Package hvfloat
Controlling captions, fullpage and doublepage floats
ver 2.45

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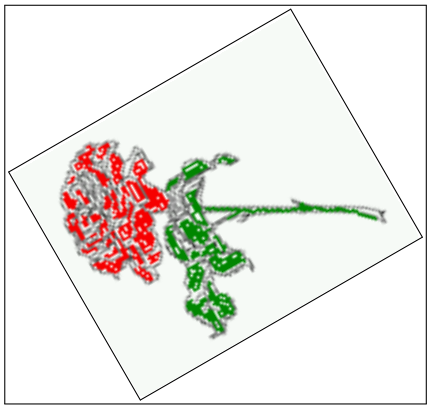
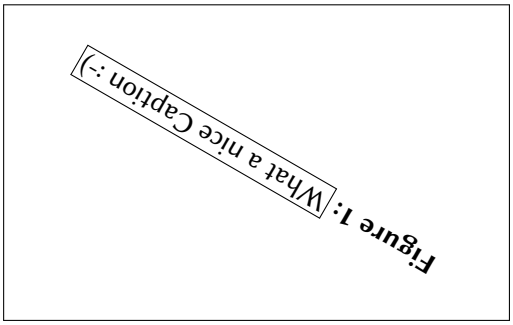
The package hvfloat defines a macro to place objects and captions of floats in different positions with different rotating angles.

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

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





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Thanks to Karl Berry, Frank Mittelbach, Rolf Niepraschk

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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`.
`nostfloats`	do not load package `stfloats`.

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

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

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

2 The Macros and optional arguments

The syntax for the macros and `\hvFloatSetDefaults`, `\hvFloatSet`, and `\hvFloat` is

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

The star version is explained in section 12 on page 23 and 20.2 on page 49 and the optional `+` is explained in section 18.3 on page 38.

`\hvFloatSet` allows the global setting of keywords and `\hvFloatSetDefaults` 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}
\tabcaptionbelow[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 `\hvDefFloatStyle` one can define a style which can be used instead of the individual setting:

`\hvDefFloatStyle{`*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*
`floatPos`	`tbp`	This is the same default placement setting as in standard LaTeX; maybe not always the best setting.
`rotAngle`	`0`	The value for the angle if both the object and the caption should be rotated together.
`capWidth`	`n`	The width of the caption. Can be `n` for a natural width given by the current linewidth, `w` for the width of the object, `h` for the height of the object, or a scale factor for `\columnwidth`.
`capAngle`	`0`	The integer value for the angle if the caption should be rotated. Positive is counter-clockwise.
`capPos`	`bottom`	The position of the caption relative to the object. Possible values: `before`: *always* before (left) from the object. `top`: *always* on top of the object. `left`: *always* before (left) from the object, but on the same page in twocolumn mode. `after`: *always* after (right) from the object. `bottom`: *always* on the bottom of the object. `right`: *always* after (right) from the object, but on the same page in twocolumn mode. `inner`: in twoside mode always typeset at the inner margin. `outer`: in twoside mode always typeset at the outer margin. `evenPage`: in twoside mode with fullpage objects always on an even page. `oddPage`: in twoside mode with fullpage objects always on an odd page.
`capVPos`	`center`	Only used when `capPos=left` | `right`; in these cases, the caption can be vertically placed at the `bottom`, `center` or `top`.
`objectPos`	`center`	Horizontal placement of the object relative to the document. Possible values are (**l**)eft, (**c**)enter, (**r**)ight.
`objectAngle`	`0`	Integer value for the angle if the object should be rotated. Positive is counter-clockwise.
`floatCapSep`	`5pt`	Additional space between the object and a left- or right-placed caption.
`useOBox`	`false`	Instead of passing the object as a parameter to `\hvFloat`, with `useOBox=true` the contents of the predefined box `\hvOBox` is used.
`onlyText`	`false`	The caption is printed as normal text with no entry in any list of ...
`nonFloat`	`false`	The object isn't put in a floating environment, but printed as standard text with an additional caption. The float counter is increased as usual and can be referenced.
`wide`	`false`	The float can use `\textwidth` + `\marginparwidth` as horizontal width.

Keyword	*Default*	*Description*
inMargin	false	Put object and frame into the margin.
objectFrame	false	Put a frame with no separation around the float object.
style	*none*	Use a defined style.
capFormat	*none*	Define formatting options for \caption; see documentation of package caption.
subcapFormat	*none*	Define formatting options for \subcaption.
fullpage	false	Use a complete column in twocolumn mode.
FullPage	false	Use the full text area for the object.
FULLPAGE	false	Use the full paper width/height for the object.
doublePage	false	Use the text area on a doublepage with additional text.
doublePAGE	false	Use the text area on a doublepage without additional text.
doubleFULLPAGE	false	Use the paperwidth on a doublepage without additional text.
forceLeft	false	In some cases a doublepage float starts on an odd page. With forceLeft it uses only one \afterpage instead of two to force a start on an even page.
vFill	false	Put a \vfill between every two objects in a multi- or subfloat.
sameHeight	false	use the same text height on both pages for a doublePage object.

3 The default use of floating environments

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

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

Fig. 2

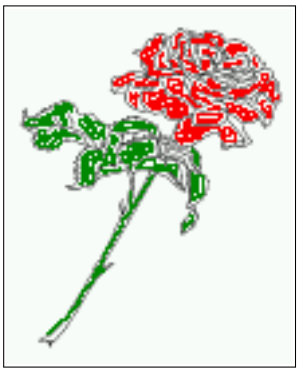


Figure 2: Without any keywords (only the fbox package option)

Code for figure 2:

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

Code for table 3:

Tab. 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\\
```

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
`\hvFloatSetDefaults`	command	sets all options to the defaults
`\hvDefFloatStyle`	command	define a user style

```
  \CMD{tabcaption} & command   & writes a table caption in a non floating environment\\
  \CMD{hvFloatSetDefaults} & command  & sets all options to the defaults\\
  \CMD{hvDefFloatStyle} & 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 15 for some more informations about tabulars as objects.

4 Caption width

4.1 Default – natural width

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

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

Fig. 3

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 8).

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

Fig. 4

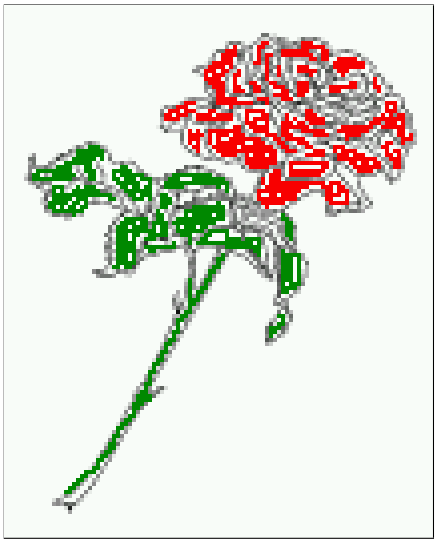


Figure 4: Caption right beside with a *natural* width, which is given by the width of the object, the separation between object and caption, and the current linewidth.

4.2 Relative linewidth

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

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

Fig. 5

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

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

Fig. 6

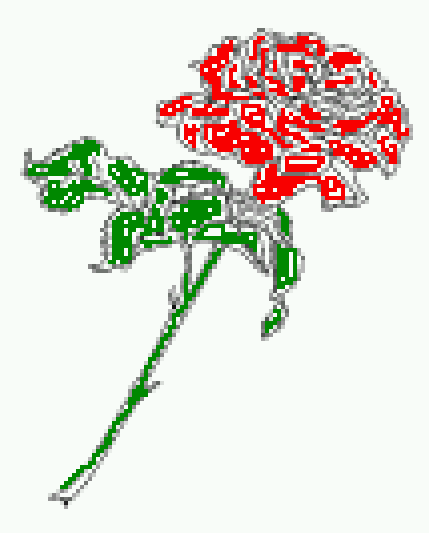


Figure 6: Caption right beside with a width setting of `0.9\linewidth` w
for this example and therefore corrected by the macro to the maxima

4.3 Identical object and caption width

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

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

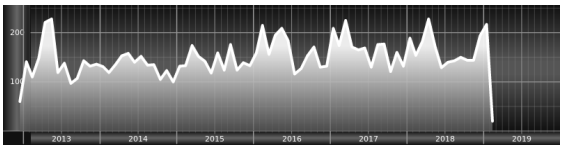


Figure 7: Caption below with a width of the given object which may be a problem if it is a very small object.

4.4 caption width to height of the object

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

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

Fig. 8

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`.

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

5.1 Caption right with specific length

Code for figure 9:

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

Fig. 9 float capPos=right

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

5.2 Caption left and rotated

Code for figure 10:

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

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

Fig. 10

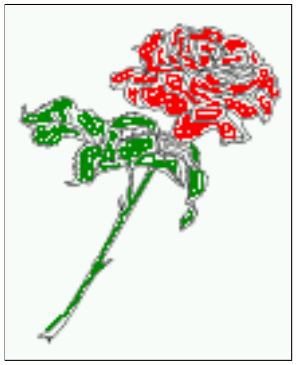


Figure 10: Caption vertically centered left beside the float with a caption width of `capWidth=h`, which is the height of the object.

(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{images/rose}}}%
     [Centered Caption beside Object]{%
     {Caption vertically centered right beside the float with a caption width of the height
      of the image and a rotation of the caption and the object.}{fig:3}
```

Fig. 11

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

6 Caption inner or outer

Setting the caption position to *inner* or *outer* makes only sense for a document in twoside mode. For a oneside document *inner* is the same as *left* and *outer* is the same as *right*. We show only the code for the first image with the setting `capPos=inner` , whereas the second one chooses only `capPos=outer` .

Code for figure 12:

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

Fig. 12

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

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

Now the same Image with `capPos=outer` . The current pagenumber is 15, an odd page. We now set a pagebreak at the end of the second image to see if it works with *inner*/*outer*.

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

Fig. 13

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

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

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

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

the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Code for figure 15:

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

Fig. 15

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{images/rose}}}{Caption at bottom right beside the float}{fig
     :4}
```

Figure 16: Caption at bottom right beside the float

The code for figure 17:

Fig. 16

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

Fig. 17

Figure 17: Caption at top left beside the float

The code for figure 18:

```
\hvFloat[%
     capWidth=0.25,%
     capPos=right,%
     capVPos=center,% the default
]{figure}{\frame{\includegraphics{images/rose}}
          \frame{\includegraphics[origin=c,angle=180]{images/rose}}}%
 {Caption centered right beside the float}{fig:6}
```

Fig. 18

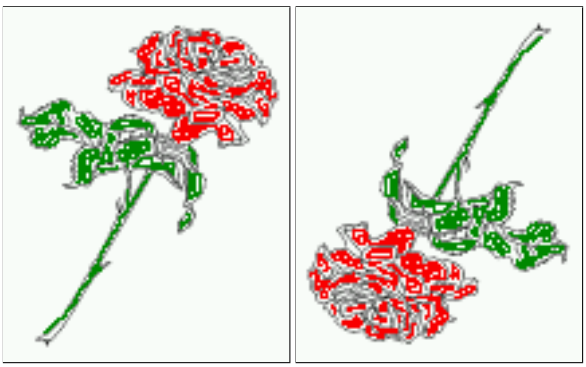


Figure 18: Caption centered right beside the float

8 Caption format

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

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

Fig. 19

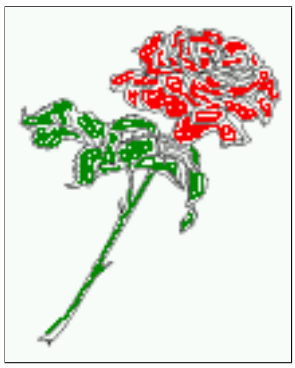


Figure 19
Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

9 Horizontal Position of the Float

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

The code for figure 20:

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

Fig. 20

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

The same with `capPos=left` :

Fig. 21

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

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

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

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 22:

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

Fig. 22

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

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest

gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

10 Wide floats

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

The code for figure 23:

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

Fig. 23

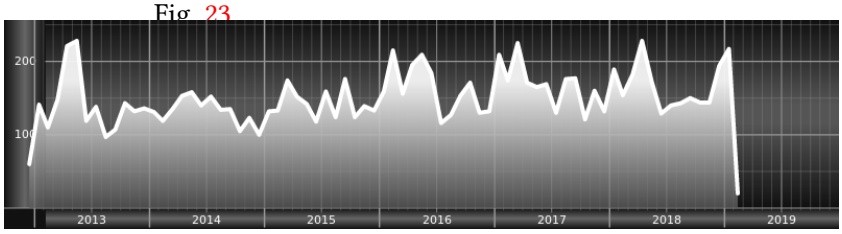


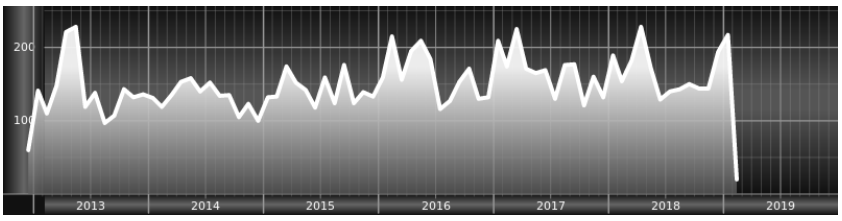
Figure 23: Caption at top right beside the float and object position left and the option `wide`.

The code for figure 24:

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

Fig. 24

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



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

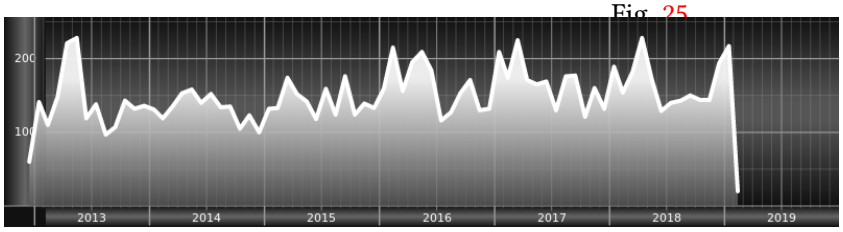
Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all!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

```
\hvFloat[wide,
    capPos=inner,
```

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

Fig. 25

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



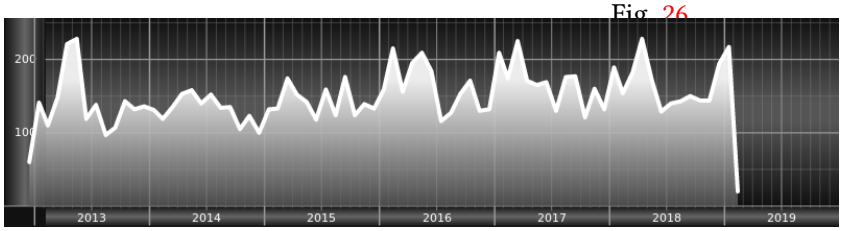
Now we set the same image with the same setting on the next page. The caption will change its side due to the setting `capPos=outer` .

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

```
\hvFloat[wide,
    capPos=inner,
    capVPos=top,
]{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{%
Caption at top inner beside the float and object position right and
the option \texttt{wide}.}{fig:811}
```

Fig. 26

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



The caption can be typeset completely into the margin with:

```
\captionsetup{justification=RaggedRight}
\hvFloat[wide,
    capPos=outer,
    capVPos=top,
       floatCapSep=\marginparsep,
]{figure}{\includegraphics[width=\linewidth]{images/CTAN}}{%
Caption at top inner beside the float and object position right and
the option \texttt{wide}.}{fig:812}
```

With the optional argument `capWidth=l` the caption can be terminated to the current line width. With the optional argument `capHPos=right` one cat set the caption to the left, center, or right of the full width which is linewidth and margin width.

