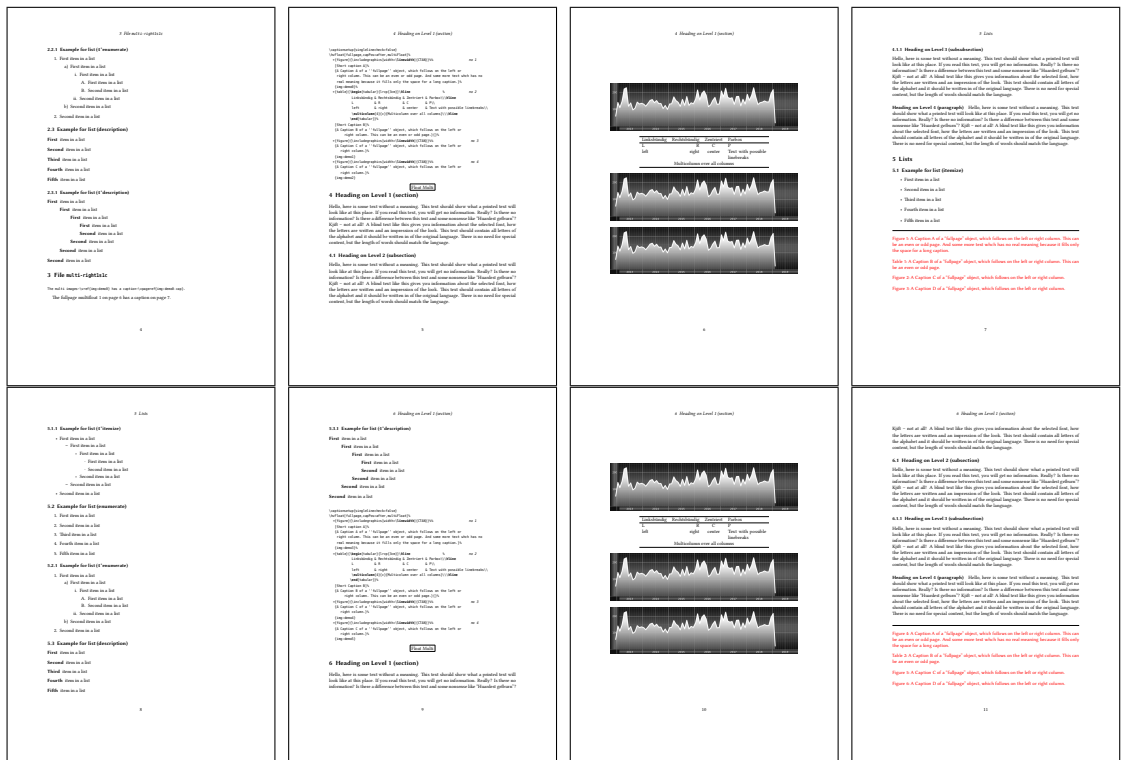


Figure 37: Output of multi-right1s1c (pages 4–11)

## 16 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]{CTAN}}%
[Short caption B]%
{A Caption B of a "fullpage" sub object.}%   subcaption
}%
+{}{\includegraphics[width=\linewidth]{CTAN}}%
{A Caption C of a "fullpage" object, which follows on the left or right column.}%
{sub:demo1}
+{}{\includegraphics[width=\linewidth]{CTAN}}%
{A Caption D of a "fullpage" object}%
{sub:demo2}
+{}{\includegraphics[width=\linewidth]{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]`.

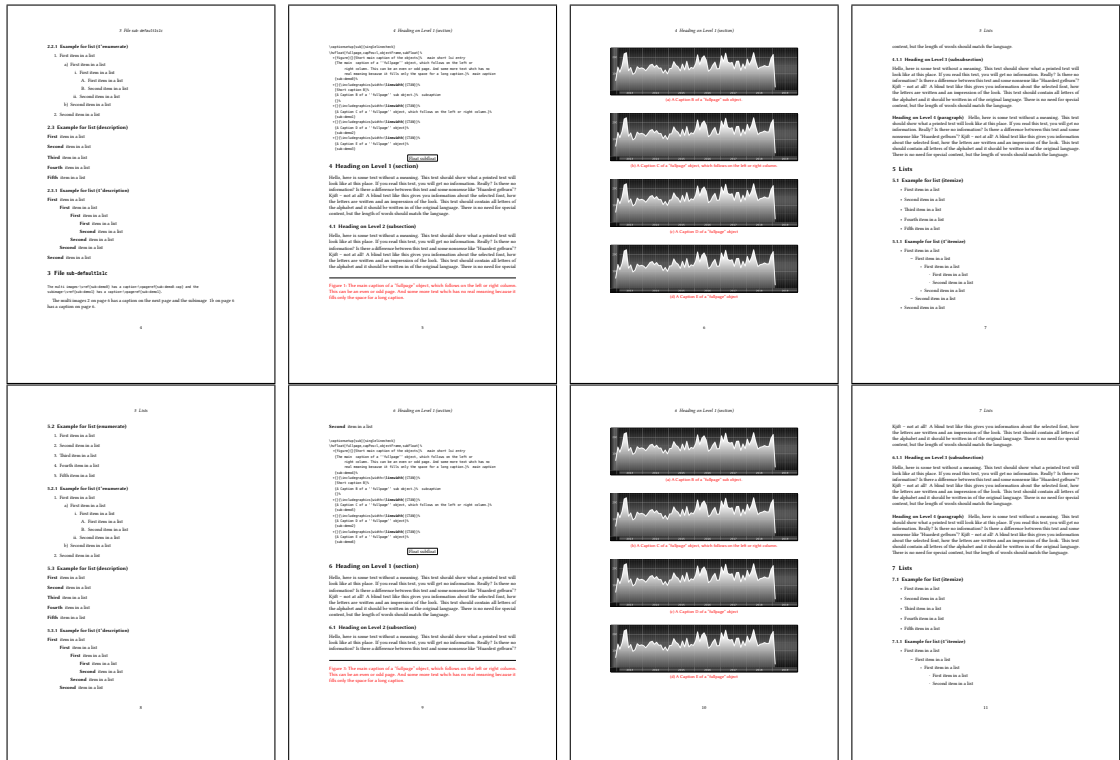


Figure 38: Output of sub-default1s1c (pages 4–11)

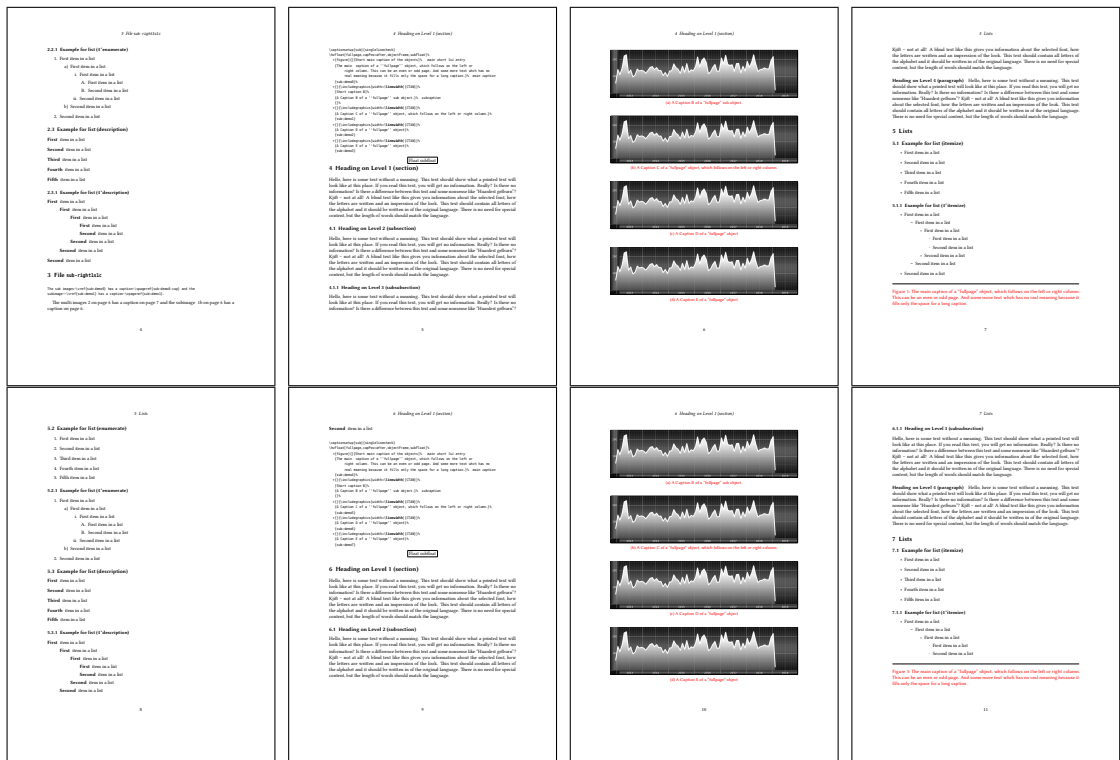


Figure 39: Output of sub-right1s1c (pages 4–11)



## 17 Full page objects in twocolumn mode

The filenames always have a “2c” for two columns in its names, e.g. `default2s2c` 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 31 shows the valid optional arguments for a full page floating object.