Fig. 27

```
\hvFloat[capPos=bottom,capWidth=l,wide,capHPos=right]{figure}
  {\includegraphics[width=0.49\hvWideWidth]{images/CTAN}\quad
   \includegraphics[width=0.49\hvWideWidth]{images/CTAN}}
  {\hvblindtext}
  {label}
```

Fig. 28

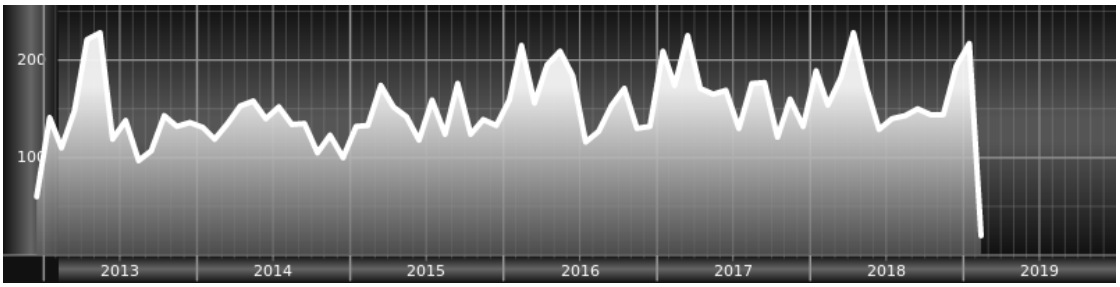


Figure 27: Caption at top inner beside the float and object position right and the option `wide`.

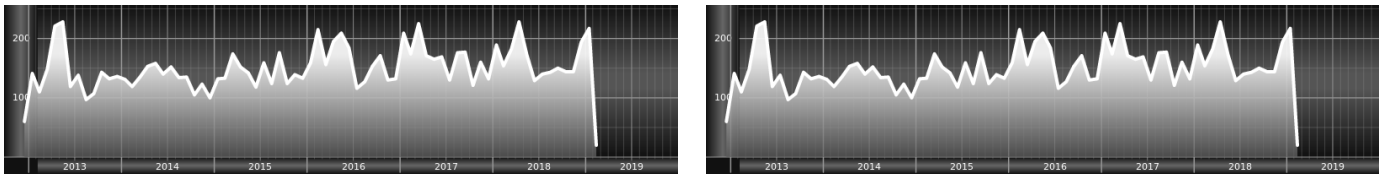


Figure 28: Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – 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 Margin floats

With the optional argument `inMargin` the opject and the caption can be placed into the margin. This is done internally with the command `\marginnote` from the package of the same name.

Figure 29: An image in the margin of the document.

```
\hvFloat[inMargin]{figure}{\includegraphics[width=\marginparwidth]{images/thea}}
  {An image in the margin of the document.}
  {thea}

...

\hvFloat[inMargin]{table}{\small\begin{tabular}{@{}ccc@{}}\hline Mon& Di& Mi\\ frei & Dienst &
    frei\\
    Dienst & Dienst & Frei\\\hline \end{tabular}}
  {A tabular in the margin just like the image.}
  {thea2}
```

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

The same is possible with a short tabular, dependent to the width of the margin.

Mon	Di	Mi
frei	Dienst	frei
Dienst	Dienst	Frei

Table 4: A tabular in the margin just like the image.

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

content, but the length of words should match the language.

12 The star version \hvFloat*

In the twocolumn mode the floating environment can be set over both columns with the star version \hvFloat*. The floating environment will not be on the bottom of the page. The code for the following example (Figure 30) is:

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

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

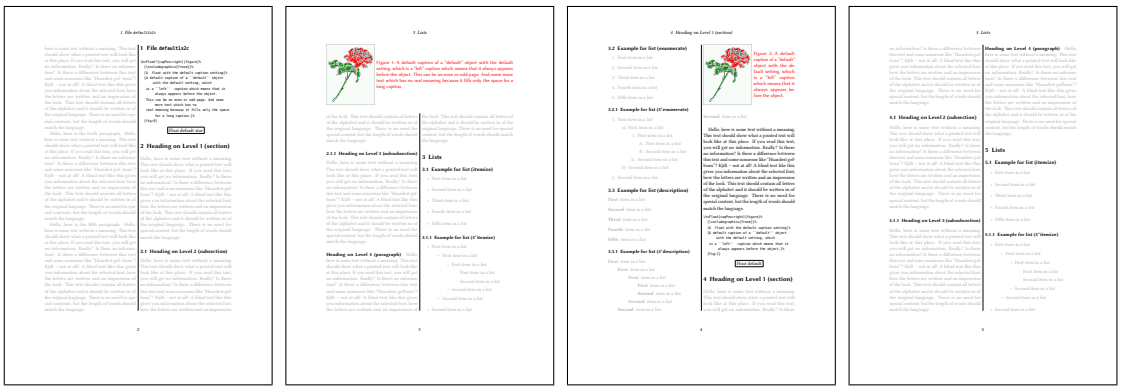


Figure 30: Output of default1s2c (pages 2 –5)

13 Full Page Width in Landscape Mode

If you do not want to load the package lscape (or pdflscape) you can use the floatPos=p option to put the image on an own page and rotated by 90 degrees (figure 31).

Code for figure 31:

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

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

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest

Fig. 31

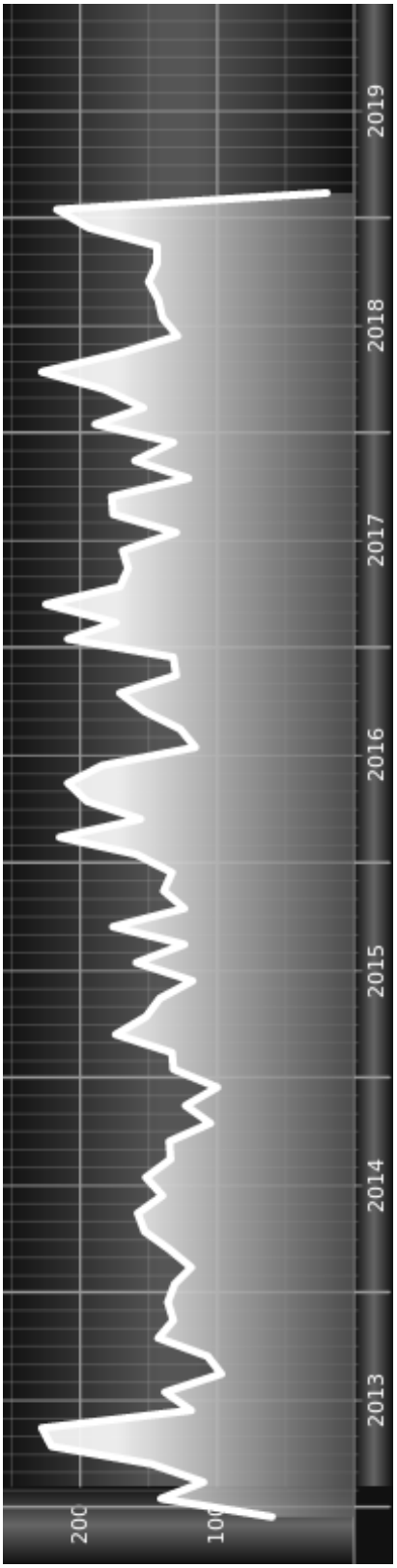


Figure 31: Caption and object in landscape mode. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense 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.

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 32:

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

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

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.

Fig. 32

14 The `nonFloat` Option

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

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

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

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

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

Fig. 33

Figure 32: 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.

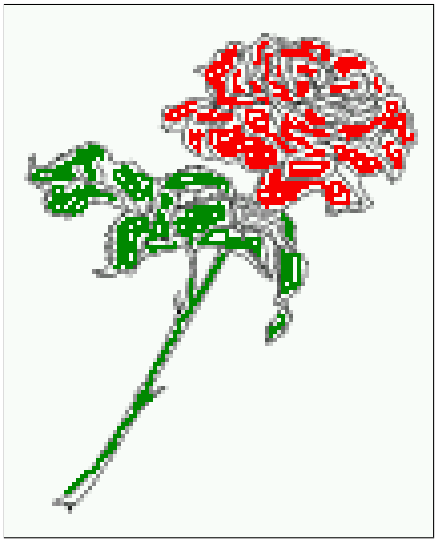


Figure 33: Caption of a “nonfloat” Object, using the `nonfloat` Package

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

The image 33 is exactly placed where the command `\hvFloat` appears. There are only commands for `figure` and `table` environments:

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

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

15 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 `\hvOBox` to save the table in this box and pass it then to `\hvFloat` with the `useOBox` option. For example see table 5 and 6:

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{\hvOBox}{%
 \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{hvFloatSetDefaults} & command  & sets all options to the defaults\\\hline
 \end{tabular}%
}
```

The code for table 5 and 6 is:

```
\hvFloat[%
  floatPos=!hb,
```

```
  capPos=top,
  useOBox=true]{table}{}{Demonstration of the \texttt{useOBox} Parameter}{table:1}

\hvblindtext

\marginnote{Tab.~\ref{table:2}}
\hvFloat[%
  floatPos=hb,
  useOBox=true,
  objectAngle=90,
  capPos=right,
  capVPos=top,
  capWidth=0.3]{table}{}{Another demonstration of the \texttt{useOBox} Parameter}{table:2}
```

In this case leave the third parameter empty.

Tab. 5

Table 5: Demonstration of the `useOBox` Parameter

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

Tab. 6

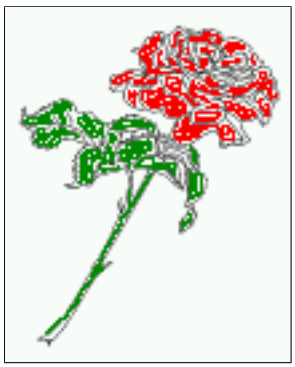
16 Text and objects

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 16:

```
\hvFloat[%
  onlyText=true,
  capAngle=90,
  capPos=right,
  capVPos=top,
  objectFrame,
  capWidth=h]{}{\includegraphics{images/rose}}%
  [``\texttt{onlyText}'' Caption]{%
    Demonstration of the \texttt{onlyText} Parameter, which makes it
    possible to put some text beside a floating object without getting
    a starting \texttt{Figure:} or \texttt{Table:}}{fig:text}
```

Fig. 16



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

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
\hvFloatSetDefaults	command	sets all options to the defaults

Table 6: Demonstration of the useOBox Parameter

17 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     \\\hline
\end{tabular}
\end{hvFloatEnv}
```

Table 7: 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     \\\hline
\end{tabular}
\end{hvFloatEnv}
```

Table 8: A caption for a nice table

left	center	right
L	C	R

18 Full page objects in onecolumn mode

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

```
\define@key{Gin}{fullpage}[true]{%
  \def\Gin@ewidth{\columnwidth}%
  \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}%
}
```

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

Figure 34 on the next page shows the meaning of the optional arguments `fullpage`, `FullPage`, and `FULLPAGE` for `\includegraphics[...]{`*tiger*`}`.

18.1 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 follwing page:

18.1.1 Using the default or `capPos=before`

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

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

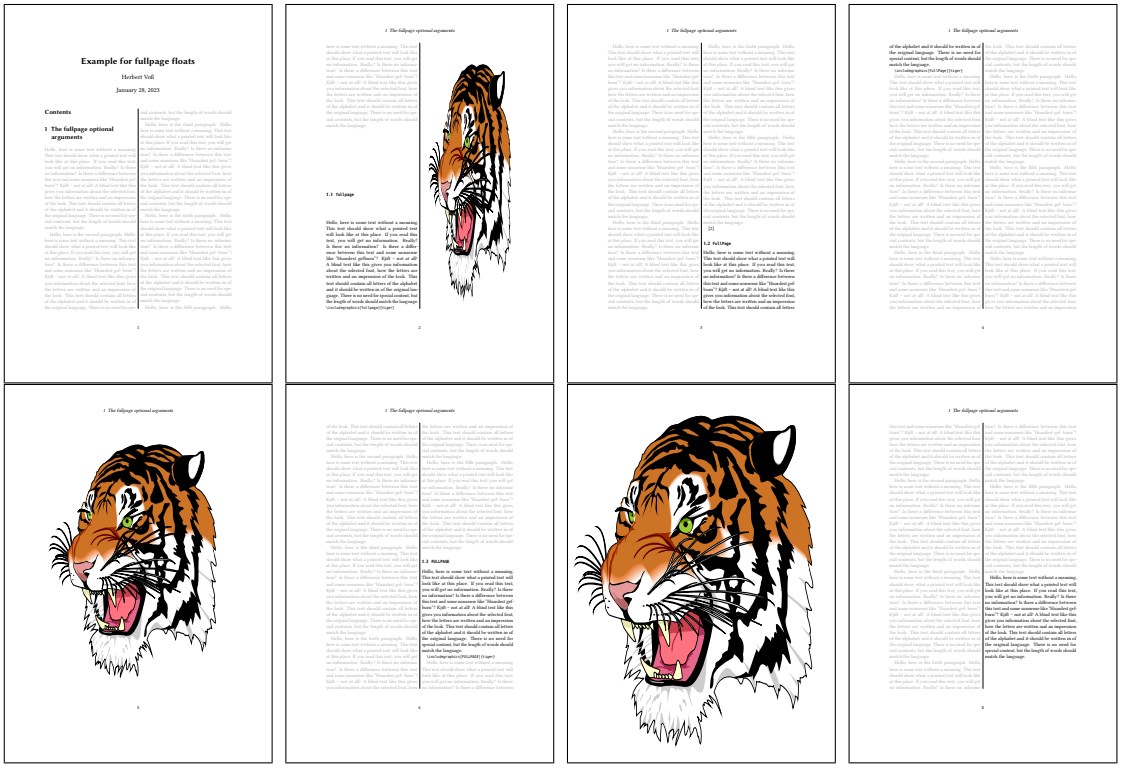


Figure 34: Output of `fullpage1s2c` (pages 1–8)

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

Table 9: Valid optional arguments for a full page object.

Name	Type	Description
`fullpage`	`true|false`	Put the caption on the bottom of the preceding or following page and the object alone a page.
`FULLPAGE`	`true|false`	The same for full papersize objects over one or two columns. The pagestyle is set to `empty`
`multiFloat`	`true|false`	For multiple objects with captions for every object. See section 18.3 on page 38.
`subFloat`	`true|false`	For multiple objects with one main and more subcaptions. See section 19 on page 40.
`separatorLine`	`true`	Put a line with a predefined width of 0.4pt between the text and the caption. Only valid for the keyword `fullpage`.
`capPos`	`value`	caption `before`, `after` an object or on an `evenPage` or `oddPage`.

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 socument is typeset in a oneside mode. Figure 35 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 9 on the previous page shows the valid optional arguments for a full page floating object.

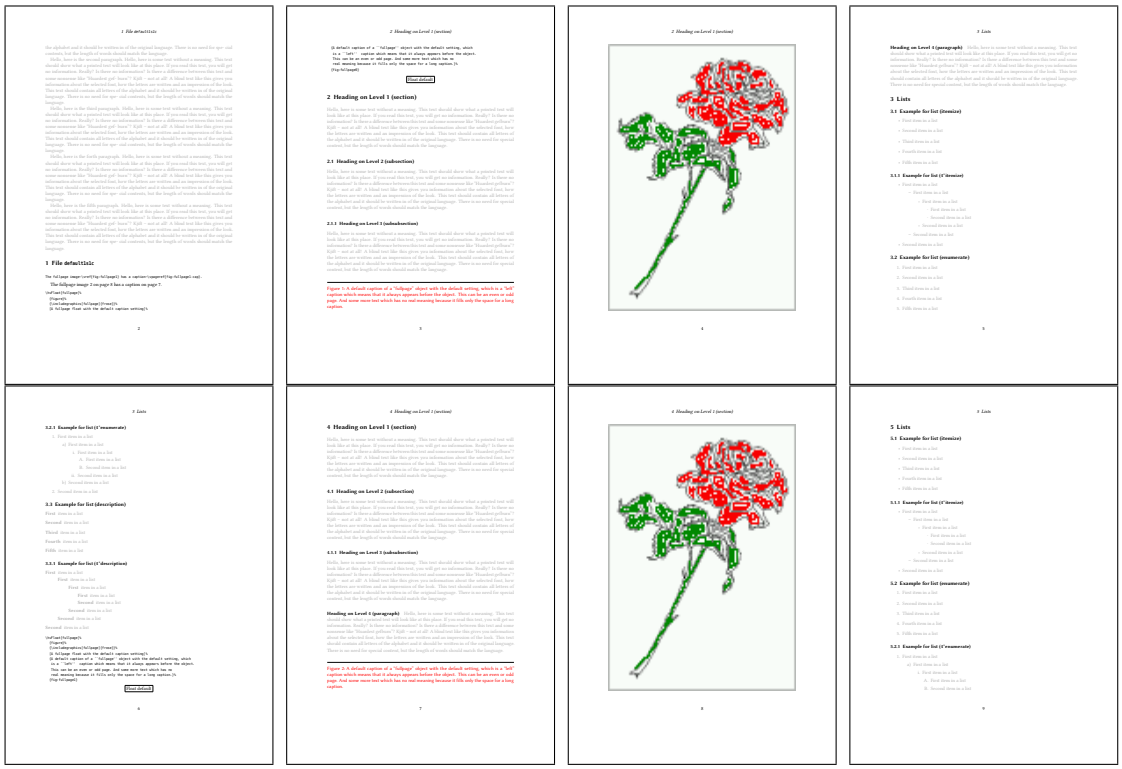


Figure 35: Output of `default1s1c` (pages 2–9)

18.1.2 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 appers immediately on the next page and the caption of the next following page at the bottom. There is no check for an even or odd page. This behaviour makes only sense for a oneside document.

```
\hvFloat[fullpage, capPos=after]%
  {figure}%
  {\includegraphics[fullpage]{images/frose}}%
  [A float which needs the complete page width and height.]%
  {A Caption of a ``fullpage'' object, which follows on the next page.
   This can be an even or odd page. And some more text which has no
   real meaning because it fills only the space for a long caption.}
  {fig:fullpage1}
```

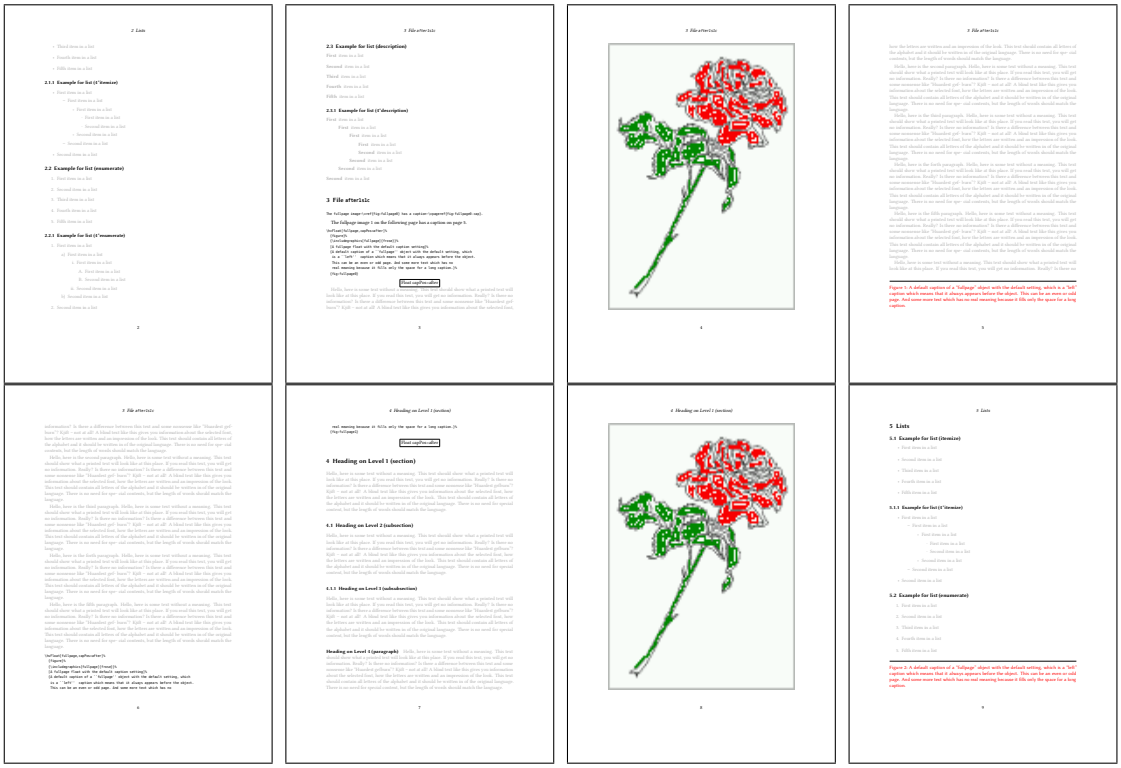


Figure 36: Output of `after1s1c` (pages 2–9)

18.1.3 Using `capPos=evenPage` — caption on an even page

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

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

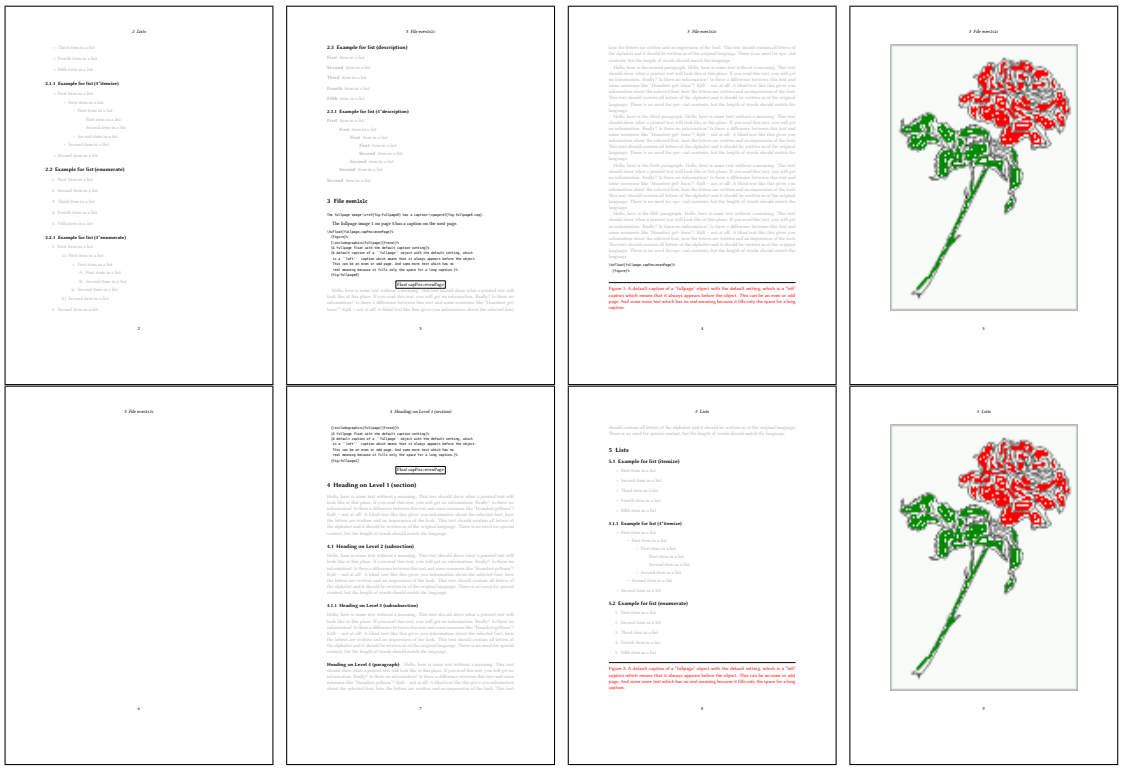


Figure 37: Output of `even1s1c` (pages 2–9)

18.1.4 Using `capPos=oddPage` — caption on an odd page

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

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

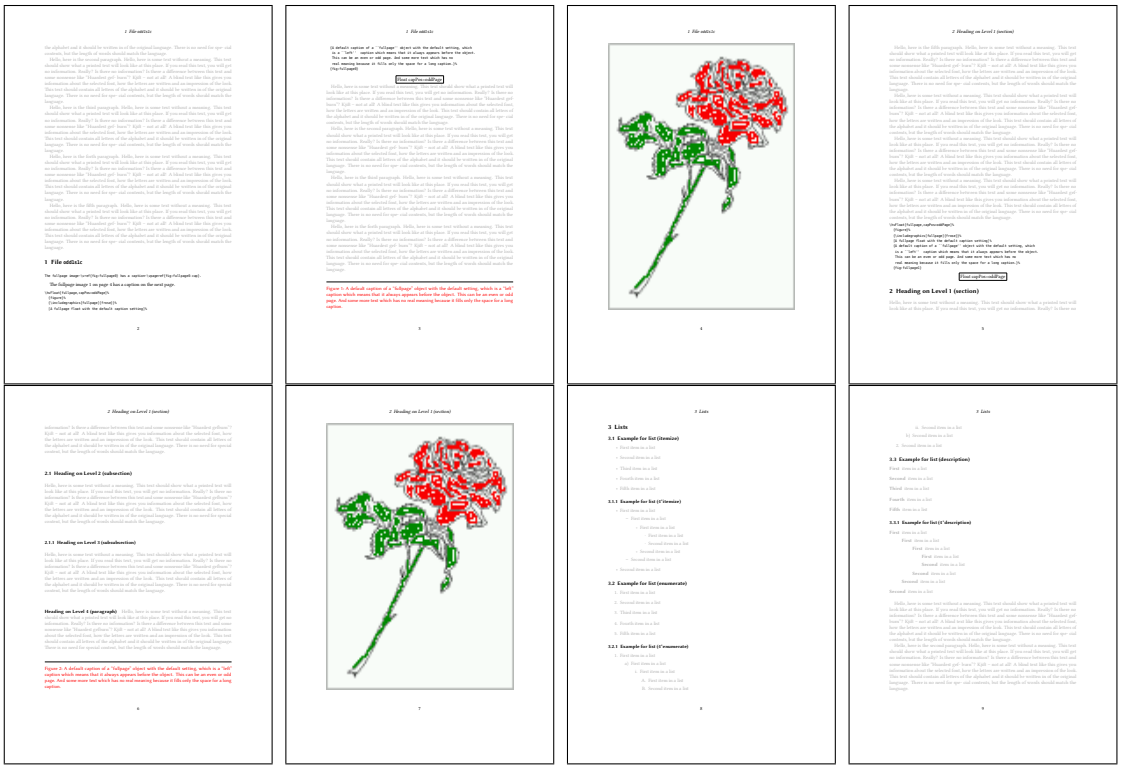


Figure 38: Output of `oddlslc` (pages 2–9)

18.1.5 Using `capPos=inner` or `capPos=outer` — caption on the inner or outer side

These settings make no sense in onecolumn mode.

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

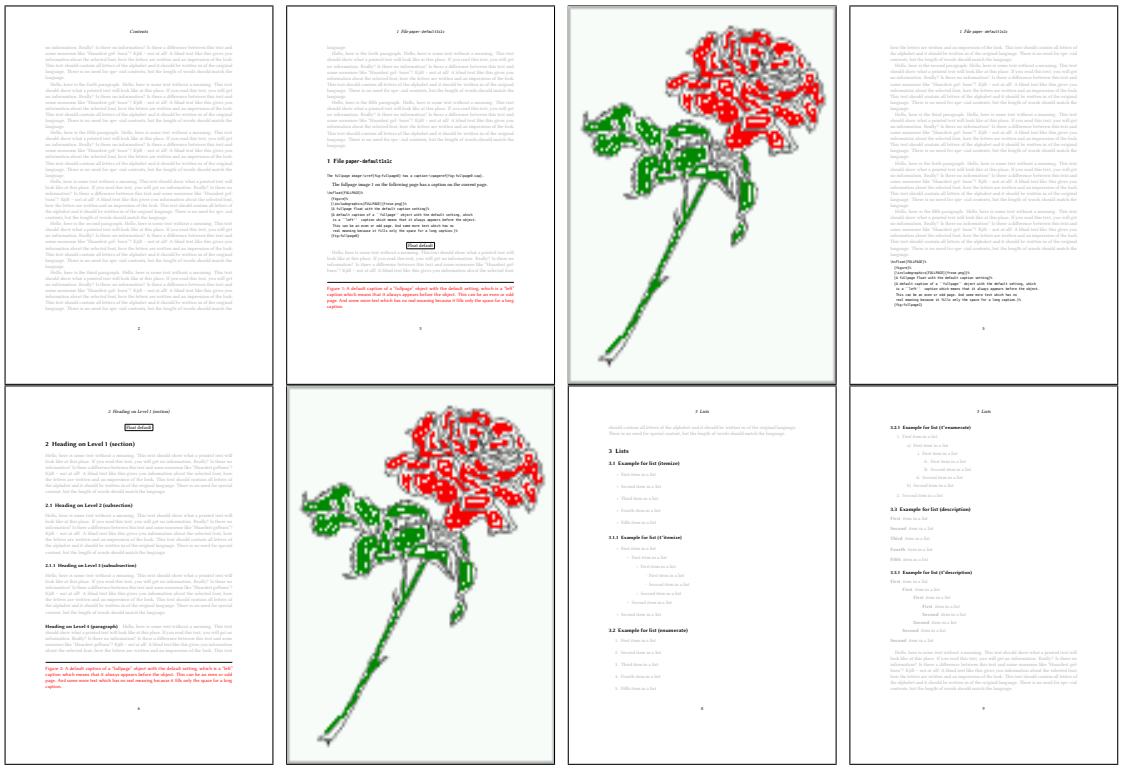


Figure 39: Output of `paper-default1s1c` (pages 2–9)

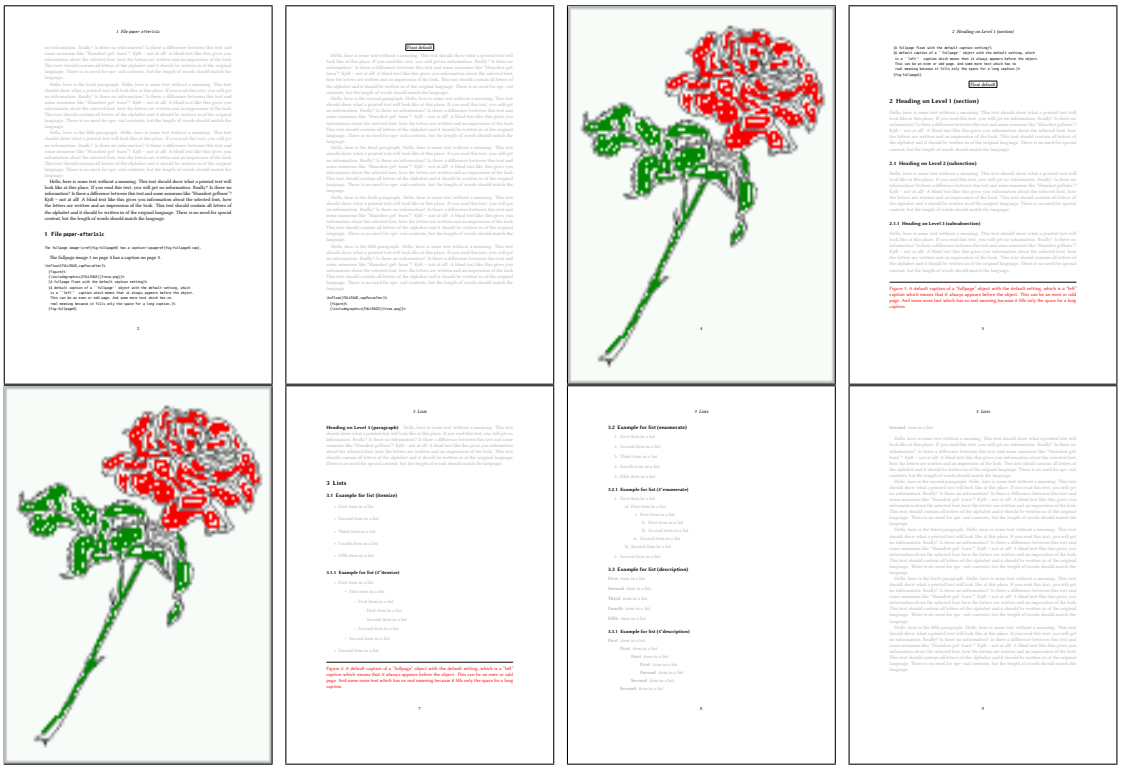


Figure 40: Output of `paper-after1s1c` (pages 2–9)

18.3 Multifloats

Multifloats is the name for more than one image and/or tabular in *one* floating environment. Every image and/or tabular has its own caption, which is different to a subcaption. The 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,vFill]%
  +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%                    no 1
   [Short caption A]%
   {A Caption A of a ``fullpage'' object, which follows on the left or
    right column. This can be an even or odd page. And some more text which has no
    real meaning because it fills only the space for a long caption.}%
   {img:demo0}%
  +{table}{\begin{tabular}{lrcp{3cm}}\hline                          %             no 2
            Linksbündig & Rechtsbündig & Zentriert & Parbox\\\hline
            L           & R            & C         & P\\
            left        & right        & center    & Text with possible linebreaks\\
            \multicolumn{4}{c}{Multicolumn over all columns}\\\hline
           \end{tabular}}%
   [Short Caption B]%
   {A Caption B of a ``fullpage'' object, which follows on the left or
        right column. This can be an even or odd page.}{}%
  +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%                     no 3
   {A Caption C of a ``fullpage'' object, which follows on the left or
      right column.}%
   {img:demo1}
  +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%                     no 4
   {A Caption C of a ``fullpage'' object, which follows on the left or
      right column.}%
   {img:demo2}
```