### 17.1 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 40 on the following page).

```
\hvFloat[fullpage]{figure}%
{\includegraphics[width=\columnwidth,height=0.9\textheight]{frose}}%
[A float which needs the complete column width and height.]%
{A Caption of a “fullpage” object, which follows on the next column.
This is always the right column on an even or odd page. And some more
text which has no real meaning because it fills only the space for a long
caption.}%
{fig:fullpage0-2}
```

## 17 Full page objects in twocolumn mode

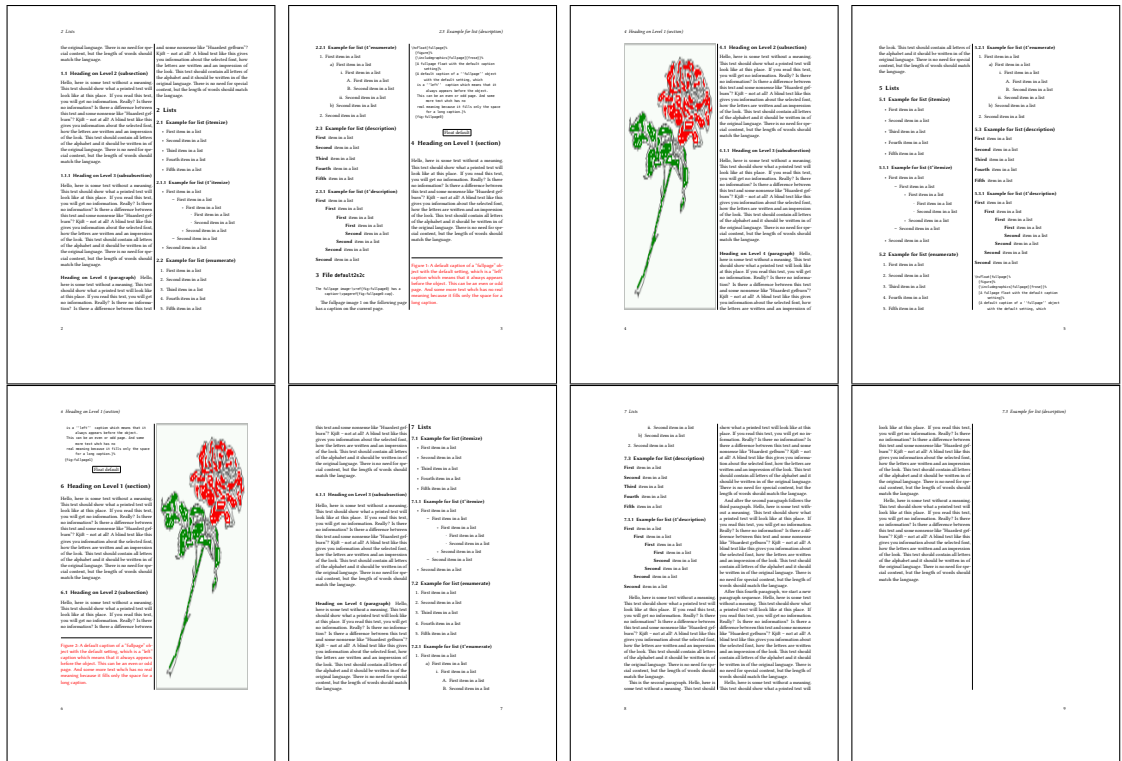


Figure 40: Output of default2s2c (pages 2–9)

### 17.1.1 Using capPos=after

The caption will be printed always right (*after*) of the object. This can be the first or second column.

```
\hvFloat[fullpage, capPos=after]{figure}%
{\includegraphics[fullpage]{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}
```

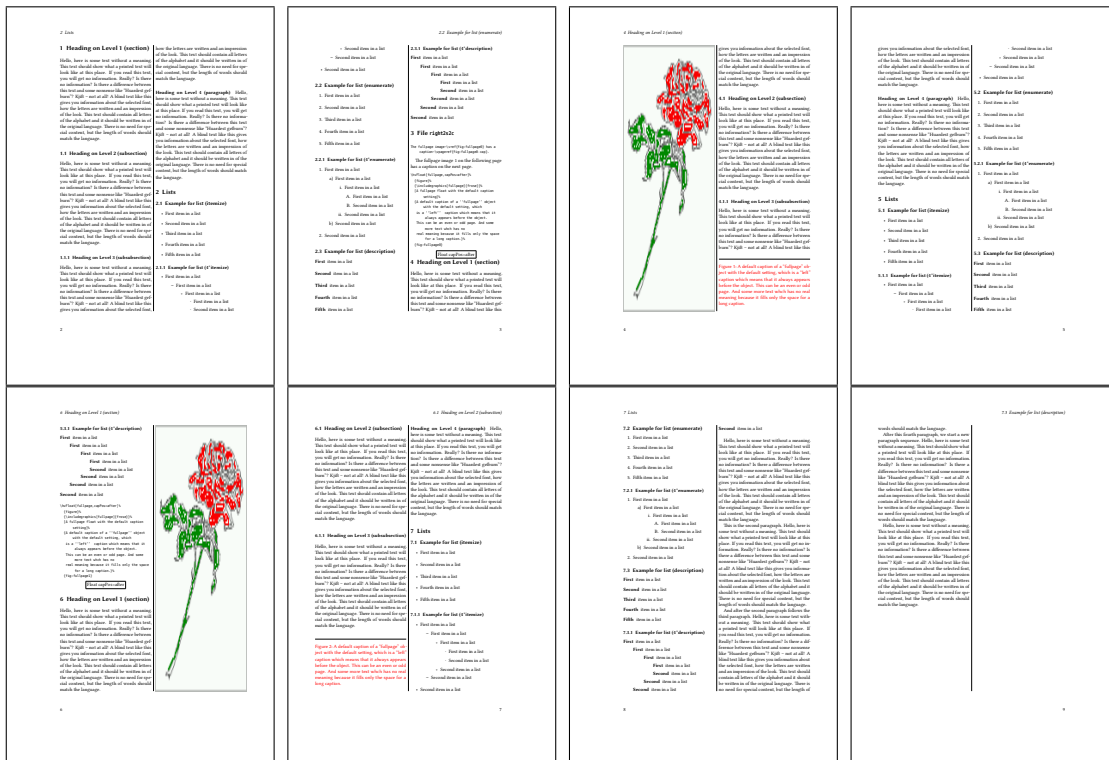


Figure 41: Output of right2s2c (pages 2–9)

### 17.1.2 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 hvfloat.



### 17.1.3 Using capPos=oddPage — caption on an odd page

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

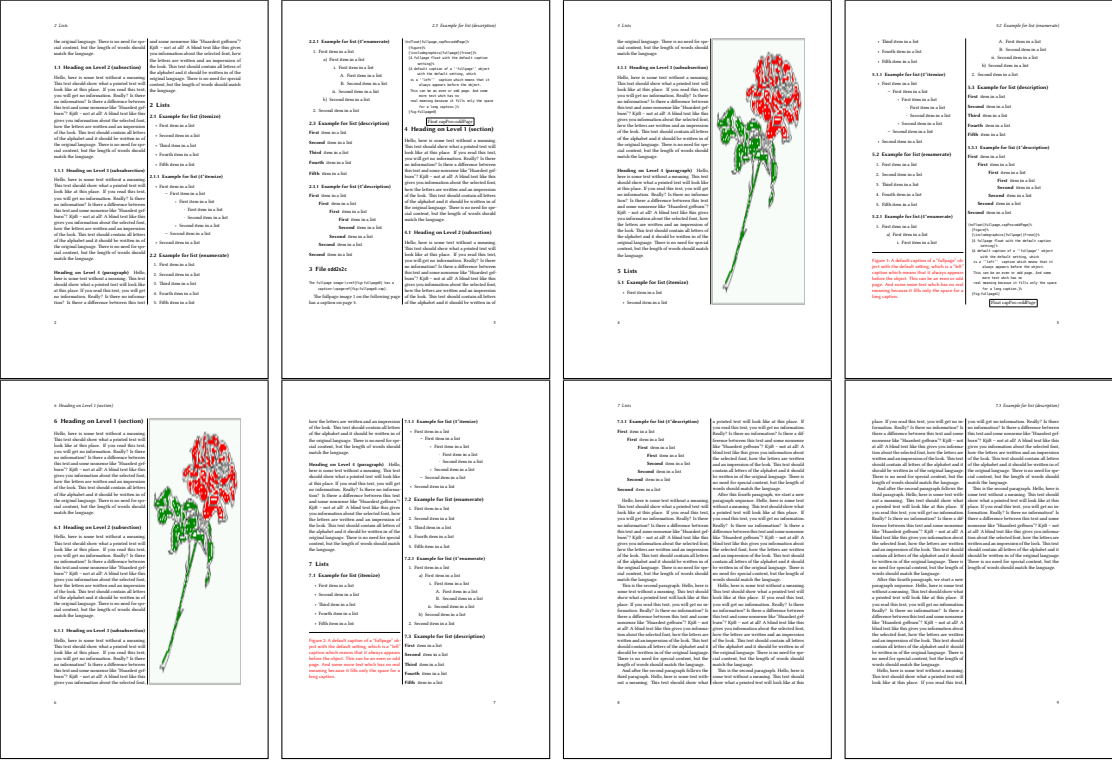


Figure 43: Output of odd2s2c (pages 2–9)

```
\hVfloat[fullpage,capPos=inner]{figure}{\includegraphics[fullpage]{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}
```

[illegible]

Figure 44: Output of inner2s2c (pages 2–9)

17.1.5 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]{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}
```

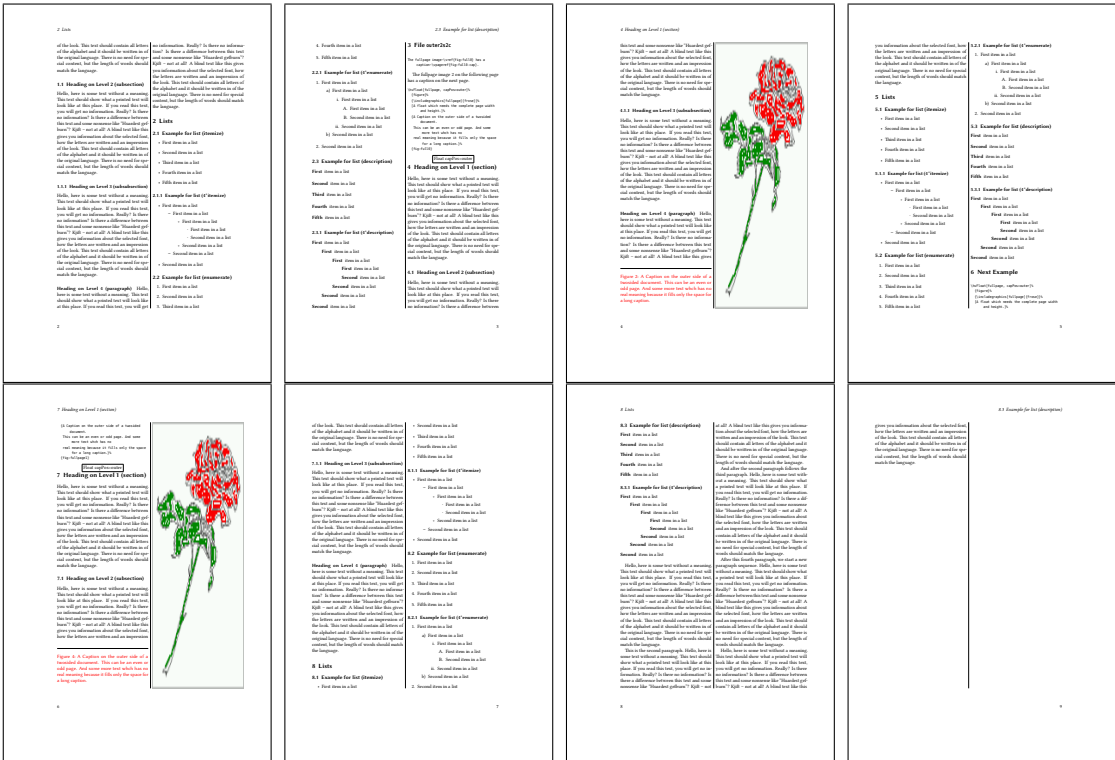


Figure 45: Output of outer2s2c (pages 2–9)

## 17.2 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]{figure}%
{\includegraphics[FullPage]{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}
```