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

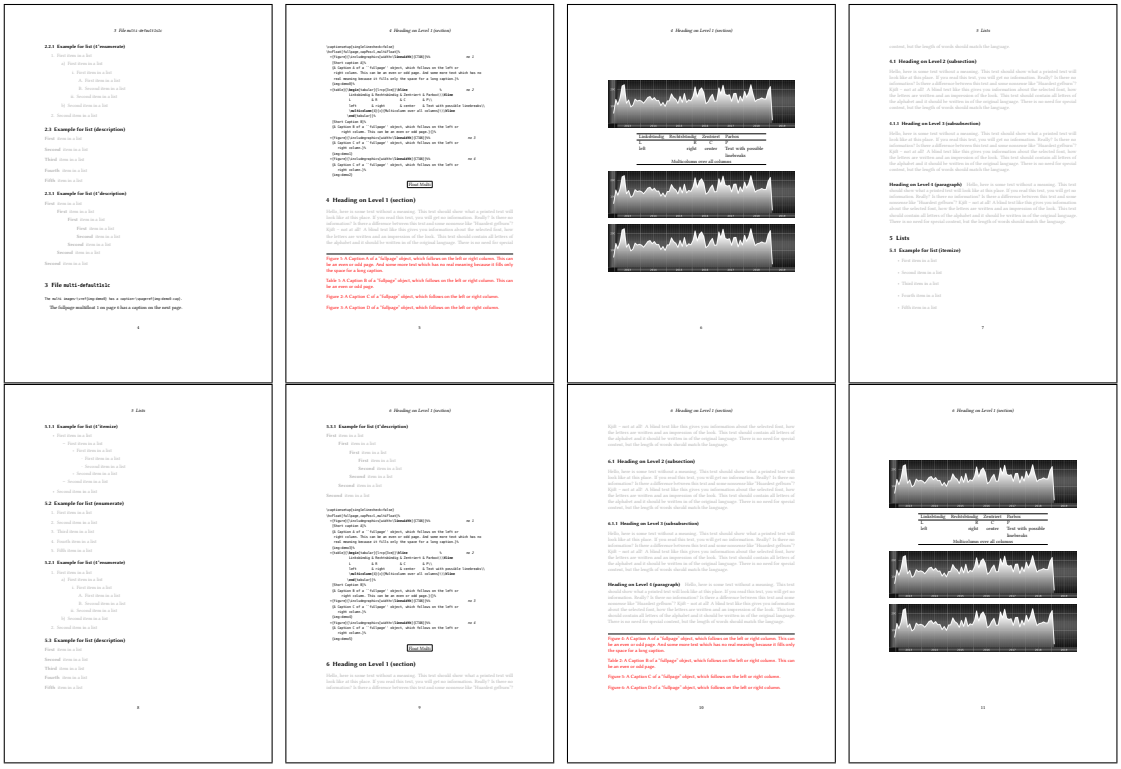


Figure 41: Output of `multi-default1s1c` (pages 4–11)

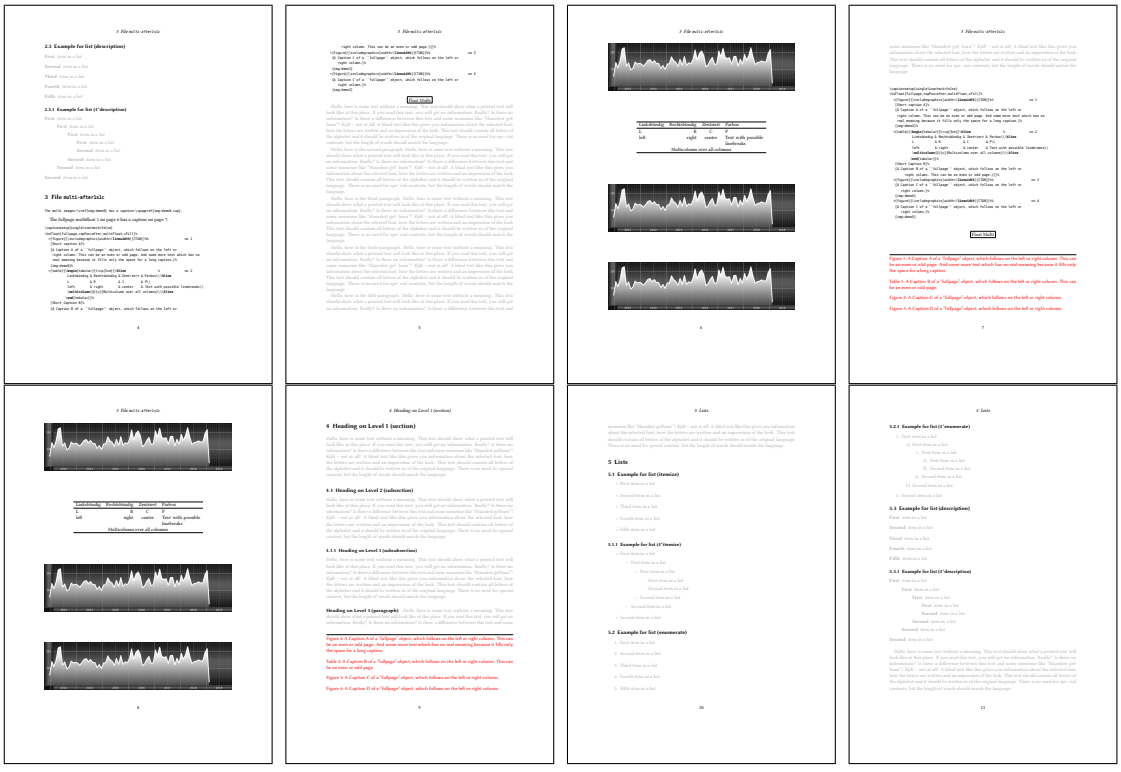


Figure 42: Output of `multi-after1s1c` (pages 4–11)

19 Subfloat page

A subfloat page can have only one type of floats which will have one main caption and individual subcaptions. The syntax is similiar 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 aditional lines will have the same float type, the reason why the float type entry is ignored.

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

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

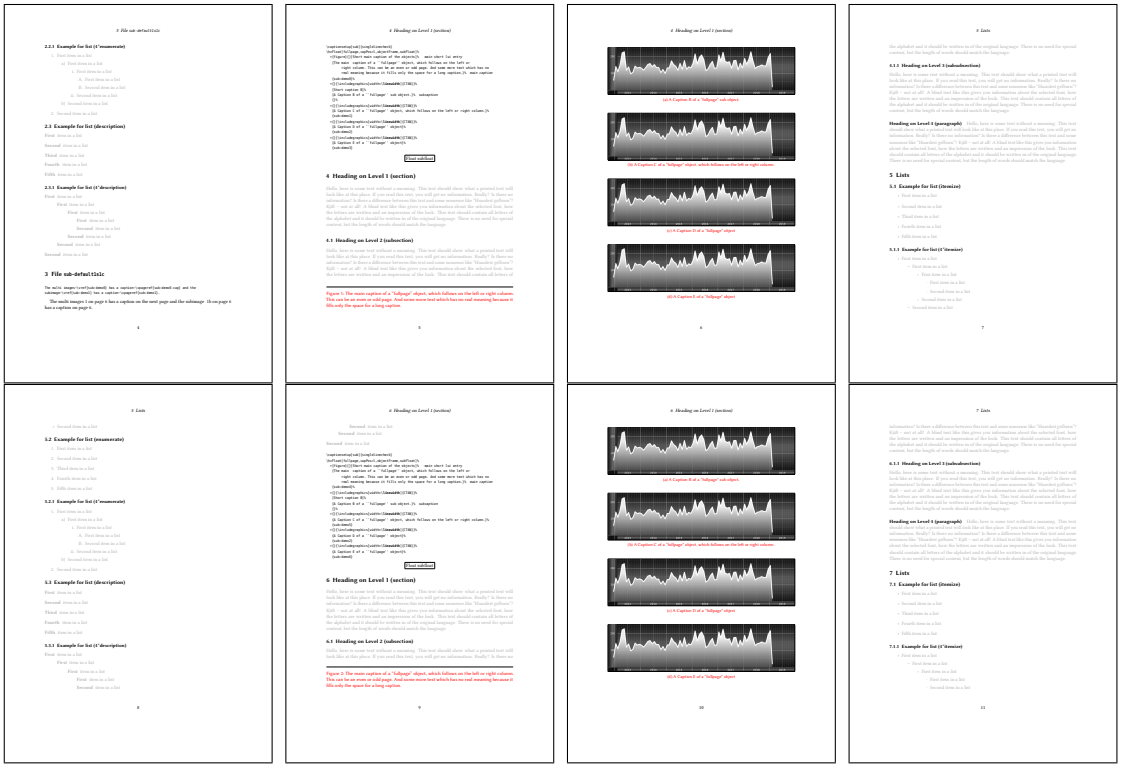


Figure 43: Output of `sub-default1s1c` (pages 4–11)

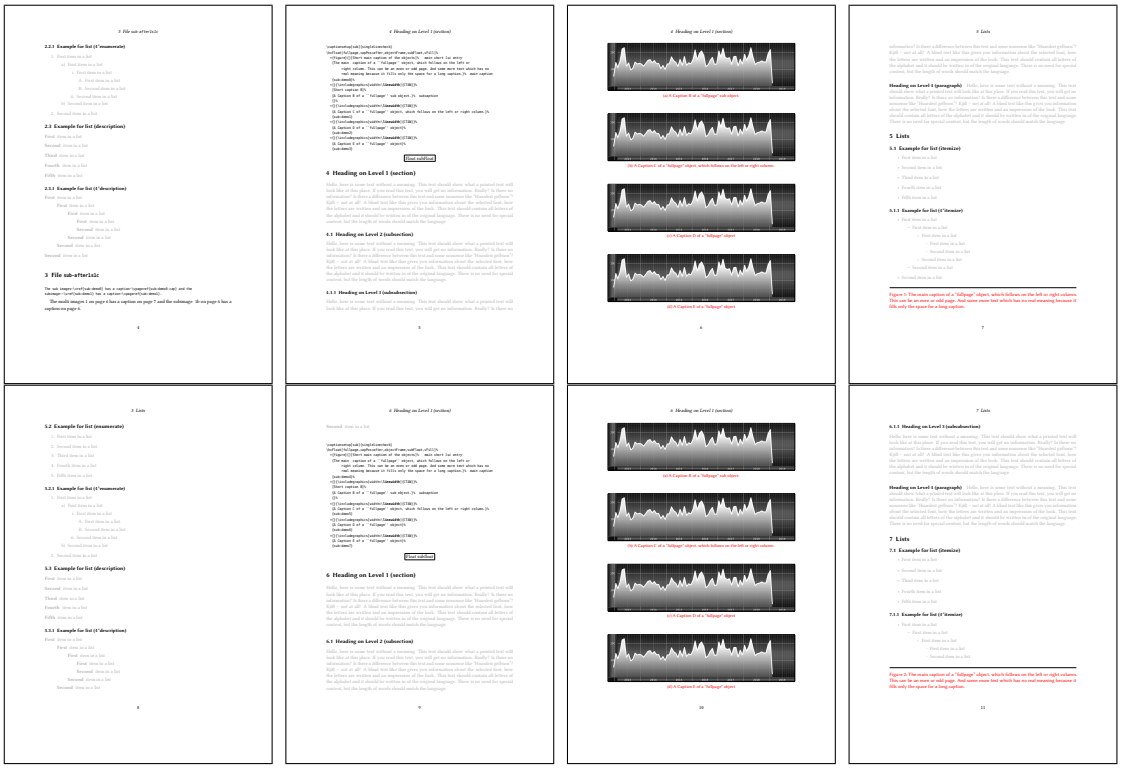


Figure 44: Output of `sub-after1s1c` (pages 4–11)

20 Full page objects in twocolumn mode

The filenames always have a “2c” for two columns in its names, e.g. `left2s2c` indicates `capPos=before` and the documentclass setting `twoside` and `twocolumn`. Depending to the used documentclass it can be a problem, if the caption should be placed on the first page of the whole document. In such a case use one of the other setting. Table 9 on page 31 shows the valid optional arguments for a full page floating object.

20.1 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 45).

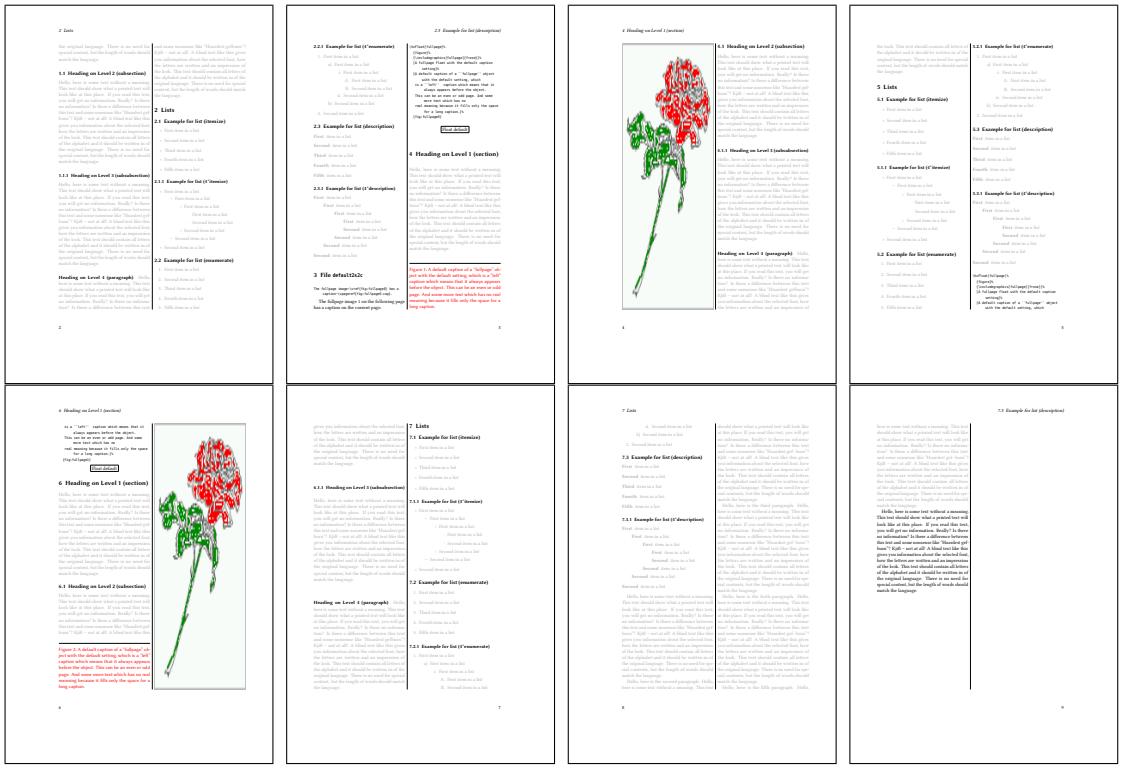


Figure 45: Output of `default2s2c` (pages 2–9)

```
\hvFloat[fullpage]{figure}%
  {\includegraphics[width=\columnwidth,height=0.9\textheight]{images/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}
```

The example 45 shows that the caption and the object can be on different pages. If you do not like this behaviour, then use the setting `capPos=left` , which puts the caption before the

object, but always on the *same page* (see Figure 46).

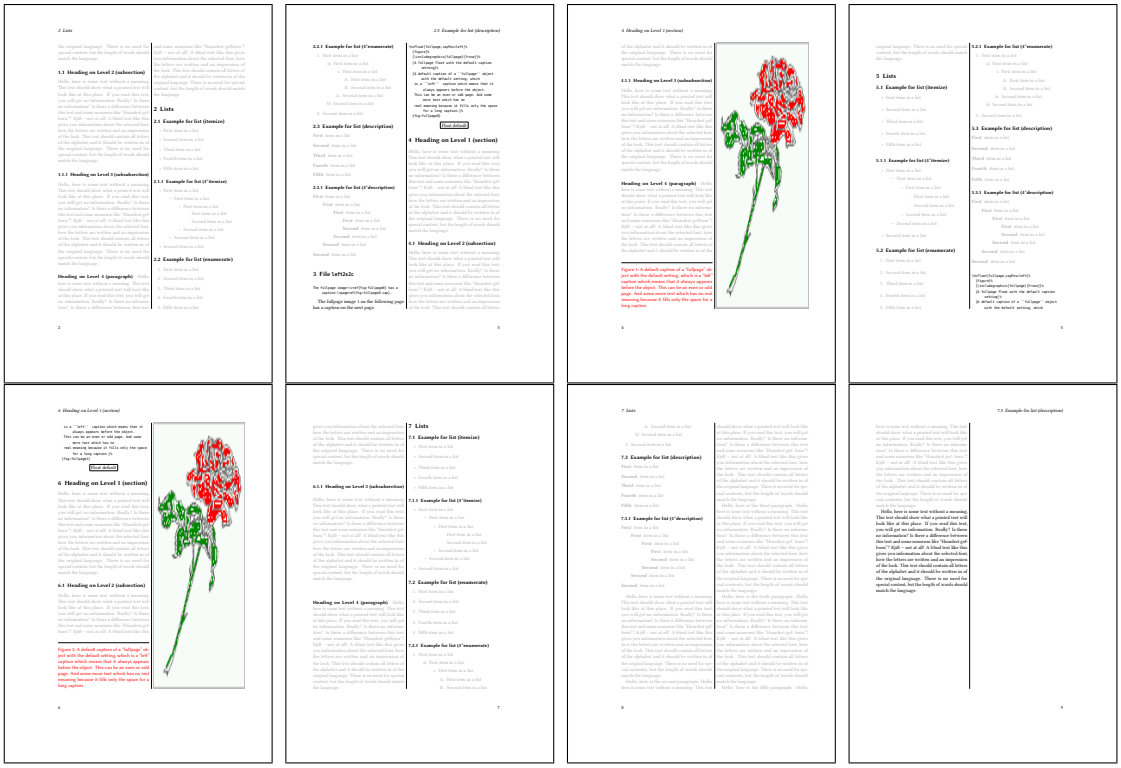


Figure 46: Output of `left2s2c` (pages 2–9)

20.1.1 Using `capPos=after`

The caption will be printed always right of the object which is the same as *after* the full page object. With `capPos=after` it is possible to get the caption in the twocolumn mode always in the right (second) column (see figure 48 on the next page)

```
\hvFloat[fullpage, capPos=after]{figure}%
  {\includegraphics[fullpage]{images/rose}}%
  [A float which needs the complete column width and height.]%
  {A Caption of a ``fullpage'' object, which is on the left column.
   This is always the right column on an even or odd page. And some more
   text which has no real meaning because it fills only the space for a long
   caption.}%
  {fig:fullpage1-2}
```

The caption and the object can be on different pages (Figure 47 on the following page). If you do not like this behaviour, then use the setting `capPos=right` instead of `capPos=after`. Figure right2s2c shows that caption and object in this case are always on the same page.

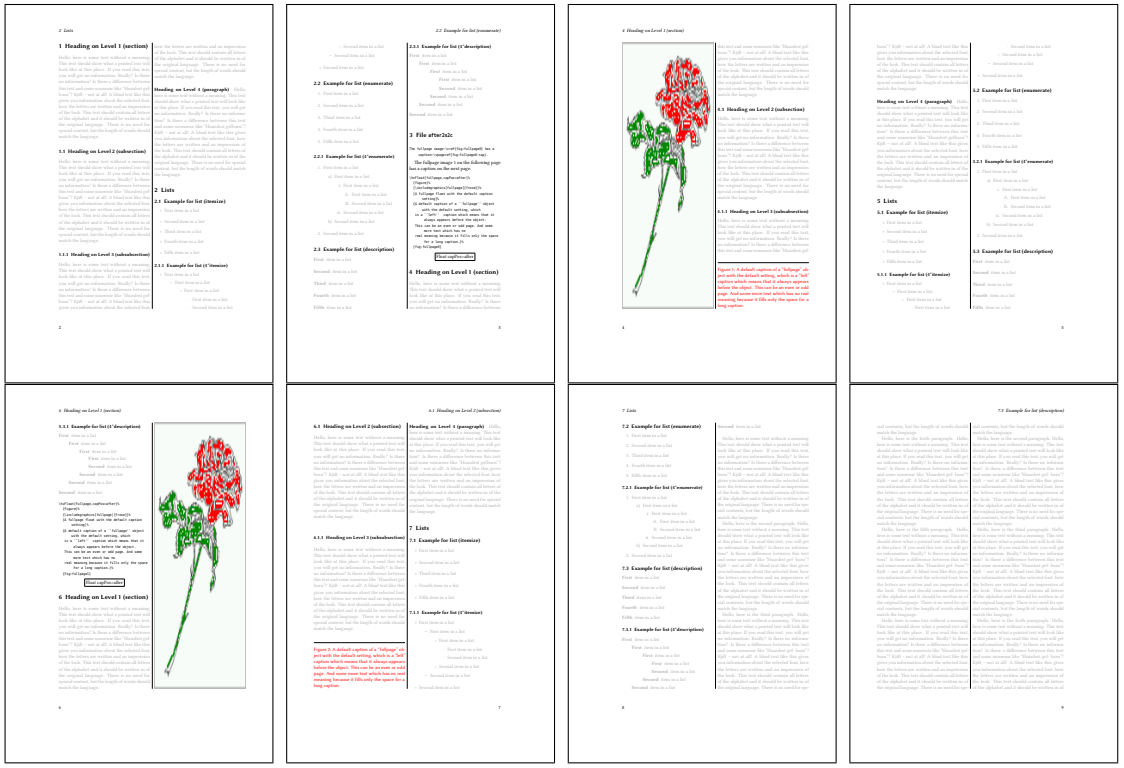


Figure 47: Output of `after2s2c` (pages 2–9)

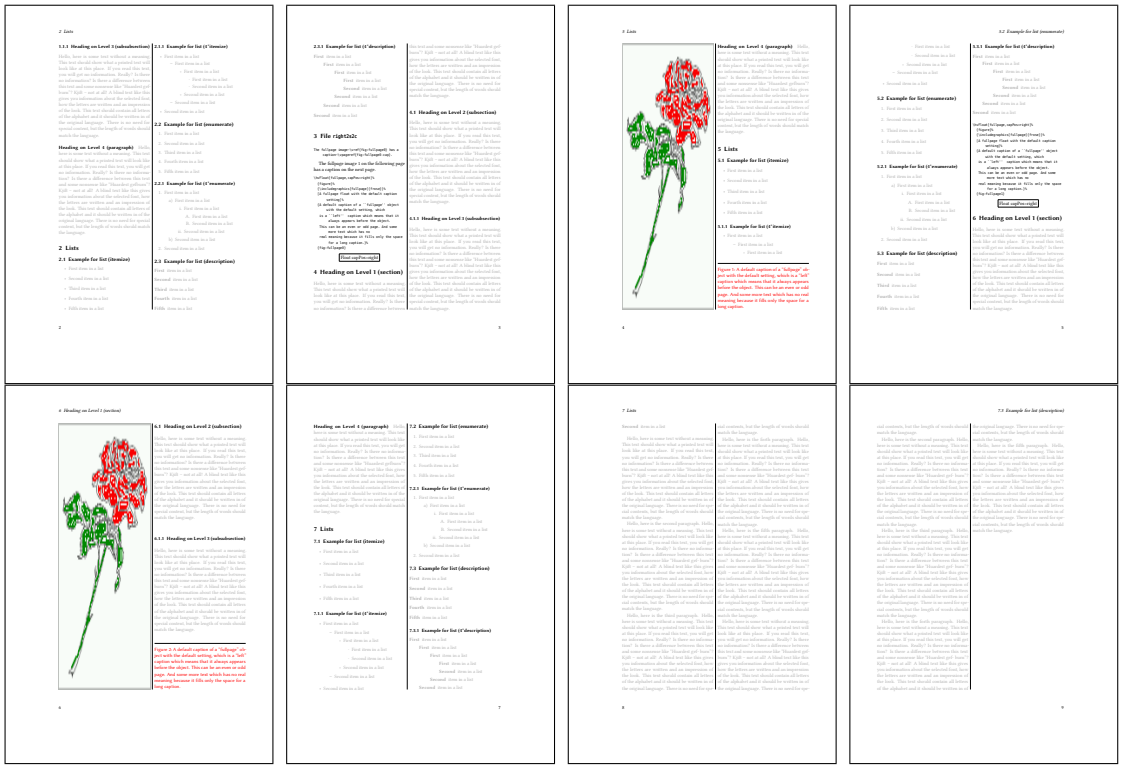


Figure 48: Output of `right2s2c` (pages 2–9)

20.1.2 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`.

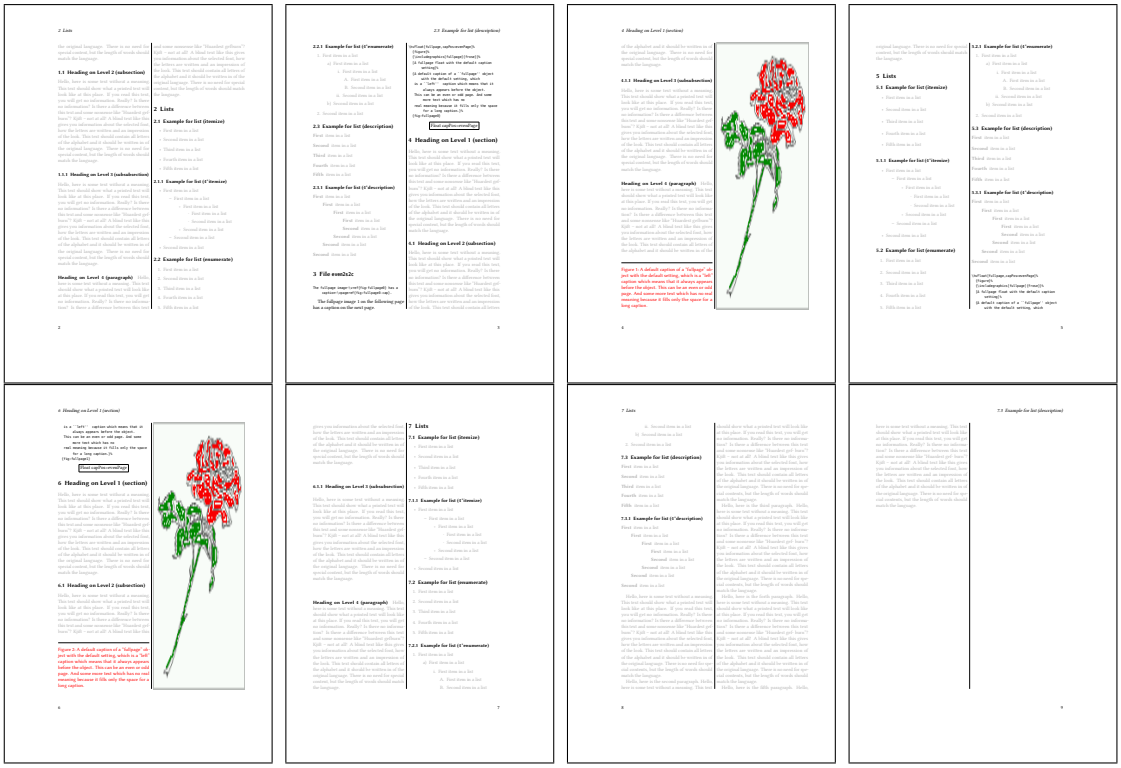


Figure 49: Output of `even2s2c` (pages 2–9)

20.1.3 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`.

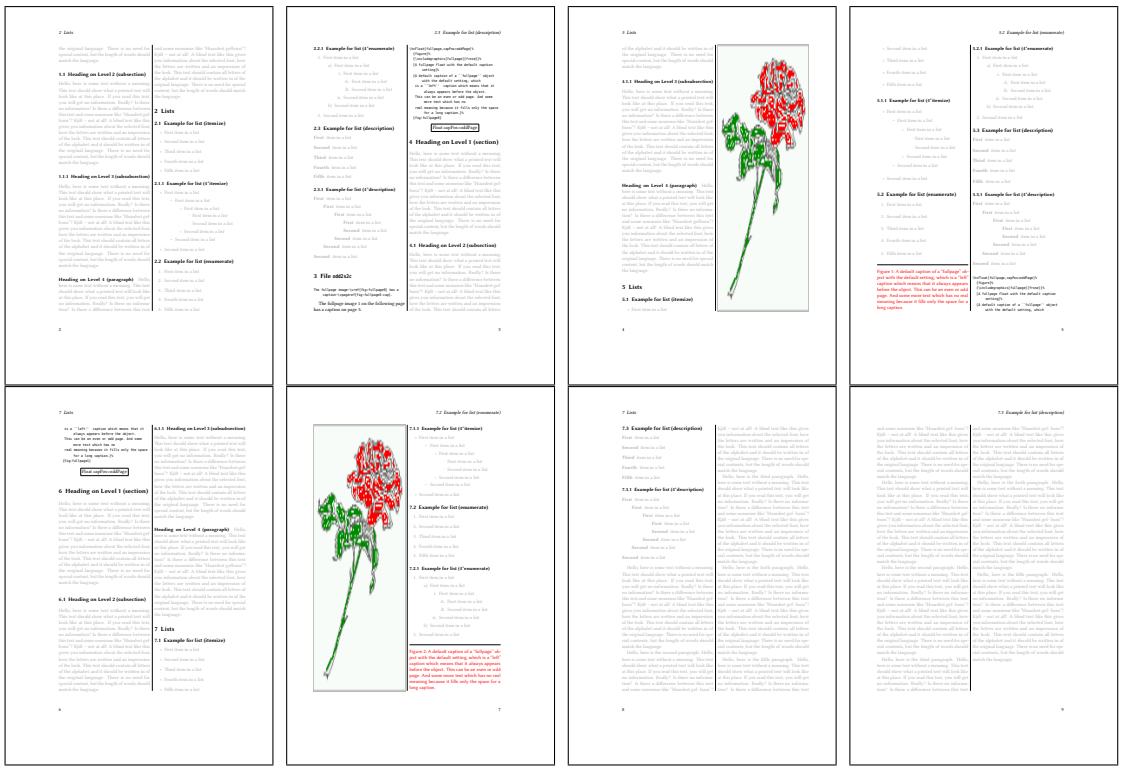


Figure 50: Output of `odd2s2c` (pages 2–9)

20.1.4 Using `capPos=inner` — caption in the inner column

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

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

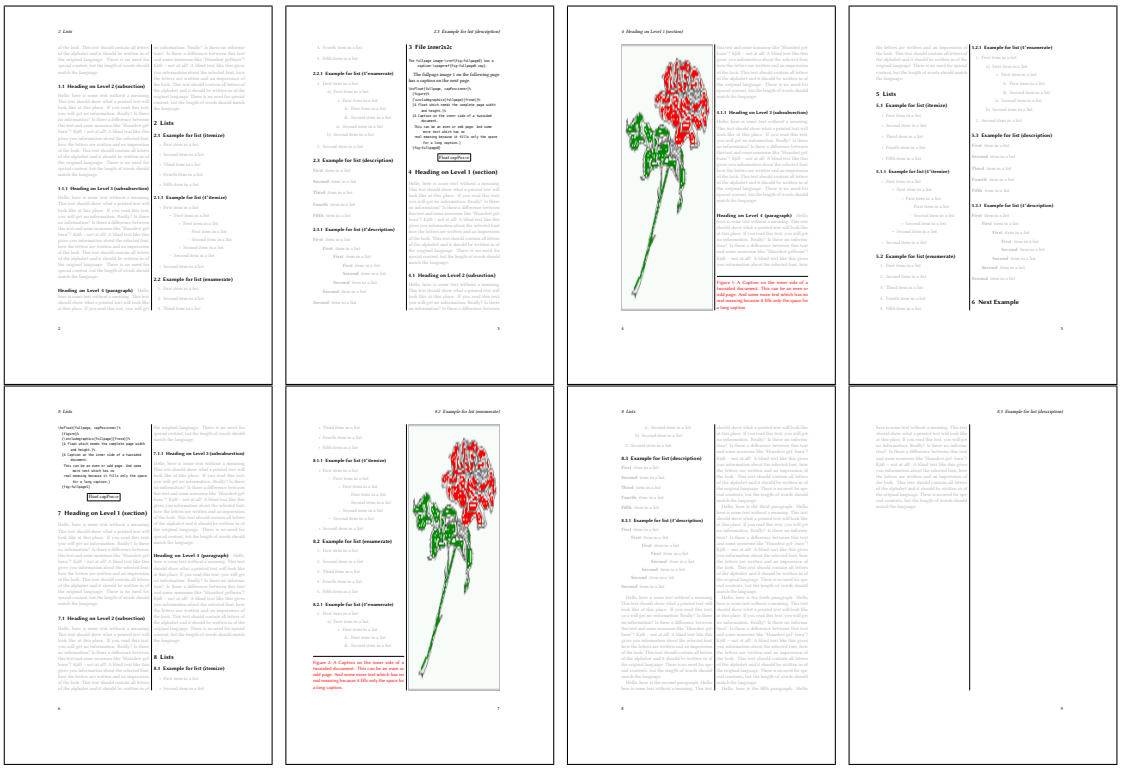


Figure 51: Output of `inner2s2c` (pages 2–9)