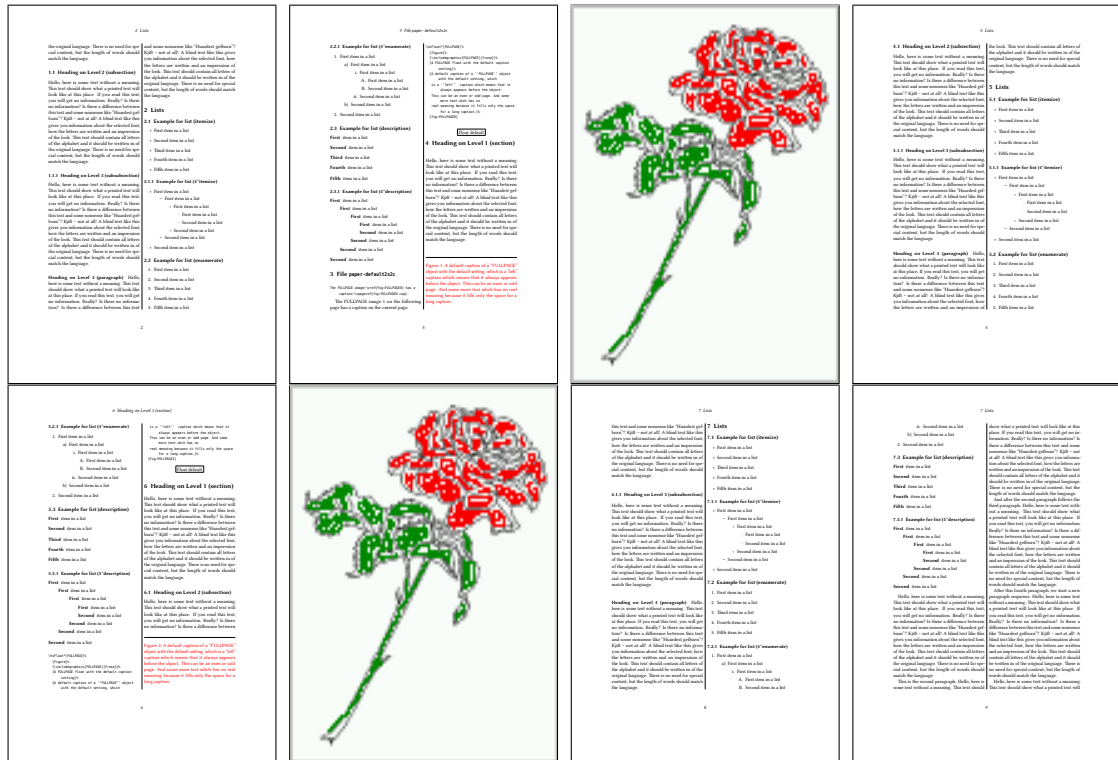


Figure 46: Output of paper-default2s2c (pages 2–9)



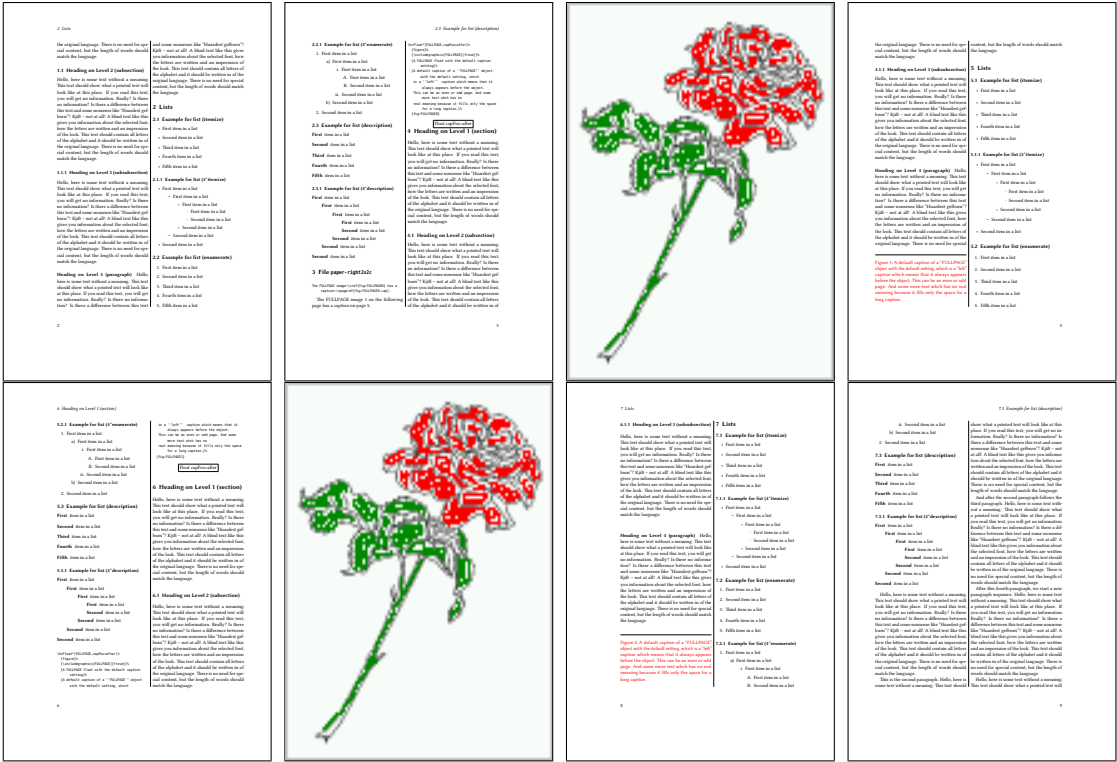


Figure 47: Output of paper-right2s2c (pages 2–9)

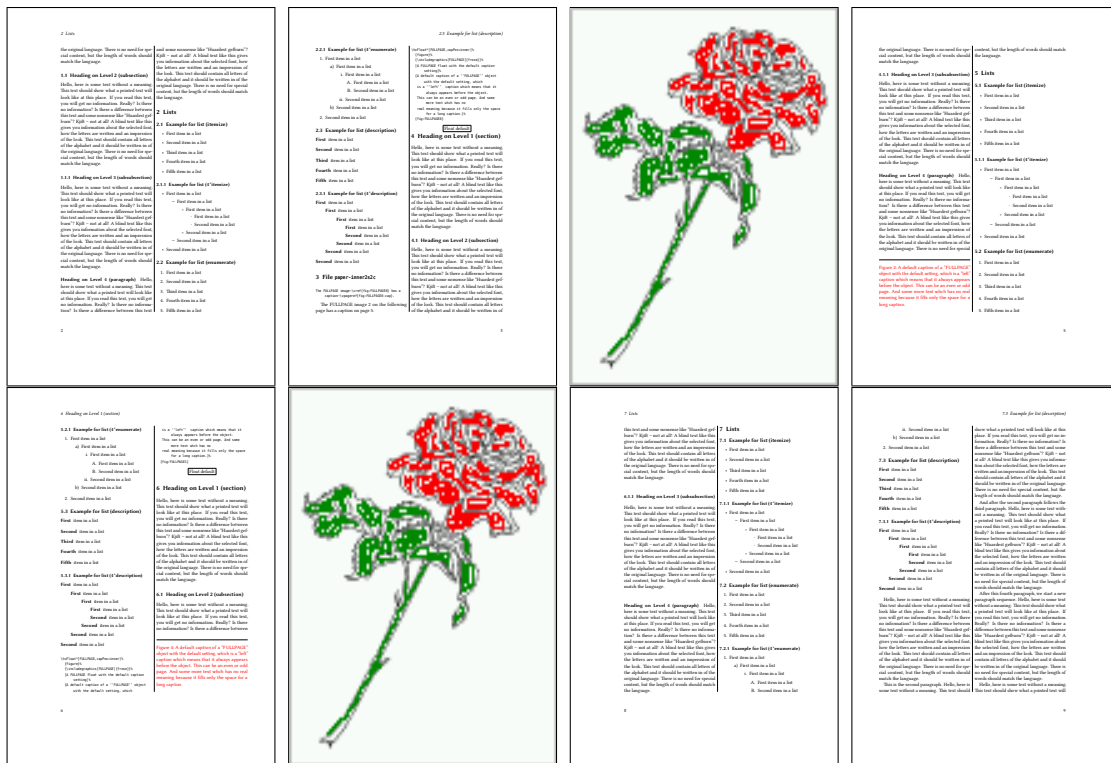


Figure 48: Output of paper-inner2s2c (pages 2–9)