20.1.5 Using `capPos=outer` — caption on the outer column

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

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

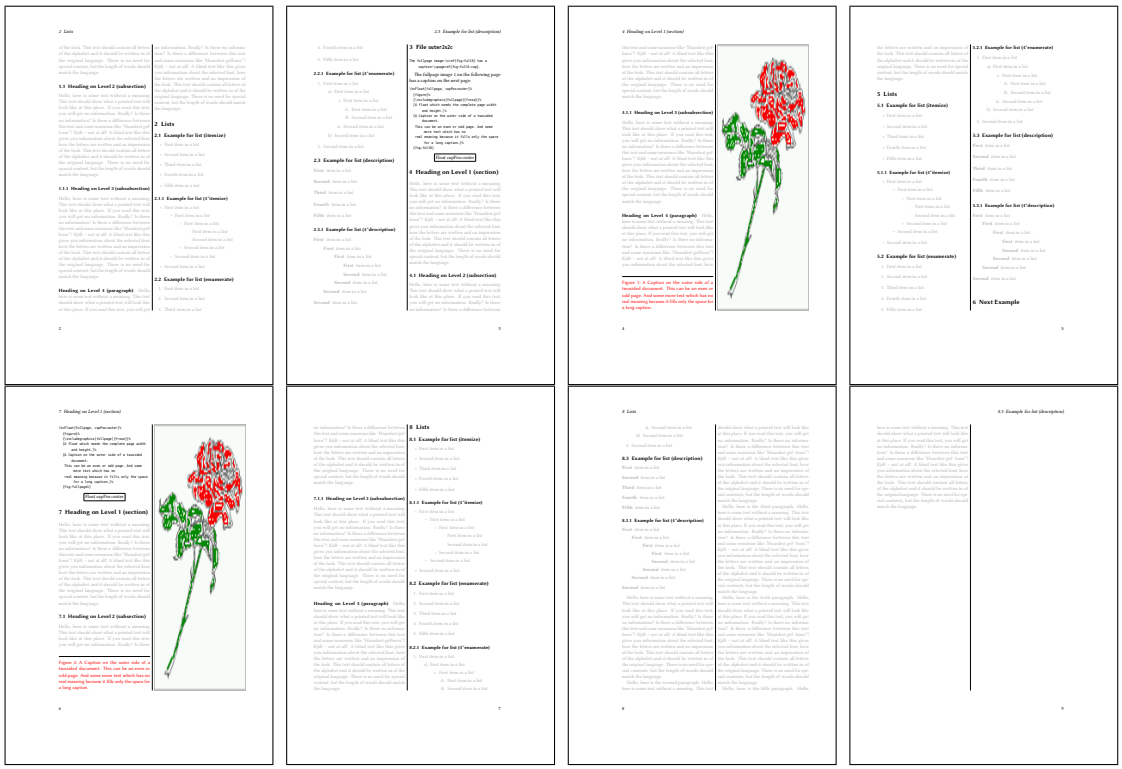


Figure 52: Output of `outer2s2c` (pages 2–9)

20.2 Using full page in twocolumn mode

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

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

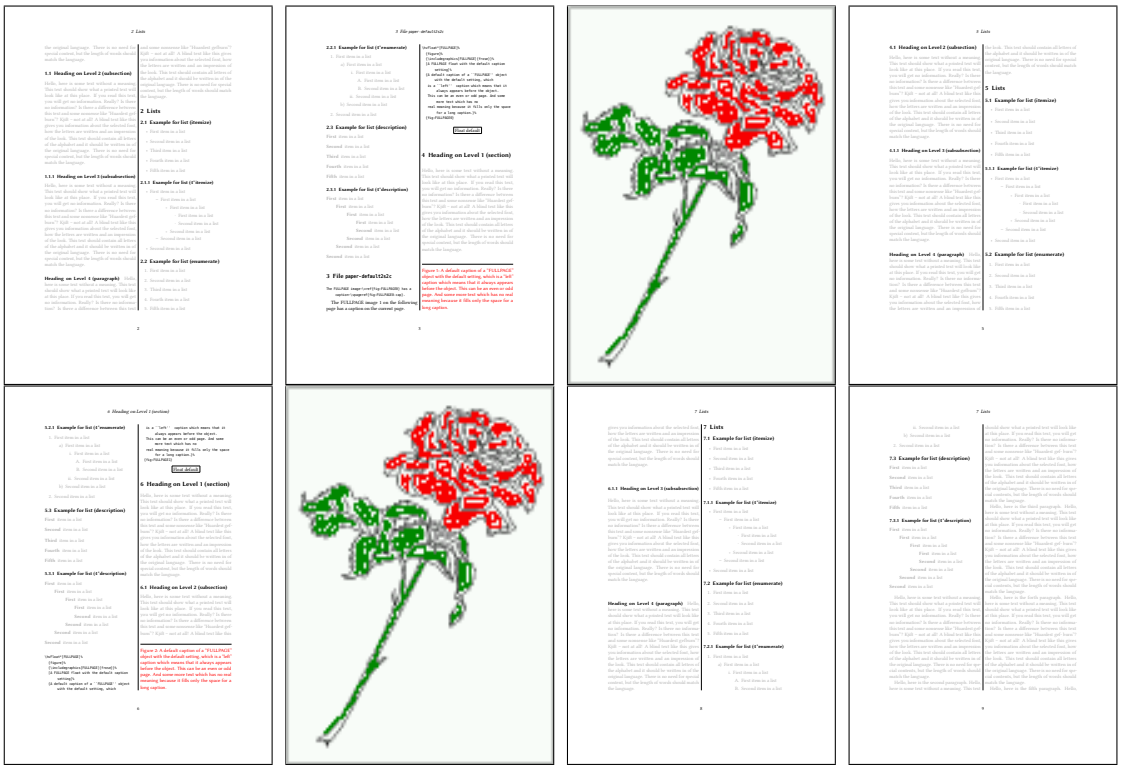


Figure 53: Output of `paper-default2s2c` (pages 2–9)

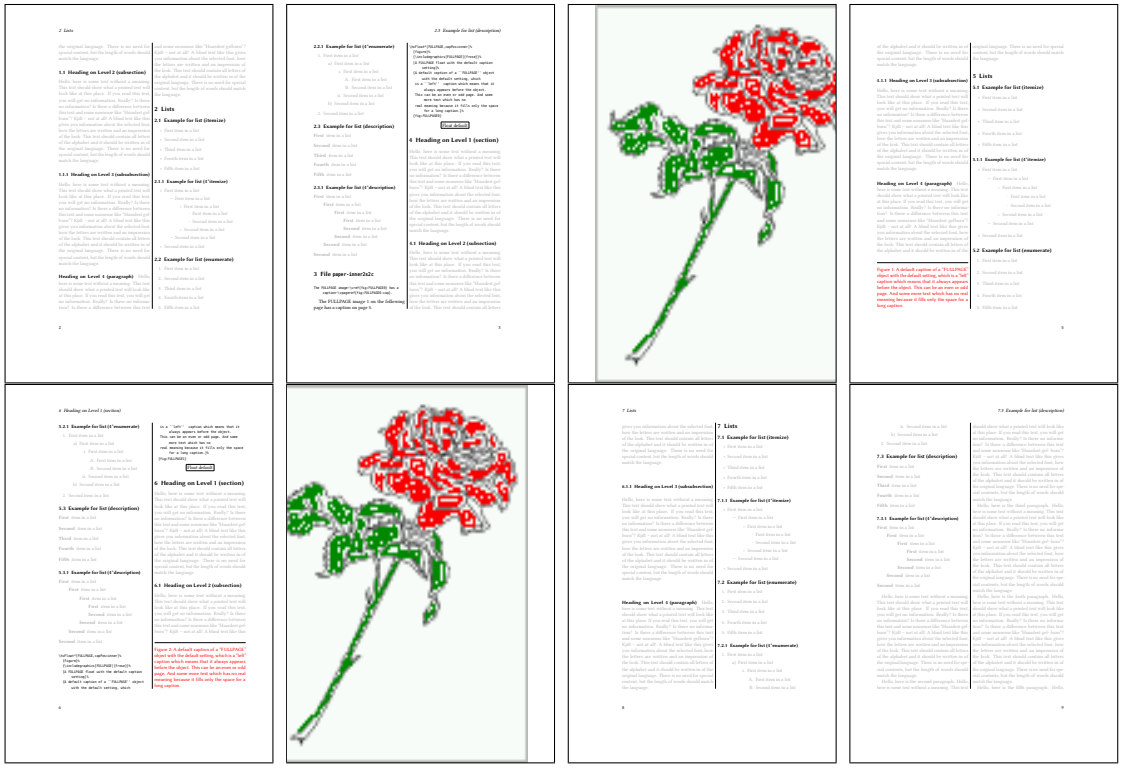


Figure 54: Output of `paper-inner2s2c` (pages 2–9)

20.3 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,vFill]%
  +{figure}{\includegraphics[height=0.4\textheight]{images/rose}}%%  no 1
   [Short caption A]%
   {A Caption A of a ``fullpage'' object, which follows on the left or
    right column. This can be an even or odd page. And some more text which has no
    real meaning because it fills only the space for a long caption.}%
   {multi:demo0}%
  +{table}{\begin{tabular}{lr}\hline                  %  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]{images/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 19 on page 40. The setting `\captionsetup{singlelinecheck=false }` is needed if you want the captions always left aligned.

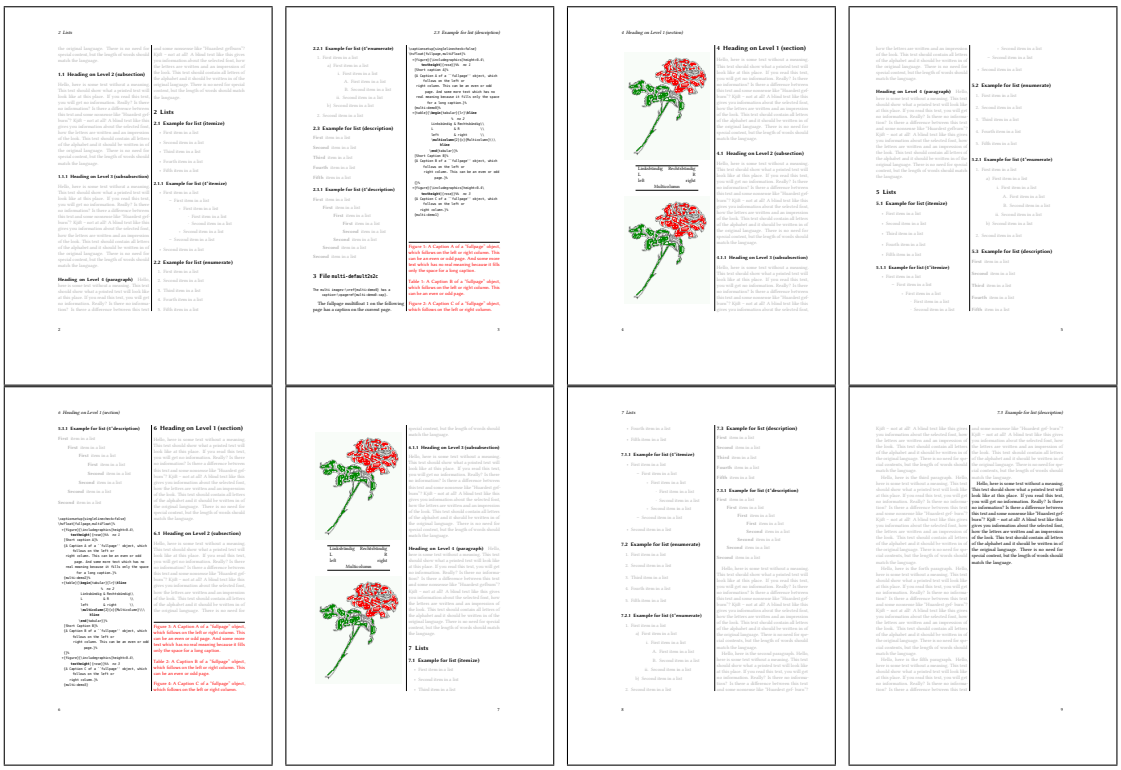


Figure 55: Output of `multi-default2s2c` (pages 2-9)

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

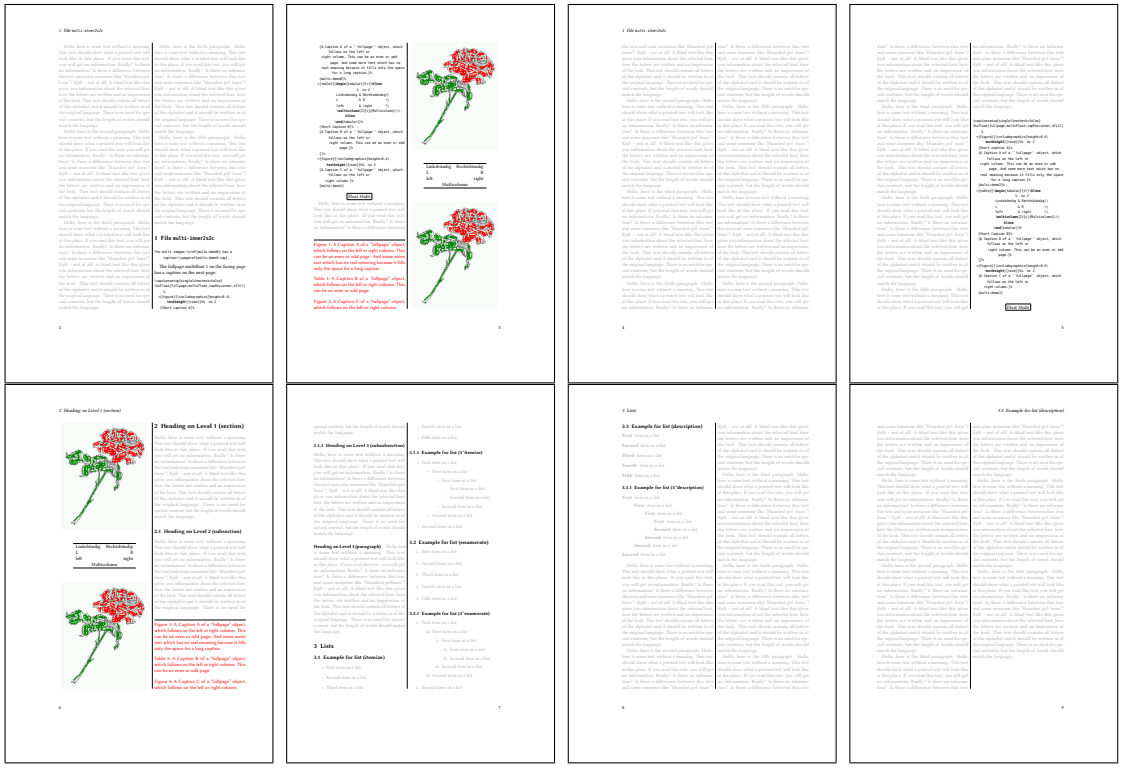


Figure 56: Output of `multi-inner2s2c` (pages 2-9)

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).