### 17.3 Multifloats

Multifloats is the name for more than one image and/or tabular in *one* floating environment. Every image and/or tabular has its own caption, which is different to a subcaption. The + 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]{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 % no 2
Linksbündig & Rechtsbündig\\
L & R & \\
left & right & \\
\multicolumn{2}{c}{Multicolumn}\\ \hline
\end{tabular}}%
[Short Caption B]%
{A Caption B of a "fullpage" object, which follows on the left or
right column. This can be an even or odd page.}%
{}%
+{figure}{\includegraphics[height=0.4\textheight]{rose}}%% no 3
{A Caption C of a "fullpage" object, which follows on the left or
right column.}%
{multi:demo1}
```

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 16 on page 39](#). The setting `\captionsetup{singlelinecheck=false}` is needed if you want the captions always left aligned.

17 Full page objects in twocolumn mode

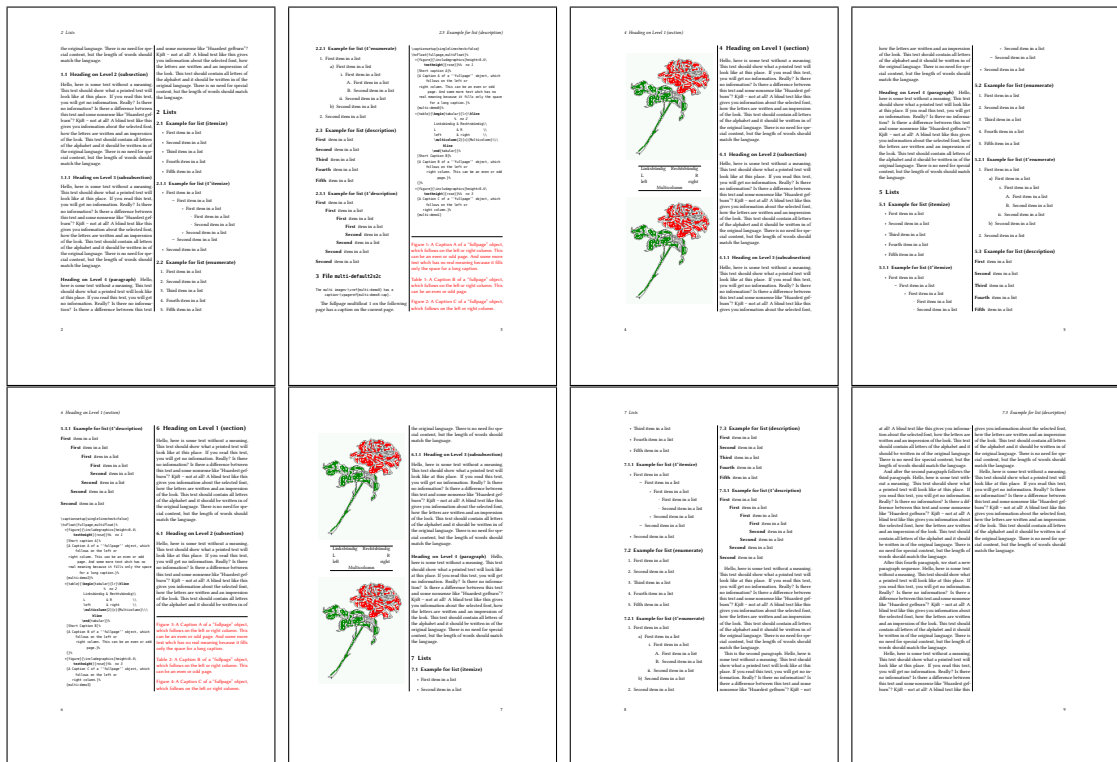


Figure 49: Output of multi-default2s2c (pages 2-9)

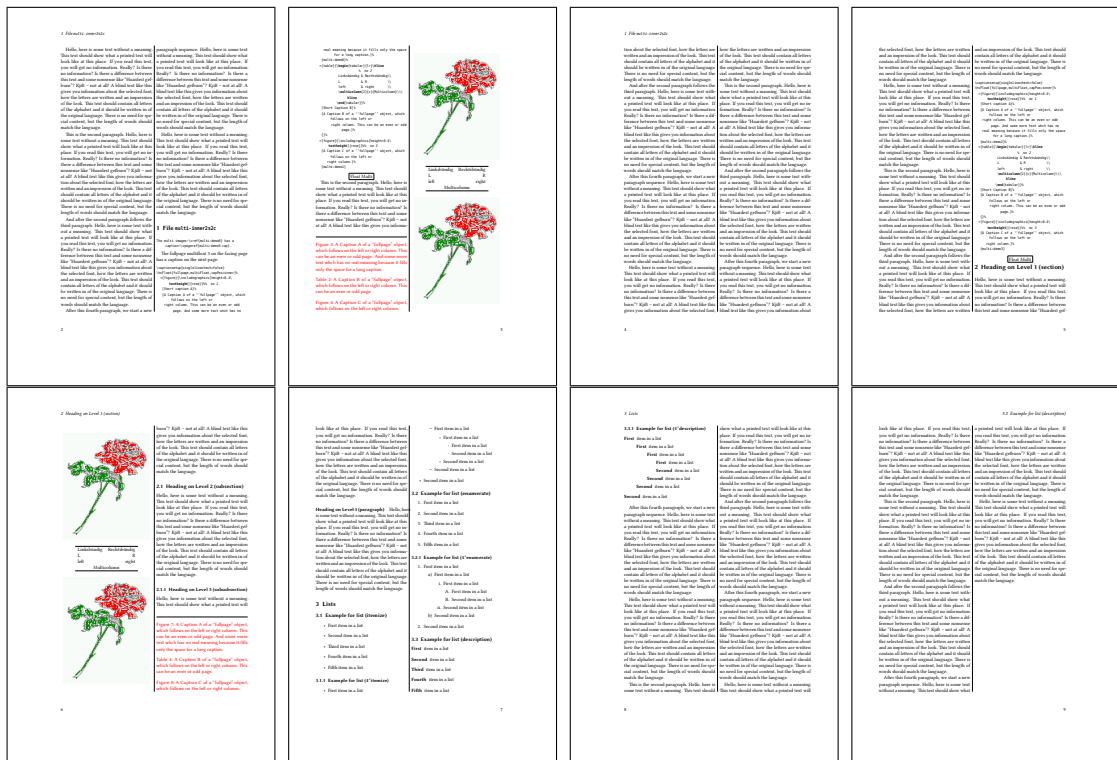


Figure 50: Output of multi-inner2s2c (pages 2-9)

## 18 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.

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

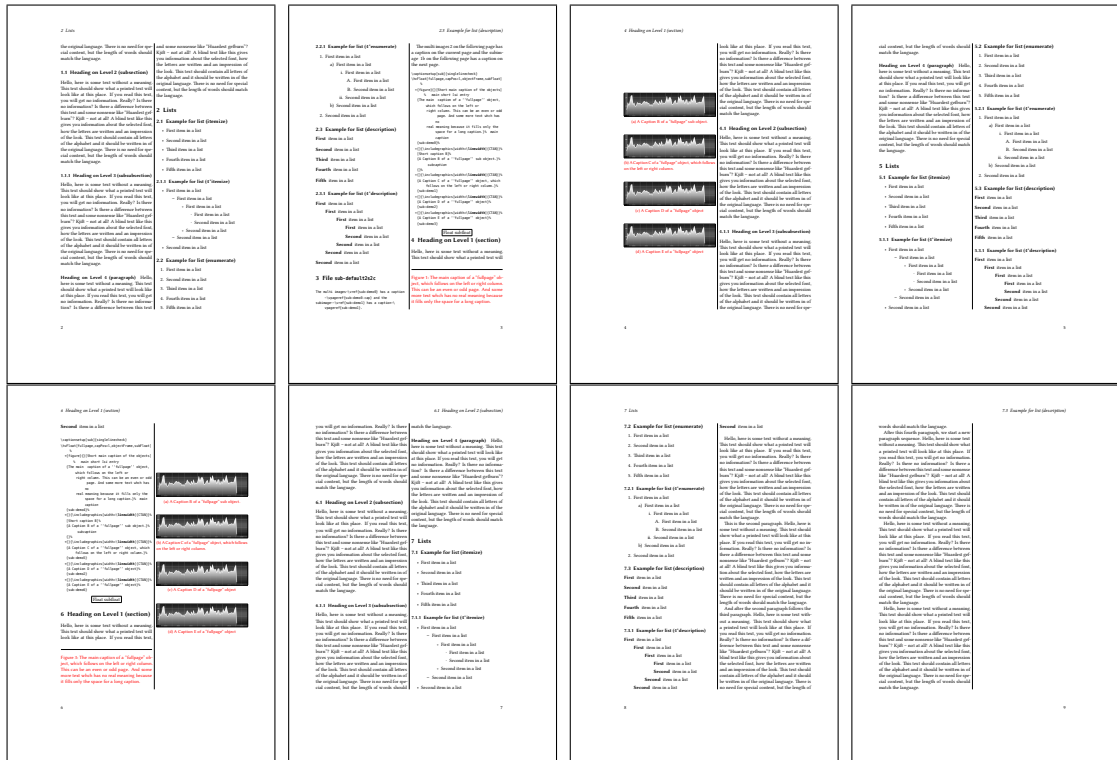


Figure 51: Output of sub-default2s2c (pages 2-9)

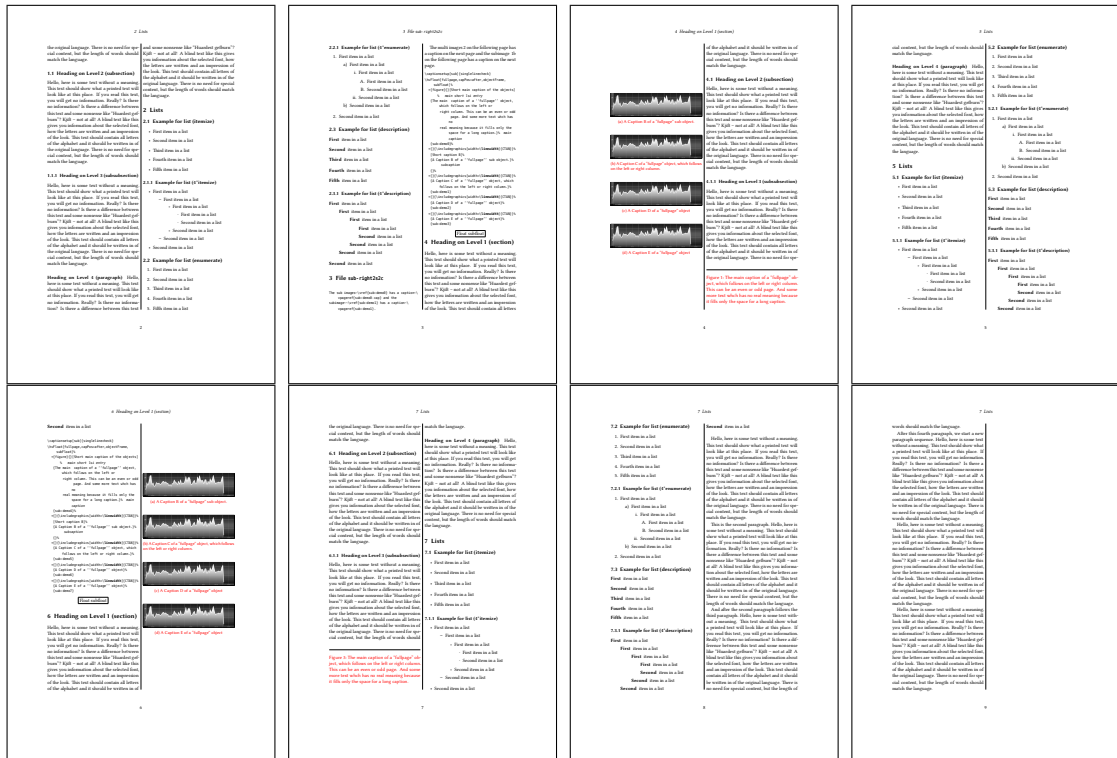


Figure 52: Output of sub-right2s2c (pages 2-9)

## 19 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{
\hvfFloat[fullpage,capPos=evenPage]{figure}%
  {\IncludeGraphics{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}.

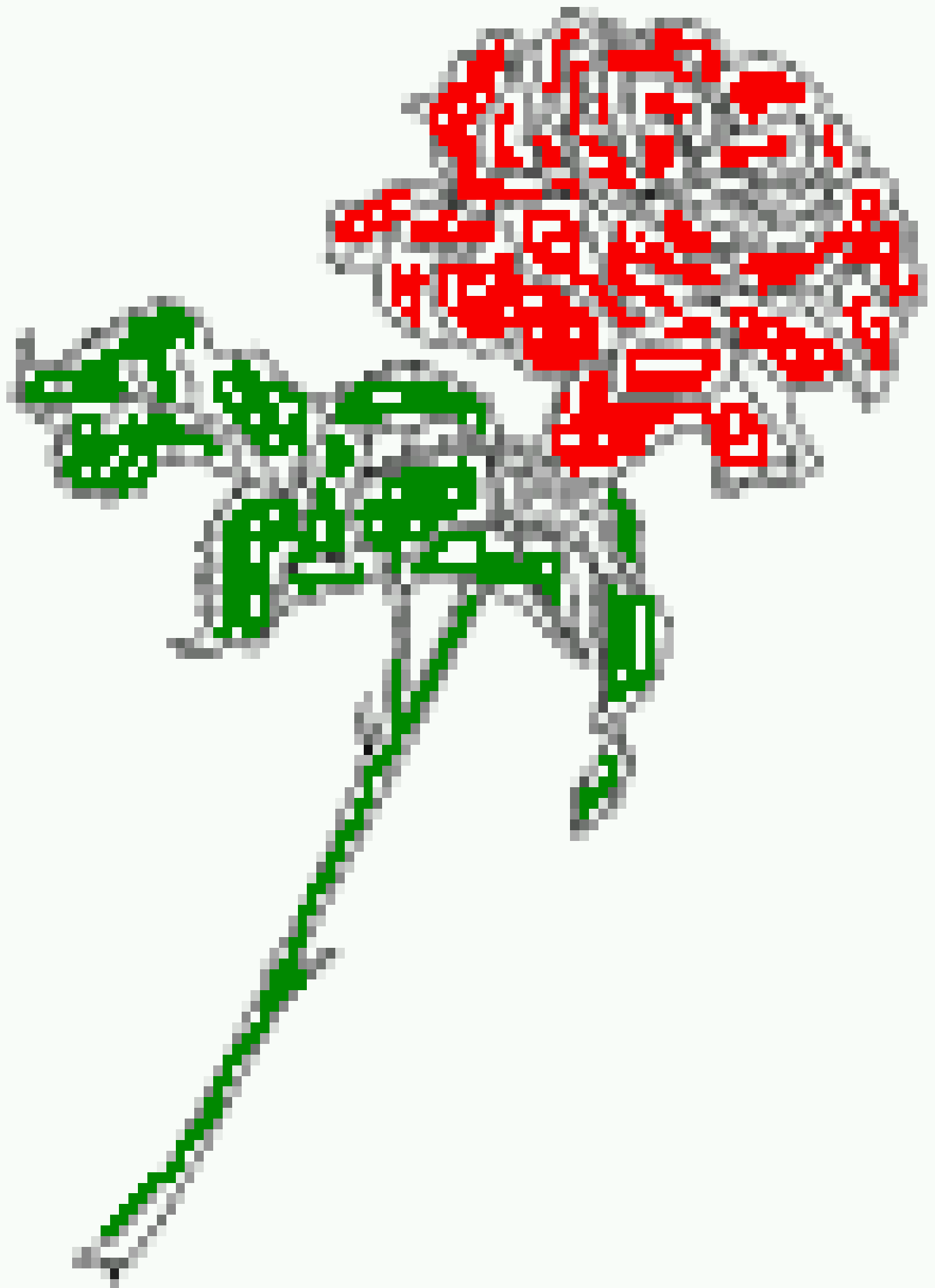
The caption of figure 53 is on page 57, but the image itself is on page 56. With package `varioref` it is:

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 53 on the following page, which uses a correct page number of the floating object and not the caption page number which is on page 57. The figure 53 is on page 56 and the caption on page 57

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.

## 20 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[scale=1.5]{froze}}%
{Caption vertically centered right beside the float with a caption width of
\texttt{0.5\textbackslash columnwidth}.}{fig:style}
```

A defined style is internally saved in a macro named `hv@<style name>`. For the defined style `RightCaption` it is `\hv"RightCaption`. Using this macro shows it's definition:

```
\makeatletter
\hv@RightCaption
\makeatother
```

```
floatPos=htb, capWidth=0.5, capPos=after, capVPos=bottom, objectPos=center
```

## 21 Global float setting

Instead of writing the following sequence into the preamble:

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

you can change the global setting of floats by loading the package `hvfloat-fps` (fps: float placement setting). It allows with optional package arguments to set the global placement:

---

Figure 53: 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

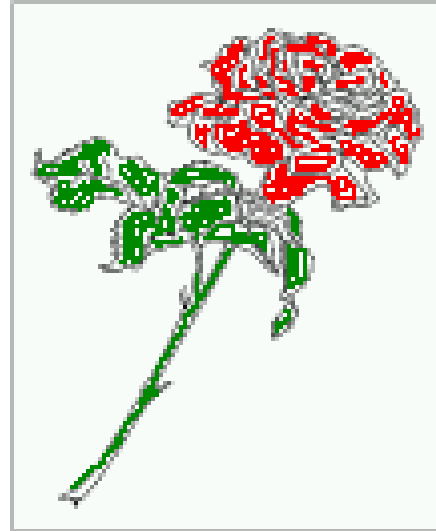


Figure 54: Caption at bottom right beside the float with a caption width of  $0.5\text{\columnwidth}$ .

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

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

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- w, 11

varioref (package), 55

### W

w (value), 11  
wide (keyword), 7, 9, 19

## 22 The Package Source

```
%% $Id: hvfloat.sty 1009 2019-04-01 12:44:03Z herbert $
%%
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{hvfloat}[2019/02/03 rotating of floating objects]
%%
%% IMPORTANT NOTICE:
%%
%% This is file 'hvfloat.sty',
%%
%% Herbert Voss <hvoss@tug.org>
%%
%% This program can be redistributed and/or modified under the terms
%% of the LaTeX Project Public License Distributed from CTAN archives
%% in directory macros/latex/base/lppl.txt.
%%
%% DESCRIPTION:
%% 'hvfloat' offers rotating of captions and objects for floats
%%
\def\fileversion{2.11}
\def\filedate{2019/03/29}
\message{'hvfloat' v\fileversion, \filedate\space (Herbert Voss)}
%
\newif\ifhv@fbox \hv@fboxfalse
\newif\ifhv@hyperref \hv@hyperreffalse
\DeclareOption{fbox}{\hv@fboxtrue\setlength{\fboxsep}{1pt}}
\DeclareOption{hyperref}{\hv@hyperreftrue}

\ProcessOptions

\PassOptionsToPackage{hypcap}{caption}
\RequirePackage{caption}
\PassOptionsToPackage{hypcap}{subcaption}
\RequirePackage{subcaption}
\RequirePackage{atbegshi}
\ifhv@hyperref
  \RequirePackage{hyperref}
% \RequirePackage{hypcap}
\fi
% \AtBeginDocument{\providecommand\capstart{}}% in no hyperref/hypcap is loaded
%
\RequirePackage{expl3,multido}
\RequirePackage{graphicx}

\RequirePackage{xkeyval}
\RequirePackage{ifoddpage}
%
\RequirePackage{afterpage}

\newlength\hvObjectWidth
\newlength\hvCapWidth
\newlength\hvWideWidth
```

```

\newlength\hvMultiFloatSkip

\newlength\hvMaxCapWidth
\newsavebox\hvObjectBox
\newsavebox\hvCaptionBox
\newsavebox\hvOBox
\newsavebox\@tempbox
\newsavebox\hv@caption@box

%
\newif\ifhv@capbeside \hv@capbesidefalse

\def\hv@Top{top}
\def\hv@Bottom{bottom}
\def\hv@After{after}
\def\hv@Before{before}
\def\hv@Right{right}
\def\hv@RIGHT{RIGHT}
\def\hv@Left{left}
\def\hv@LEFT{LEFT}
\def\hv@Center{center}
\def\hv@Outer{outer}
\def\hv@Inner{inner}
\def\hv@Even{evenPage}
\def\hv@Odd{oddPage}
\def\hv@Natural{n}
\def\hv@Width{w}
\def\hv@Height{h}
\def\hv@Zero{0}

%

\def\hv@figure{figure}
%
\define@key{hvSet}{floatPos}{htbp}{%      LaTeX's position parameters htpb
  \def\hvSet@floatPos{#1}%
}
\define@key{hvSet}{rotAngle}{0}{%      rotates caption AND image together
  \def\hvSet@rotAngle{#1}%
}
\define@key{hvSet}{capWidth}{n}{%      (n)atural width|object (w)idth|object (h)eight|<scale of \columnwidth
  >
  \def\hvSet@capWidth{#1}%
}
\define@key{hvSet}{capAngle}{0}{%      -360...+360
  \def\hvSet@capAngle{#1}%
}
\define@key{hvSet}{capPos}{bottom}{%      (l)eft|(b)ottom|(t)op|(r)ight|(i)inner|(o)uter|(e)ven|(o)(d)d
  \def\hvSet@capPos{#1}%      it is relativ to the object, (e),(d) only valid for fullpage float
  \edef\@tempa{#1}%
  \ifx\hv@Bottom\@tempa
    \hv@capbesidefalse
  \else
    \ifx\hv@Top\@tempa
      \hv@capbesidefalse