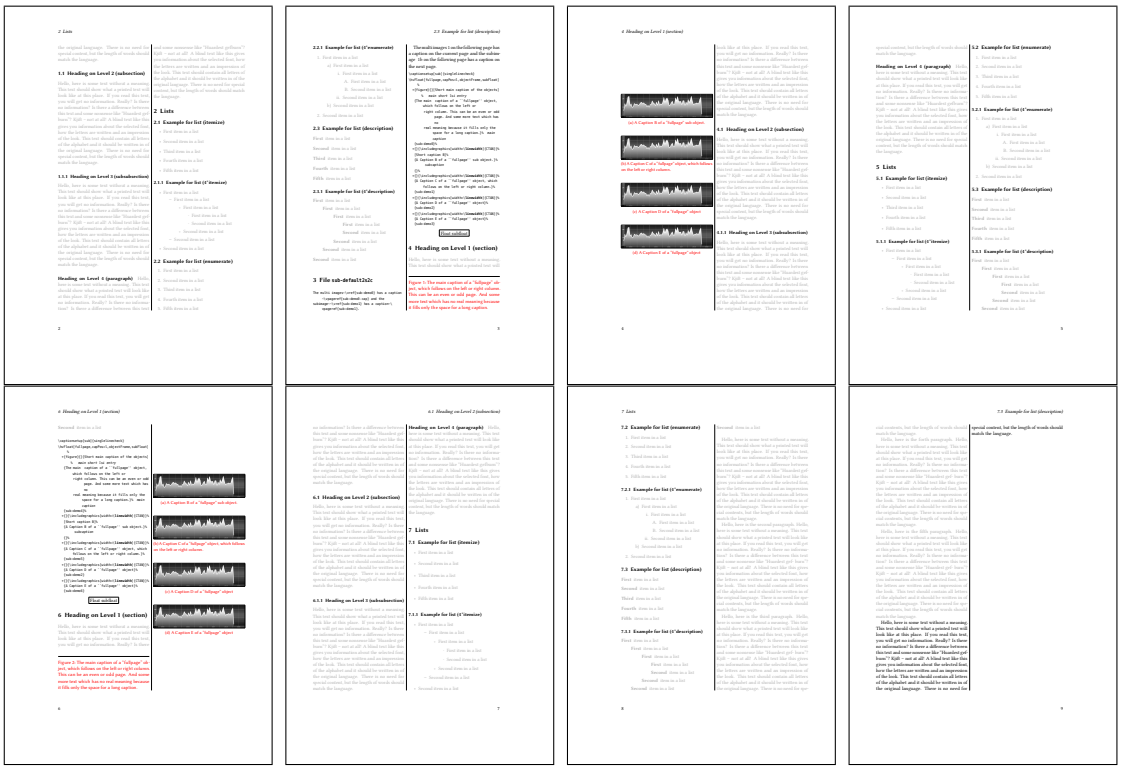


Figure 57: Output of `sub-default2s2c` (pages 2–9)

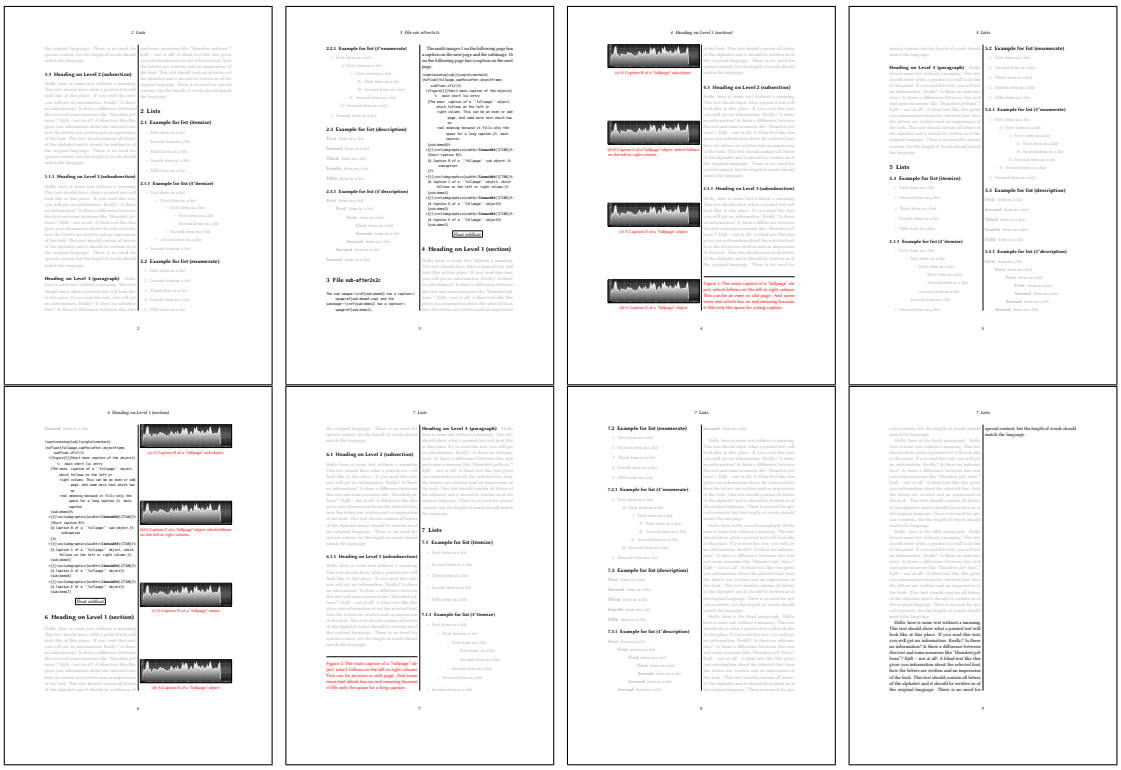


Figure 58: Output of `sub-after2s2c` (pages 2–9)

22 Doublepage objects – images and/or tabulars

If an image or a tabular or any other object is too big for one page, it can be split over two pages (left – right). It is obvious that this makes only sense for twoside documents. There are three optional arguments:

doublePage A splitted object with or without a caption on top of a double page, beginning in the left top text area. The user has to scale the image to be sure that the object will not be greater than `2\paperwidth-4\margin`. The caption can be rotated on the right side of the right object part or under the right part.

doublePAGE A splitted object with or without a caption on top of a double page, beginning at the left side of the paper area and top of the text area. The user has to scale the image to be sure that the object will not be greater than `2\paperwidth`. The caption can only be under the right part of the object. The will be *no additional text* on the double page.

doubleFULLPAGE A splitted object with or without a caption on the right or below of a double page. The object can fill the complete double page. The user has to scale the image to be sure that the object will not be greater than `2\paperwidth`. A caption will be rotated and written *over* the object, or if possible, at the right. The user has to take care for a correct text color.

22.1 doubleFULLPAGE

The scaling of the image is left to the user. If the proportion of the object doesn't fit 2*paperwidth/paperheight, then there can be a white part on the top or bottom of the object. A pagenumber will not be printed. In this documentation you'll find a marginnote where the following full doublepage image is defined. It appears on the the next following even page and following text will be placed *before* the object.

```
\hvFloat[doubleFULLPAGE,capPos=right,capAngle=90]%
  {figure}%
  {\includegraphics[width=2\paperwidth]{images/r+j2}}%
  [A doublepage image with a caption on the image.]%
  {A caption for a double-sided image that will be placed below the right-hand
   part of the illustration. The illustration begins on the left edge of the paper.
   No further text is placed on the pages. A short form is used for the LOF.
   The parameter is \texttt{doubleFULLPAGE}}%
  {fig:doubleFULLPAGE0}
```

Fig. 59

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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Figure 59: A caption for a double-sided image that will be placed on the right-hand part of the illustration. The illustration begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doubleFULLPAGE`

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It is also possible to take a bind correction into account with e.g. `binCorr=5mm`, which reserves whitespace of 5mm in the inner margin on both pages.

```
\hvFloat[doubleFULLPAGE,capPos=after,bindCorr=5mm]%
  {figure}%
  {\includegraphics[width=2\paperwidth]{images/r+j3}}%
  [A doublepage image with a caption on the image.]%
  {A caption for a double-sided image that will be placed below the right-hand
   part of the illustration. The illustration begins on the left edge of the paper.
   No further text is placed on the pages. A short form is used for the LOF.
   The parameter is \texttt{doubleFULLPAGE}}%
  {fig:doubleFULLPAGE0a}
```

Fig. 60

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Figure 60: A caption for a double-sided image that will be placed on the right-hand part of the illustration. The illustration begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doubleFULLPAGE`

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```
\hvFloat[doubleFULLPAGE,capPos=right]%
 {figure}%
 {\includegraphics[height=\paperheight]{images/rheinsberg-1000}}%
 {A caption for a double-sided image that will be placed on the right-hand
  part of the illustration. The illustration begins on the left edge of the paper.
  No further text is placed on the pages. A short form is used for the LOF.
  The parameter is \texttt{doubleFULLPAGE}}%
 {fig:doubleFULLPAGE1}
```

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Figure 61: A caption for a double-sided image that will be placed on the right-hand part of the illustration. The illustration begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doubleFULLPAGE`

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Placing the caption on the image itself is not the best solution. With the optional arguments `before` and `after` for `capPos`, the caption can be placed on the bottom of the preceding or following page of the doublepage object. A givel label, e.g. `foo` will always point to the page with the left part of the object. Internally are two additional labels defined: `foo-cap` points to the caption and `foo-2` points to the right part of the doublepage object.

In the follwoing example 62 the caption is on page 70, the left image part on page 68 and the right part on page 69. In the follwoing example 63 the caption is on page 73, the left image part on page 74 and the right part on page 75. All three labels points to the same figure or table number:

`\ref{foo} | \ref{foo-cap} | \ref{foo-2}` → 62 | 62 | 62

`\pageref{foo} | \pageref{foo-cap} | \pageref{foo-2}` → 68 | 70 | 69

```
\hvFloat[doubleFULLPAGE,capPos=after]%
 {figure}%
 {\includegraphics[doubleFULLPAGE,
   keepaspectratio=false]{images/rheinsberg-1000}}%
 {A caption for a double-sided image that will be placed \textbf{after}
  the image. The image begins on the left edge of the paper.
  No further text is placed on the pages. A short form is used for the LOF.
  The parameter is \texttt{doubleFULLPAGE}}%
 {foo}
```

Fig. 62

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Figure 62: A caption for a double-sided image that will be placed **after** the image. The image begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doubleFULLPAGE`

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```
\hvFloat[doubleFULLPAGE,capPos=before]%
 {figure}%
 {\includegraphics[height=\paperheight,width=2\paperwidth,
   keepaspectratio=false]{images/rheinsberg-1000}}%
 {A caption for a double-sided image that will be placed \textbf{before}
  the image. The image begins on the left edge of the paper.
  No further text is placed on the pages. A short form is used for the LOF.
  The parameter is \texttt{doubleFULLPAGE}}%
 {bar}
```

Fig. 63

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Figure 63: A caption for a double-sided image that will be placed **before** the image. The image begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doubleFULLPAGE`

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22.2 doublePAGE

With this option the object also starts at the left paper margin but on the top of the text area. There will be pagenumbers and a caption can be rotated on the right of the object or under it.

```
\hvFloat[doublePAGE]%
  {figure}%
  {\includegraphics[width=\dimexpr2\textwidth+2in]{images/seiser}}%
  [A doublepage image with a caption below the right part.]%
  {A caption for a double-sided image that will be placed below the right-hand
   part of the illustration. The illustration begins on the left edge of the paper.
   No further text is placed on the pages. A short form is used for the LOF.
   The parameter is \texttt{doublePAGE}}%
  {fig:doublePAGE0}
```

Fig. 64

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

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Figure 64: A caption for a double-sided image that will be placed below the right-hand part of the illustration. The illustration begins on the left edge of the paper. No further text is placed on the pages. A short form is used for the LOF. The parameter is `doublePAGE`

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22.3 doublePage

With this option the object also starts at the left top of the text area. There will be pagenumbers and a caption can be rotated on the right of the object or under it and the rest of the text area is filled with text.

```
\hvFloat[doublePage,sameHeight]%
  {figure}%
  {\includegraphics[doublefullPage]{images/sonne-meer}}%
  [A doublepage image with a caption on the right side of the right part.]%
  {A caption for a double-sided image that will be placed on the right side of the
   right-hand part of the illustration. The illustration begins on the left edge of
   the paper. A short form is used for the LOF.
   The parameter is \texttt{doublePage}}%
  {fig:doublePage0sH}
```

Fig. 65

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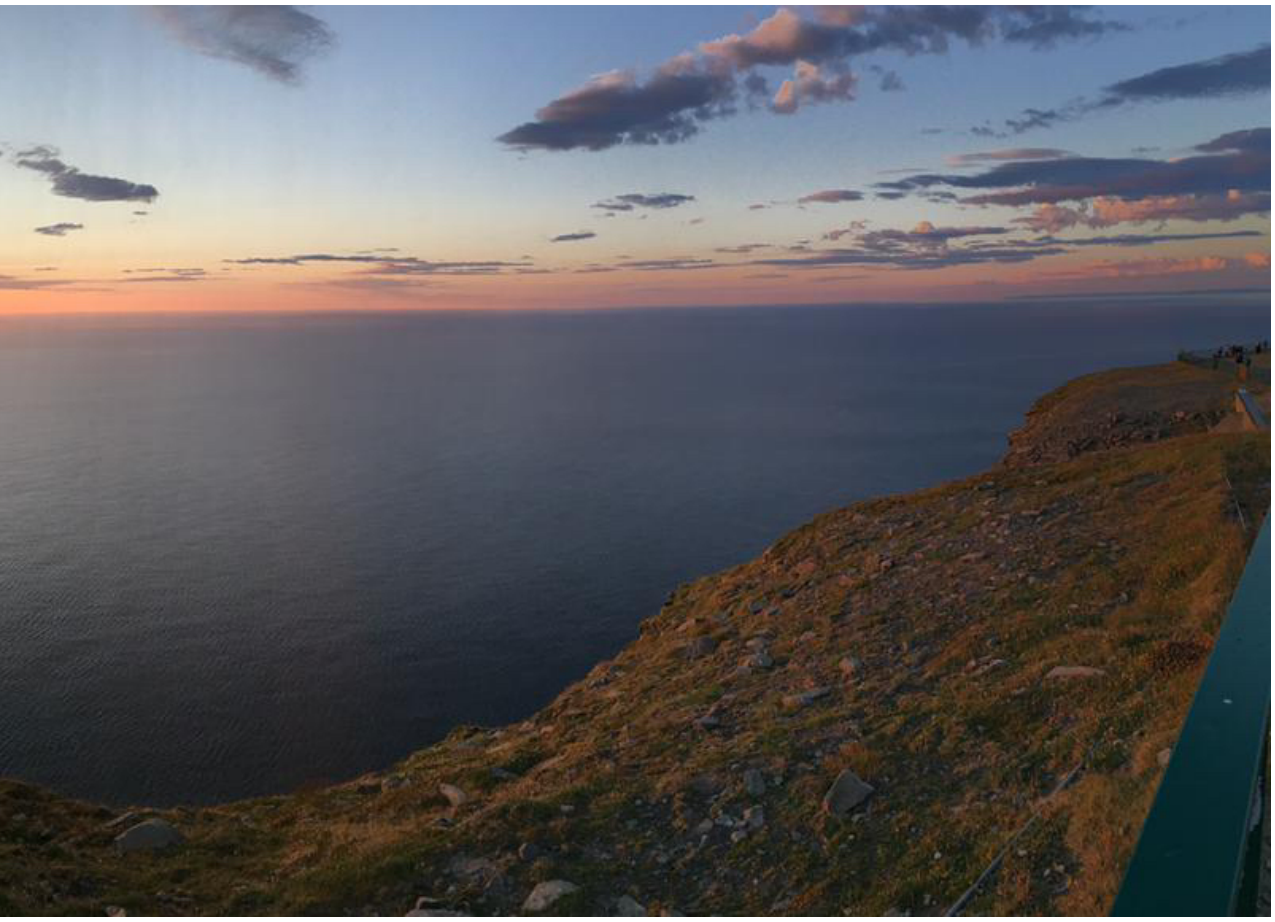