```

```

\else
\hv@capbesidetrue
\fi
\fi
}
\define@key{hvSet}{capVPos}[center]{%    bottom|center|top
\def\hvSet@capVPos{#1}%    it is relativ to the object
}
\define@key{hvSet}{objectPos}[center]{%    (l)eft|(c)enter|(r)ight|(i)nner|(o)uter
\def\hvSet@objectPos{#1}%    it is relativ to the document
}
\define@key{hvSet}{objectAngle}[0]{%    -360..+360
\def\hvSet@objectAngle{#1}%
}
\define@key{hvSet}{floatCapSep}[5]{%    a width with the unit pt
\def\hvSet@floatCapSep{#1}%
}
\define@key{hvSet}{multiFloatSkip}{\normalbaselineskip}{% a width with the unit pt
\setlength\hvMultiFloatSkip{#1}%
}
\define@boolkey{hvSet}[hv@]{use0Box}[true]{}%    use of the hv0Box contents
\define@boolkey{hvSet}[hv@]{nonFloat}[true]{}%    Do not use float environment
\define@boolkey{hvSet}[hv@]{onlyText}[true]{}%    Write the caption only as text
\define@boolkey{hvSet}[hv@]{wide}[true]{}%    Write the caption only as text
\define@boolkey{hvSet}[hv@]{fullpage}[true]{}%    fullpage float with caption on other page
%\define@boolkey{hvSet}[hv@]{FullPage}[true]{}%    fullpage float with caption on other page
\define@boolkey{hvSet}[hv@]{FULLPAGE}[true]{}%    fullpage float with caption on other page
\define@boolkey{hvSet}[hv@]{subFloat}[true]{%    typeset values as subfloats
\ifhv@subFloat\setkeys{hvSet}{multiFloat=false}\fi%
}%
\define@boolkey{hvSet}[hv@]{multiFloat}[true]{%    typeset values as continous floats
\ifhv@multiFloat\setkeys{hvSet}{subFloat=false}\fi%
}%
\define@boolkey{hvSet}[hv@]{separatorLine}[true]{}%    separator line for caption of a full page float
\define@boolkey{hvSet}[hv@]{objectFrame}[true]{}%    a frame around the object with no separation
\define@key{hvSet}{style}{%
\@ifundefined{hv@#1}%
{\errmessage{Custom style '#1' undefined}}%
{\begingroup
\edef\x{\endgroup\noexpand\setkeys{hvSet}{\@nameuse{hv@#1}}}\x}%    use a defined style
}

\def\hv@set#1{\begingroup\edef\x{\endgroup\noexpand\setkeys{hvSet}{#1}}\x}
%
\def\defhvhstyle#1#2{\@namedef{hv@#1}{#2}}
%

\newcommand{\setDefaults}{%
\hv@set{%
floatPos=htbp, rotAngle=0, capWidth=n, capAngle=0,
capPos=bottom, capVPos=center, objectPos=center, objectAngle=0,
floatCapSep=5, use0Box=false, nonFloat=false,
onlyText=false, wide=false, fullpage=false, %FullPage=false,

```

## 22 The Package Source

```

FULLPAGE=false,
    multiFloat=false, subFloat=false,
    separatorLine, objectFrame=false, multiFloatSkip=\normalbaselineskip,
}%
}
\newcommand\reset@special@float{%
    \hv@set{subFloat=false, fullpage=false, %FullPage=false,
    multiFloat=false, FULLPAGE=false}}

\def\hv@vskip{\vspace{\hvMultiFloatSkip}}

%
\newlength\hvAboveCaptionSkip
\newlength\hvBelowCaptionSkip
\newcount\hv@@capPos

\newlength\fbboxlinewidth
\AtBeginDocument{%
    \setlength\fbboxlinewidth{\dimexpr\linewidth-2\fbboxrule-2\fbboxsep}%
}
\setlength\belowcaptionskip{\abovecaptionskip}% it is in latex.ltx = 0pt
\newcommand\saveCaptionSkip{%
    \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}
    \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}
    \setlength{\abovecaptionskip}{0pt}
    \setlength{\belowcaptionskip}{0pt}
}
\newcommand{\restoreCaptionSkip}{%
    \setlength\abovecaptionskip{\hvAboveCaptionSkip}%
    \setlength\belowcaptionskip{\hvBelowCaptionSkip}%
}
%
\newcommand\figcaption[2][{}]{\def\@captype{figure}%
    \begin@group\ifx\relax#1\relax \caption{#2}\else\caption{#1}{#2}\fi\endgroup}
\newcommand\tabcaption[2][{}]{\def\@captype{table}%
    \begin@group\ifx\relax#1\relax \caption{#2}\else\caption{#1}{#2}\fi\endgroup}
%
\newlength\hv@maxImageWidth
\AtBeginDocument{\hv@maxImageWidth=\columnwidth}

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

```



```

}

\newcommand\put@CaptionBox[1][0]{%
  \ifcase#1
    \ifhv@fbox
      \fbox{\parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}}%
    \else
      \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}%
    \fi
  \or
    \ifhv@fbox
      \fbox{\raisebox{-\height}{\usebox{\hvCaptionBox}}}%
    \else
      \raisebox{-\height}{\usebox{\hvCaptionBox}}%
    \fi
  \or
    \ifhv@fbox\fbox{\usebox{\hvCaptionBox}}\else\usebox{\hvCaptionBox}\fi
  \fi
}

\newcommand\put@ObjectBox[1][0]{%
  \ifcase#1
    \ifhv@fbox
      \fbox{\parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}}%
    \else
      \parbox{\wd\hvObjectBox}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
    \fi
  \or
    \ifhv@fbox
      \fbox{\raisebox{-\height}{\usebox{\hvObjectBox}}}%
    \else
      \raisebox{-\height}{\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi}%
    \fi
  \or
    \ifhv@fbox
      \fbox{\usebox{\hvObjectBox}}%
    \else
      \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi%
    \fi
  \fi
}

\newif\ifhv@star
\newif\if@hvsubstar
\setDefaults

\def\hvFloat{ \@ifnextchar*%
  {\hv@startrue\hv@maxImageWidth=\textwidth\hvFloat@i}%
  {\hv@starfalse\hv@maxImageWidth=\columnwidth\hvFloat@i*}%
}

%\newcommand*{\hvFloat}[5][+]{%
%  [#1]: keyvalues
%  #2: type figure | table | ...

```

## 22 The Package Source

```
% #3: float contents
% [#4]: short caption
% #5: caption
% #6: label
%
\def\hvFloat@i*{\@ifnextchar{\do@hvFloat}{\do@hvFloat[]}}

\def\do@hvFloat[#1]{%
  \begingroup
  \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
  \hv@maxImageWidth=\textwidth
  \hv@capbesidefalse
  \reset@special@float
  \setcounter{hv@pfigure}{\value{figure}}%
  \setcounter{hv@ptable}{\value{table}}%
  \gdef\hv@save@setting{#1}%
  \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
  \gdef\hv@floatType{figure}%
  \@ifnextchar{\do@multiFloat}{\hvFloat@ii[#1]}%

\ExplSyntaxOn

\def\do@multiFloat+#1#2{%
  \clist_set:Nn\l_clist_Type{#1}%
  \clist_set:Nn\l_clist_Object{#2}%
  \@ifnextchar{\do@multiFloat@i{\do@multiFloat@i[]}%
}
\def\do@multiFloat@i[#1]#2#3{% lof-caption, caption, label
  \ifx\relax#1\relax
    \clist_set:Nn\l_clist_LofCaption{}}%
  \else
    \clist_set:Nn\l_clist_LofCaption{#1}%
  \fi
  \clist_set:Nn\l_clist_Caption{#2}%
  \ifx\relax#3\relax
    \clist_set:Nn\l_clist_Label{}}%
  \else
    \clist_set:Nn\l_clist_Label{#3}%
  \fi
  \@ifnextchar{\do@multiFloat@ii{}}%
}
\def\do@multiFloat@ii+#1#2{%
  \clist_put_right:Nn\l_clist_Type{#1}%
  \clist_put_right:Nn\l_clist_Object{#2}%
  \@ifnextchar{\do@multiFloat@iii{\do@multiFloat@iii[]}%
}

\def\do@multiFloat@iii[#1]#2#3{% lof-caption, caption, label
  \ifx\relax#1\relax
    \clist_put_right:Nn\l_clist_LofCaption{}}%
  \else
    \clist_put_right:Nn\l_clist_LofCaption{#1}%
  \fi
  \clist_put_right:Nn\l_clist_Caption{#2}%

```

```

\ifx\relax#3\relax
  \clist_put_right:Nn\l_clist_Label{}}}%
\else
  \clist_put_right:Nn\l_clist_Label{#{3}}}%
\fi
\@ifnextchar+\do@multiFloat@ii%
  {\def\hvSet@CapWidth{n}%
    \do@@@hvFloat}%
}
\ExplSyntaxOff

\newcounter{hv@pfigure}
\newcounter{hv@ptable}
\newcounter{subhv@pfigure}
\newcounter{subhv@ptable}

\def\drawSepLine{%
  \par\noindent
  \if@twocolumn\rule{\columnwidth}{0.4pt}\else\rule{\linewidth}{0.4pt}\fi
  \vspace{0pt}%
}

\newcount\hv@cmta
\newcount\hv@cmtb

\def\hvFloat@ii[#1]#2#3{%
  \hv@maxImageWidth=\textwidth
  \hv@capbesidefalse
  \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
  \gdef\hv@floatType{#2}%
  \ifx\relax#2\relax\setkeys{hvSet}{nonFloat=true}\fi
  \gdef\hv@floatObject{#3}%
  \@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}%
}
\def\do@hvFloat[#1]#2#3{%
  \gdef\hv@shortCap{#1}%
  \gdef\hv@longCap{#2}%
  \gdef\hv@label{#3}%
  \ifhv@fullpage
    \def\hvSet@CapWidth{n}% relative value
    \do@@@hvFloat% fullpage with caption on other page
  \else
    \ifhv@FULLPAGE
      \def\hvSet@CapWidth{n}% relative value
      \do@@@hvFloat% fullpage with caption on other page
    \else
      \do@@@hvFloat
    \fi
  \fi
}
%
\def\do@@@hvFloat{% no special float page

```

```

\def\@tempa{90}%
\ifx\hvSet@rotAngle\@tempa
  \setlength\hvMaxCapWidth{\textheight}%
\else
  \setlength\hvMaxCapWidth{\hvWideWidth}%
\fi

%
% First we save the object in \hvObjectBox
%
\ifx\hvSet@objectAngle\hv@Zero % rotate the object?
  \savebox{\hvObjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@floatObject\fi}%
\else
  \savebox{\hvObjectBox}{%
    \rotatebox{\hvSet@objectAngle}{%
      \ifhv@use0Box\usebox{\hv0Box}\else\hv@floatObject\fi
    }%
  }%
\fi
\setlength\hvObjectWidth{\wd\hvObjectBox}%

%
% Now we save the caption with its defined \hvCapWidth
%
\ifx\hvSet@capWidth\hv@Width%          captionwidth=objectwidth
  \setlength\hvCapWidth{\hvObjectWidth}%
\else
  \ifx\hvSet@capWidth\hv@Height%        captionwidth=objectheight
    \setlength\hvCapWidth{\ht\hvObjectBox}%
  \else
    \ifx\hvSet@capWidth\hv@Natural%      captionwidth=\linewidth-\objectwidth-separation
      \ifhv@capbeside
        \ifhv@wide
          \setlength\hvCapWidth{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep pt\relax}%
        \else
          \setlength\hvCapWidth{\the\dimexpr\columnwidth-\hvObjectWidth-\hvSet@floatCapSep pt\relax}%
        \fi
      \else
        \setlength\hvCapWidth{\columnwidth}%
      \fi
    \else
      \ifhv@capbeside
        \ifhv@wide
          \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
          \setlength\@tempdima{\the\dimexpr\hvWideWidth-\hvObjectWidth-\hvSet@floatCapSep pt\relax}%
        \else
          \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
          \setlength\@tempdima{\the\dimexpr\columnwidth-\hvObjectWidth-\hvSet@floatCapSep pt\relax}%
        \fi
        \ifdim\hvCapWidth>\@tempdima
          \setlength\hvCapWidth{\@tempdima}%
        \fi
      \else
        \ifhv@wide
          \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
        \else

```

```

\setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
\fi
\fi
\fi
\fi
\saveCaptionSkip % we put this space ourselves
\ifx\hvSet@capAngle\hv@Zero % need rotation?
\abox\hvCaptionBox{% NO rotation
\begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
\ifhv@nonFloat
\ifhv@onlyText\hv@longCap
\else
\ifx\hv@floatType\hv@figure
\ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
\else
\ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
\fi
\fi
\else
\let\@capttype\hv@floatType
\expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
\fi
\expandafter\label\expandafter{\hv@label}%
\end{minipage}%
}%
\else
\abox\hvCaptionBox{% Rotation
\rotatebox{\hvSet@capAngle}{%
\begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
\ifhv@nonFloat
\ifhv@onlyText\hv@longCap
\else
\ifx\hv@floatType\hv@figure
\ifx\relax\hv@shortCap\relax \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
\else
\ifx\relax\hv@shortCap\relax \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
\fi
\fi
\else
\let\@capttype\hv@floatType
\expandafter\ifx\expandafter\relax\hv@shortCap\relax \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
\fi
\label{\hv@label}%
\end{minipage}%
}% \rotatebox
}% \abox
\fi
%
% now we have the object and the caption with the right
% rotated angles saved in different boxes
%%

```

```

\restoreCaptionSkip% save old values
\def\fps@figure{\hvSet@floatPos}%
\ifhv@nonFloat
  \begingroup%      Start the nonfloat part
  \checkoddpages
\else
  \begin{\hv@floatType}%  Start the floating environment
  \checkoddpages
\fi
\ifx\hvSet@objectPos\hv@Right\raggedleft\fi
\ifx\hvSet@objectPos\hv@Center
  \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
\fi
\ifx\hvSet@objectPos\hv@Outer
  \ifoddpages\raggedleft\fi
\fi
\ifx\hvSet@objectPos\hv@Inner
  \ifoddpages\else\raggedleft\fi
\fi
%
% to rotate object and caption together, we save all in another box
% the caption comes first, if its on the left or the top
% 0 caption left, inner and odd page, oneside inner
% 1 caption top
% 2 caption right, inner and even page, oneside outer
% 3 caption bottom
%
\ifx\hvSet@capPos\hv@Left\hv@@capPos=0\else
\ifx\hvSet@capPos\hv@Top\hv@@capPos=1\else
\ifx\hvSet@capPos\hv@Right\hv@@capPos=2\else
\ifx\hvSet@capPos\hv@Bottom\hv@@capPos=3\else
\ifx\hvSet@capPos\hv@Inner
  \ifoddpagesoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
\else
\ifx\hvSet@capPos\hv@Outer
  \ifoddpagesoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
\fi\fi\fi\fi\fi\fi
%%%%
\savebox{\@tempboxa}{%
  \expandafter\ifcase\the\hv@@capPos % 0 is LEFT START \ifcase
  \ifx\hvSet@capVPos\hv@Center
    \put@CaptionBox
    \hspace{\hvSet@floatCapSep pt}% capfloatsep
    \put@ObjectBox
  \else
  \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
    \put@CaptionBox[1]
    \hspace{\hvSet@floatCapSep pt}% capfloatsep
    \put@ObjectBox[1]
  \else% caption on bottom
    \put@CaptionBox[2]
    \hspace{\hvSet@floatCapSep pt}% capfloatsep
    \put@ObjectBox[2]
  \fi
}

```

```

\fi% end caption left
\or %1 is top
\ifdim\wd\hvCaptionBox>\wd\hvObjectBox
\begin{minipage}{\wd\hvCaptionBox}%
\else
\begin{minipage}{\wd\hvObjectBox}%
\fi
\centering
\ifhv@fbox
\fbbox{\usebox{\hvCaptionBox}}\[\hvBelowCaptionSkip]%
\fbbox{\usebox{\hvObjectBox}}%
\else
\usebox{\hvCaptionBox}\[\hvBelowCaptionSkip]%
\usebox{\hvObjectBox}%
\fi
\end{minipage}%
\or %2 is right
\ifx\hvSet@capVPos\hv@Center
\put@ObjectBox
\hspace{\hvSet@floatCapSep pt}%
\put@CaptionBox
\else
\ifx\hvSet@capVPos\hv@Top
\put@ObjectBox[1]
\hspace{\hvSet@floatCapSep pt}% capfloatsep
\put@CaptionBox[1]
\else
\put@ObjectBox[2]
\hspace{\hvSet@floatCapSep pt}% capfloatsep
\put@CaptionBox[2]
\fi
\fi
\or %3 bottom
\ifdim\wd\hvCaptionBox>\wd\hvObjectBox
\begin{minipage}{\wd\hvCaptionBox}%
\else
\begin{minipage}{\wd\hvObjectBox}%
\fi
\centering
\ifhv@fbox
\fbbox{\usebox{\hvObjectBox}}\[\hvAboveCaptionSkip]%
\fbbox{\usebox{\hvCaptionBox}}%
\else
\ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\[\hvAboveCaptionSkip]%
\usebox{\hvCaptionBox}%
\fi
\end{minipage}
\fi% \ifcase\the\hv@@capPos
}% End savebox Object and caption
%
% now we rotate the object and caption, if needed
%
\ifhv@wide
\ifoddpageoroneside\else\ifoddpage\else\hspace*{-\marginparwidth}\fi\fi% <- for wide and left page

```

```

\fi
\ifx\hvSet@rotAngle\hv@Zero
  \usebox{\@tempboxa}%
\else
  \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}%
\fi
\ifhv@nonFloat
  \ifx\hvSet@objectPos\hv@Center
    \ifhv@nonFloat
      \hspace{\fill}%
    \fi
  \fi
  \endgroup% End the nonfloat part
\else
  \end{\hv@floatType}% End the floating environment
\fi
\endgroup% startet at main \hvFloat
}
%
\newenvironment{hvFloatEnv}[1][\textwidth]
{\minipage{#1}\center}
{\endcenter\endminipage}
%

\ExplSyntaxOn
\let\clist@item@Nn\clist_item:Nn
\let\l@clist@Type\l_clist_Type
\let\l@clist@LofCaption\l_clist_LofCaption
\let\l@clist@Label\l_clist_Label
\let\clist@count@N\clist_count:N
\ExplSyntaxOff

\def\do@@@hvFloat{% special float page: caption <-> fullpage image
\ifx\hvSet@capPos\hv@After \hv@@capPos=1
\else
\ifx\hvSet@capPos\hv@Even \hv@@capPos=2
\else
\ifx\hvSet@capPos\hv@Odd \hv@@capPos=3
\else
\ifx\hvSet@capPos\hv@Inner \hv@@capPos=4
\else
\ifx\hvSet@capPos\hv@Outer \hv@@capPos=5
\else
\ifx\hvSet@capPos\hv@RIGHT \hv@@capPos=6
\else
\ifx\hvSet@capPos\hv@LEFT \hv@@capPos=7
\else
\hv@@capPos=0
\fi
\fi
\fi
\fi
\fi
\fi
\fi

```



```

\fi
\checkoddpage
\set@caption@object% set caption and object into a box
\ifcase\hv@capPos% caption before object 0-> _always_ left
  \setBottomCaption\setPageObject
\or% caption after object 1-> _always_ right
  \setPageObject\setBottomCaption
\or% caption on even page 2-> left page
  \ifoddpage
    \afterpage{\setBottomCaption\setPageObject}%
  \else% we are on an even page
    \setBottomCaption\setPageObject
  \fi
\or% caption on odd page 3->right page
  \if@twoside
    \if@twocolumn
      \ifoddpage
        \if@firstcolumn% on right side
          \setBottomCaption\setPageObject
        \else
          \afterpage{\setPageObject\setBottomCaption}% start next column
        \fi
      \else% left (even) page
        \if@firstcolumn
          \afterpage{\setPageObject\setBottomCaption}% start next column
        \else
          \setPageObject\setBottomCaption
        \fi
      \fi
    \else % onecolumn
      \ifoddpage
        \setPageObject\setBottomCaption
      \else
        \afterpage{\setPageObject\setBottomCaption}%
      \fi
    \fi
  \else % oneside
    \if@twocolumn
      \ifoddpage
        \if@firstcolumn% on right side
          \setBottomCaption\setPageObject
        \else
          \setPageObject\setBottomCaption
        \fi
      \else
        \if@firstcolumn% on left side
          \afterpage{\setPageObject\setBottomCaption}%
        \else
          \setPageObject\setBottomCaption
        \fi
      \fi
    \else % onecolumn
      \ifoddpage
        \setBottomCaption\setPageObject

```

```

\else
  \afterpage{\setBottomCaption\setPageObject}%
\fi
\fi
\fi
\or%          caption on the inner column 4->inner
\set@caption@object
\if@twocolumn
  \ifoddpage
    \if@firstcolumn% on right side
      \setBottomCaption\setPageObject
    \else          % right column on right side
      \setPageObject\setBottomCaption% start next firstcolumn next page
    \fi
  \else
    \if@firstcolumn% on left side
      \afterpage{\setBottomCaption\setPageObject}% start next page/first column
    \else% left page/column
      \setBottomCaption\setPageObject% start same page
    \fi
  \fi
\else % onecolumn
  \setBottomCaption\setPageObject
\fi
\or%          caption on the outer column 5->outer
\set@caption@object
\if@twocolumn
  \ifoddpage
    \if@firstcolumn
      \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
    \else
      \afterpage{\setBottomCaption\setPageObject}%
    \fi
  \else% even page (left)
    \if@firstcolumn
      \setBottomCaption\setPageObject
    \else
      \afterpage{\setBottomCaption\setPageObject}%
    \fi
  \fi
\else% onecolumn
  \setBottomCaption\setPageObject
\fi
\or%          caption after object 6->RIGHT for twoside/twocolumn
\if@twocolumn
  \if@firstcolumn
    \afterpage{\setPageObject\setBottomCaption}%
  \else
    \setPageObject\setBottomCaption
  \fi
\else% always caption _after_ object for onecolumn
  \setPageObject\setBottomCaption
\fi
\or%          caption before object 7->LEFT for twoside/twocolumn

```

```

\if@twocolumn
\if@firstcolumn
\setPageObject\setBottomCaption
\else
\afterpage{\setBottomCaption\setPageObject}
\fi
\else% onecolumn
\ifoddpage
\afterpage{\setBottomCaption\setPageObject}%
\else
\setBottomCaption\setPageObject
\fi
\fi
\fi
\endgroup% startet at main \hvFloat
}%
%

\def\setBottomCaption{%
\begin{\hv@floatType}[!b]
\ifhv@separatorLine\drawSepLine\fi
\par
\usebox\hvCaptionBox
\end{\hv@floatType}%
}

\def\setPageObject{%
\ifhv@star
\begin{\hv@floatType*}[p]%
\else
\begin{\hv@floatType}[p]%
\fi
\ifhv@FULLPAGE
\vspace*{\the\dimexpr-\lin-\voffset+\topskip-\headheight-0.5\baselineskip}%
\if@twoside
\leavevmode\checkoddpage
\ifoddpage
\hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
\else
\hspace*{\the\dimexpr-\evensidemargin-\parindent-\lin}%
\fi
\else
\hspace*{\the\dimexpr-\oddsidemargin-\parindent-\lin}%
\fi
\put(0,0){\usebox\hvObjectBox}%
\AtBeginShipoutNext{\thispagestyle{empty}}%
\else
\usebox\hvObjectBox
\fi
\ifhv@star
\end{\hv@floatType*}%
\else
\end{\hv@floatType}%
\fi

```

```

}

\ExplSyntaxOn

\def\getMultiCaptionAndLabel{%
  \global\sbox\hvCaptionBox{\minipage[b]{\linewidth}}%
  \setlength\belowcaptionskip{10pt}%
  \setlength\abovecaptionskip{0pt}%
  \hv@cntb=\clist_count:N\l_clist_Type
  \advance\hv@cntb by \@ne
  \hv@cнта=1
  \loop
    \edef\@capttype{\clist_item:Nn\l_clist_Type{\hv@cнта}}%
    \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cнта}}%
    \ifx\@tempa\@empty
      \caption{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
    \else
      \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cнта}}%
    \fi
    \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
    \ifx\@tempa\@empty
      \else
        \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cнта}-cap}\fi
    \advance\hv@cнта by \@ne
  \ifnum\hv@cнта<\hv@cntb
    \repeat
  \endminipage}%
}

\def\getMultiObjectAndLabel{%
  \global\sbox\hvObjectBox{\minipage{\linewidth}}%
  \ifx\hvSet@objectPos\hv@Right\raggedleft\else
    \ifx\hvSet@objectPos\hv@Left\raggedleft\else
      \ifx\hvSet@objectPos\hv@Center\centering
    \fi\fi\fi
  \hv@cntb=\clist_count:N\l_clist_Type
  \advance\hv@cntb by \@ne
  \hv@cнта=1
  \loop
    \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cнта}}%
    \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
    \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
    \ifx\@tempa\@empty
      \else
        \refstepcounter{\@capttype}%
        \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cнта}}%
      \fi
    \ifnum\hv@cнта<\clist_count:N\l_clist_Type\par\hv@vskip\fi
    \advance\hv@cнта by \@ne
  \ifnum\hv@cнта<\hv@cntb
    \repeat
  \endminipage}%
}

\def\getMultiSubCaptionAndLabel{%

```

```

\global\sbbox\hvCaptionBox{\minipage{\linewidth}%
\edef\@captype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
\edef\@tempa{\clist_item:Nn\l_clist_LofCaption{1}}%
\ifx\@tempa\@empty
\caption{\clist_item:Nn\l_clist_Caption{1}}%
\else
\expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{1}}%
\fi
\edef\@tempa{\clist_item:Nn\l_clist_Label{1}}%
\ifx\@tempa\@empty\else\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{1}-cap}\fi
\endminipage}%
}

\def\getMultiSubObjectAndLabel{%
\global\sbbox\hvObjectBox{\minipage{\linewidth}%
\ifx\hvSet@objectPos\hv@Right\raggedleft\else
\ifx\hvSet@objectPos\hv@Left\raggedleft\else
\ifx\hvSet@objectPos\hv@Center\centering
\fi\fi\fi
\hv@cntb=\clist_count:N\l_clist_Caption
\advance\hv@cntb by \@ne
\hv@canta=2
\edef\@captype{\clist_item:Nn\l_clist_Type{1}}% the same for all subfloats
\loop
\def\@temp{\clist_item:Nn\l_clist_Object{\hv@canta}}%
\ifhv@objectFrame\frame{\@temp}\else\@temp\fi
\begingroup
\edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@canta}}%
\ifx\@tempa\@empty
\subcaption{\clist_item:Nn\l_clist_Caption{\hv@canta}}%
\else
\expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@canta}}%
\fi
\edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@canta}}%
\ifx\@tempa\@empty
\else
\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@canta}}%
\fi
\endgroup
\ifnum\hv@canta<\clist_count:N\l_clist_Type\par\hv@vskip\fi
\advance\hv@canta by \@ne
\ifnum\hv@canta<\hv@cntb
\repeat
\edef\@tempa{\clist_item:Nn\l_clist_Label{1}}% the main label at the end
\ifx\@tempa\@empty
\else
\refstepcounter{\@captype}
\expandafter\label\expandafter{\@tempa}%
\fi
\endminipage}%
}

\ExplSyntaxOff

```

```

\def\getSingleCaptionAndLabel{%
  \global\sbox\hvCaptionBox{\minipage{\linewidth}%
    \edef\@capttype{\hv@floatType}%
    \expandafter\ifx\expandafter\relax\hv@shortCap\relax
      \caption{\hv@longCap}%
    \else
      \caption[\hv@shortCap]{\hv@longCap}%
    \fi
    \expandafter\ifx\expandafter\relax\hv@label\relax\else\label{\hv@label-cap}\fi
  \endminipage}%
}

\def\set@caption@object{% first caption, then object
  \ifhv@multiFloat
    \getMultiCaptionAndLabel
  \else
    \ifhv@subFloat
      \getMultiSubCaptionAndLabel
    \else
      \getSingleCaptionAndLabel
    \fi
  \fi
  \edef\@capttype{\hv@p\hv@floatType}%
  \ifhv@multiFloat
    \getMultiObjectAndLabel
  \else
    \ifhv@subFloat
      \getMultiSubObjectAndLabel
    \else
      \global\sbox\hvObjectBox{%
        \refstepcounter{\@capttype}%
        \ifhv@objectFrame\frame{\hv@floatObject}\else\hv@floatObject\fi
        \expandafter\ifx\expandafter\relax\hv@label\relax
          \else
            \expandafter\label\expandafter{\hv@label}%
          \fi
        }%
      \fi
    \fi
  \fi
}
%
```