Figure 65: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is `doublePage`

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```
\hvFloat[doublePage,capPos=right,capVPos=top]%
  {figure}%
  {\includegraphics[width=2\textwidth]{images/sonne-meer}}%
  [A doublepage image with a caption on the right side of the right part.]%
  {A caption for a double-sided image that will be placed on the right side of the
   right-hand part of the illustration. The illustration begins on the left edge of
   the paper. A short form is used for the LOF.
   The parameter is \texttt{doublePage}}%
  {fig:doublePage1}
```

Fig. 66

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Figure 66: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is `doublePage`

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```
\hvFloat[doublePage,bindCorr=inner]%
  {figure}%
  {\includegraphics[width=2\textwidth]{images/sonne-meer}}%
  [A doublepage image with a caption on the right side of the right part.]%
  {A caption for a double-sided image that will be placed on the right side of the
   right-hand part of the illustration. The illustration begins on the left edge of
   the paper. A short form is used for the LOF.
   The parameter is \texttt{doublePage}}%
  {fig:doublePage0sH2}
```

Fig. 67

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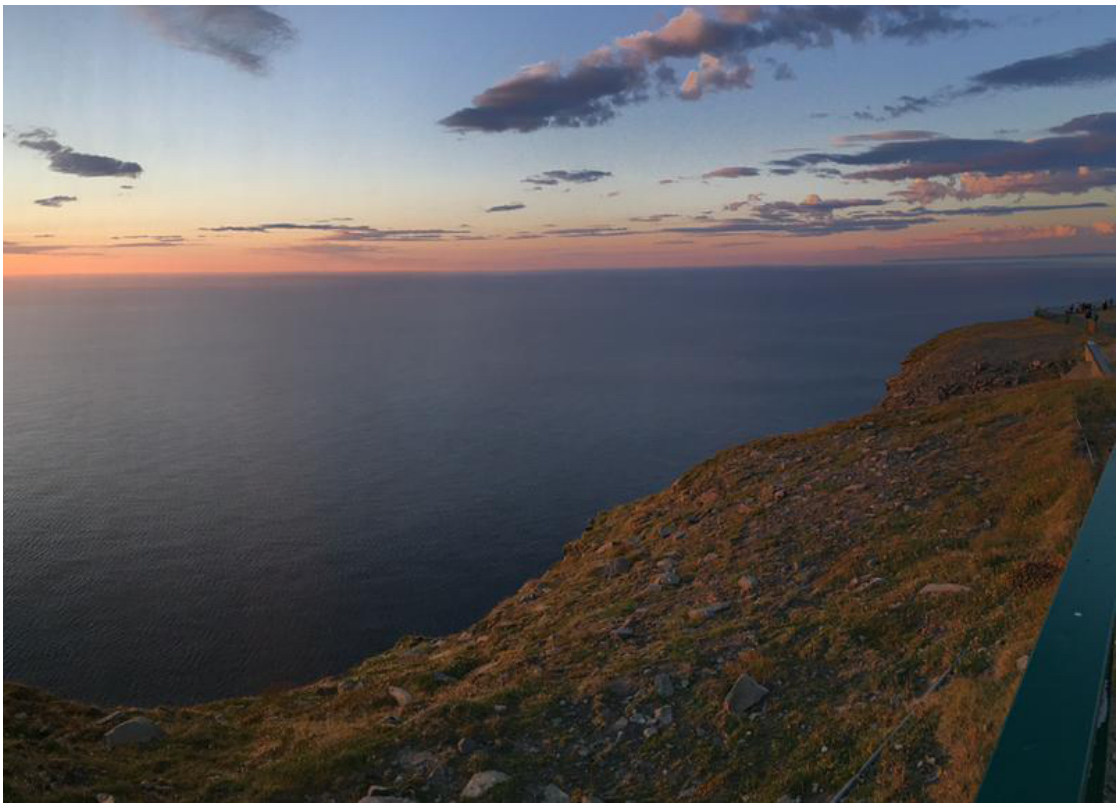

Figure 67: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is `doublePage`

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22.4 Tabulars

In General there is no difference in an imgage or tabular or simple text. The object will be saved in a box and then clipped. If the object is a tabular one might modify the tabular if it will be split in the middle of a column. In such a case one can insert some additional horizontal space for this coloumn.

The tabular itself can be saved into the internal box `\hvOBox` or put directly as parameter into the macro.

```
\global\savebox\hvOBox{%
\begin{tabular}{l*{18}r} \toprule
 & \textbf{1972} & \textbf{1973} & \textbf{1974} & \textbf{1975} & \textbf{1976}
 & \textbf{1977} & \textbf{1978} & \textbf{1979} & \textbf{1980}  & \textbf{1981} & \textbf{1982} & \textbf{1983} & \textbf{1984} & \textbf{1985}
 & \textbf{1986} & \textbf{1987} & \textbf{1988} & \textbf{1989}
 \\\midrule
\addlinespace[3pt]
Zeile 1 & 1 & 3 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 & 0 &20 & 0 & 2 & 2 & 2 & 1\\\addlinespace[3pt]
Zeile 2 & 1 & 1 & 3 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 1 & 3 & 4 & 4 & 6 & 4 & 2\\\addlinespace[3pt]
Zeile 3 & 2 & 1 & 2 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 5 & 3 & 1 & 7 & 7 & 3\\\addlinespace[3pt]
Zeile 4 & 1 & 0 & 5 & 1 & 2 & 0 & 0 & 0 & 0 & 2 & 1 & 0 & 1 & 0 & 3 & 7 & 2 & 1\\\addlinespace[3pt]
Zeile 6 & 2 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 2 & 0 & 5 & 2 & 2 & 5 & 4 & 2\\\addlinespace[3pt]
Zeile 5 & 0 & 0 & 4 & 2 & 1 & 2 & 2 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 2 & 5 & 4 & 3\\\addlinespace[3pt]
Zeile 8 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 3 & 2 & 1 & 2 & 1 & 3 & 5 & 3 & 4\\\addlinespace[3pt]
Zeile 9 & 0 & 0 & 0 & 0 & 0 & 1 & 2 & 1 & 0 & 0 & 0 & 0 & 4 & 2 & 1 & 4 & 5 & 2\\\addlinespace[3pt]
Zeile10 & 0 & 1 & 3 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 1 & 1 & 4 & 4 & 1\\\addlinespace[3pt]
Zeile11 & 0 & 2 & 2 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 2 & 6 & 1 & 0 & 2 & 1 & 1 \\\addlinespace[3pt]
Zeile12 & 2 & 0 & 2 & 4 & 1 & 0 & 4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 3\\\addlinespace[3pt]
Lärm    & 2 & 3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 2 & 0 & 0 & 2 & 2 & 2\\\addlinespace[3pt]
Zeile13 & 0 & 1 & 0 & 0 & 1 & 0 & 3 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 1 & 3 & 0 & 2\\\addlinespace[3pt]
Zeile14 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 3 & 3 & 2 & 1 & 1 & 0\\\addlinespace[3pt]
Zeile15 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 4 & 0 & 0 & 3 & 1 & 1\\\addlinespace[3pt]
Zeile16 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 3 & 5 & 0 & 1\\\addlinespace[3pt]\midrule
Artikel gesamt & 2 & 6 & 13 & 8 & 4 & 3 & 5 & 4 & 0 & 6 & 3 & 5 &23 &10 & 8 & 15 & 13 &1 \\
\bottomrule
\end{tabular}}

\Blindtext

\hvFloat[doublePage,capPos=right,capVPos=top,floatCapSep=12pt]%
  {table}%
  {\usebox\hvOBox}%%%%%%%%%%%%%%
  [A doublepage tabular with a caption on the right side of the right part.]%
  {A caption for a double-sided tabular that will be placed on the right side of the
   right-hand part of the illustration. The illustration begins on the left edge of
   the paper. A short form is used for the LOF.
   The parameter is \texttt{doublePage}}%
  {tab:doublePage3}
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Tab. 10

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	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	198
Zeile 1	1	3	1	1	1	0	1	1	0	0	0	
Zeile 2	1	1	3	1	0	0	0	0	0	0	2	
Zeile 3	2	1	2	1	0	0	0	0	0	0	0	
Zeile 4	1	0	5	1	2	0	0	0	0	2	1	
Zeile 6	2	1	1	0	0	0	0	0	0	1	2	
Zeile 5	0	0	4	2	1	2	2	1	0	0	0	
Zeile 8	0	1	1	0	0	0	1	1	0	3	2	
Zeile 9	0	0	0	0	0	1	2	1	0	0	0	
Zeile10	0	1	3	0	1	0	1	0	0	1	1	
Zeile11	0	2	2	1	1	0	1	0	0	0	0	
Zeile12	2	0	2	4	1	0	4	0	0	0	0	
Lärm	2	3	0	0	0	0	0	0	0	0	1	
Zeile13	0	1	0	0	1	0	3	0	0	0	0	
Zeile14	0	1	0	0	0	0	0	0	0	0	0	
Zeile15	0	0	0	0	0	0	0	0	0	1	0	
Zeile16	0	0	0	0	0	1	0	0	0	0	0	
Artikel gesamt	2	6	13	8	4	3	5	4	0	6	3	

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.

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

83	1984	1985	1986	1987	1988	1989
0	20	0	2	2	2	1
1	3	4	4	6	4	2
1	5	3	1	7	7	3
0	1	0	3	7	2	1
0	5	2	2	5	4	2
1	1	0	2	5	4	3
1	2	1	3	5	3	4
0	4	2	1	4	5	2
0	1	1	1	4	4	1
2	6	1	0	2	1	1
0	0	0	0	1	0	3
0	2	0	0	2	2	2
0	2	0	1	3	0	2
0	3	3	2	1	1	0
0	4	0	0	3	1	1
0	0	0	3	5	0	1
5	23	10	8	15	13	1

Table 10: A caption for a double-sided tabular that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is `doublePage`

words should match the language.

23 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 refence to the page where the object is set. Let's assume that we use something like

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

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

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

The caption of figure 69 is on page 97, but the image itself is on page 98. With package `varioref` it is:

```
Whith the package \Lpack{varioref} (\url{https://ctan.org/pkg/varioref})
one can get something like: see figure~\vref{demo:fullpage}, which uses a
^correct page number of the floatinmg 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}
```

Whith the package `varioref` (https://ctan.org/pkg/varioref) one can get something like: see figure 69 on page 98, which uses a correct page number of the floating object and not the caption pagenumber which is on the next page. The figure 69 is on page 98 and the caption on page 97

24 Defining a style

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

`\hvDefFloatStyle{`*name*`}{`*setting*`}`

For example:

```
\hvDefFloatStyle{RightCaption}{floatPos=htb, capWidth=0.5, capPos=after,
                               capVPos=bottom, objectPos=center}

\hvFloat[style=RightCaption]{figure}{\includegraphics{images/rose}}%
  {Caption vertically centered right beside the float with a caption width of
   \texttt{0.5\textbackslash columnwidth}.}{fig:style}
```

Figure 68: Caption at bottom right beside the float with a caption width of `0.5\columnwidth`.

25 Global float setting

Instead of writing the following sequence into the preamble:

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

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

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

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.

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Figure 69: 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

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Index

26 The Package Source

```
%% $Id: hvfloat.sty 675 2023-01-27 21:48:40Z herbert $
%%
%%
%% IMPORTANT NOTICE:
%%
%% This is file `hvfloat.sty',
%%
%% Herbert Voss <hvoss@tug.org>
%% Copyright (C) 2003-23
%%
%% 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
%%
\NeedsTeXFormat{LaTeX2e}
\def\fileversion{2.45}
\def\filedate{2023/01/28}
\ProvidesPackage{hvfloat}[\filedate\space v\fileversion\space special floating objects (hv)]
\let\hvFloatFileVersion\fileversion
%
\newif\ifhv@fbox \hv@fboxfalse
\newif\ifhv@hyperref \hv@hyperreffalse
\newif\ifhv@nostfloats \hv@nostfloatsfalse
\newif\ifhv@tugboat \hv@tugboatfalse
\newif\ifhv@forceLeft \hv@forceLeftfalse

\DeclareOption{fbox}{\hv@fboxtrue\setlength\fboxsep{1pt}}
\DeclareOption{hyperref}{\hv@hyperreftrue}
\DeclareOption{nostfloats}{\hv@nostfloatstrue}
\DeclareOption{no-stfloats}{\hv@nostfloatstrue}

\ProcessOptions


\PassOptionsToPackage{hypcap}{caption}
\RequirePackage{caption}
\RequirePackage{varwidth}
\DeclareCaptionBox{varwidth}{\varwidth[b]{#1}#2\endvarwidth}

\PassOptionsToPackage{hypcap}{subcaption}
\RequirePackage{subcaption}
\RequirePackage{atbegshi}
\RequirePackage{picture,trimclip}
\RequirePackage{etoolbox,marginnote}% for "floats" in the margin

\RequirePackage{expl3,multido}
\RequirePackage{graphicx}
\RequirePackage{varwidth}

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

\ifhv@hyperref
  \RequirePackage{hyperref}
\fi

\ifhv@nostfloats
\else
  \RequirePackage{stfloats}%  for bottom floats in a twocolumn mode
%  \RequirePackage{floatpag}%  for bottom floats in a twocolumn mode
```

```
\fi
%
%\def\hv@thisfloatpagestyle#1{%
%  \global\@namedef{\number\@currbox @float}{\thispagestyle{#1}}\relax
%}

\providecommand\hvfloat@typeout[1]{\ifhv@Debug\typeout{>>>> #1}\fi}
\providecommand*\LenToUnit[1]{\strip@pt\dimexpr#1*\p@/\unitlength}

\newlength\hvObjectWidth
\newlength\hvCapWidth
\newlength\hvWideWidth
\newlength\hvMultiFloatSkip
\newlength\hvMaxCapWidth
\newlength\hvFloatFullWidth % only for user purpose
\AtBeginDocument{\hvFloatFullWidth=\the\dimexpr\textwidth+\marginparwidth+\marginparsep\relax}


\newsavebox\hvObjectBox
\newsavebox\hvCaptionBox
\newsavebox\hvOBox
\newsavebox\@tempbox
\newsavebox\hv@caption@box
\newsavebox\hv@leftBox
\newsavebox\hv@rightBox

\newif\ifhv@capbeside \hv@capbesidefalse
\newif\ifhv@switchType

\def\hv@Top{top}
\def\hv@Bottom{bottom}
\def\hv@After{after}
\def\hv@Before{before}
\def\hv@Right{right}
\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@LineWidth{l}
\def\hv@Width{w}
\def\hv@Height{h}
\def\hv@Zero{0}
%
\def\hv@figure{figure}
%
\define@key{hvSet}{floatPos}[tbp]{%    LaTeX's position parameters htbp
   \def\hvSet@floatPos{#1}%
}
\define@key{hvSet}{rotAngle}[0]{%      rotates caption AND image together
   \def\hvSet@rotAngle{#1}%
}
\define@key{hvSet}{capWidth}[n]{%      (l)inewidth|(n)atural width|object (w)idth)|object (h)eight|<scale
     of \columnwidth>
   \def\hvSet@capWidth{#1}%
}
\define@key{hvSet}{capAngle}[0]{%      -360..+360, only integers
   \def\hvSet@capAngle{#1}%
}

\define@choicekey*+{hvSet}{capPos}[\val\nr]{bottom,top,left,before,right,after,inner,outer,evenPage,
     oddPage}[bottom]{%
  \def\hvSet@capPos{#1}%         it is relativ to the object, (e),(d) only valid for fullpage float
  \ifcase\nr\relax
    \hv@capbesidefalse
```

```
  \or
    \hv@capbesidefalse
  \else
    \hv@capbesidetrue
  \fi
}{\PackageWarning{hvfloat}{erroneous input (#1) for capPos ignored. Using bottom.}%
  \def\hvSet@capPos{bottom}%        it is relativ to the object, (e),(d) only valid for fullpage float
  \hv@capbesidefalse
 }

\define@choicekey*+{hvSet}{capVPos}[\val\nr]{bottom,center,top}[center]{%
  \def\hvSet@capVPos{#1}%        it is relativ to the object
  \ifcase\nr\relax
    \def\hv@@capVPos{b}%
  \or
    \def\hv@@capVPos{c}%
  \else
    \def\hv@@capVPos{t}%
  \fi
}{\PackageWarning{hvfloat}{erroneous input (#1) for capVPos ignored. Using center.}%
  \def\hvSet@capVPos{center}%       it is relativ to the object
 }

\define@choicekey*+{hvSet}{capHPos}[\val\nr]{left,center,right}[center]{%
  \def\hvSet@capHPos{#1}%
  \ifcase\nr\relax
    \gdef\hv@@caoHPos{l}%
  \or
    \gdef\hv@@capHPos{c}%
  \else
    \gdef\hv@@capHPos{r}%
  \fi
}{\PackageWarning{hvfloat}{erroneous input (#1) for capHPos ignored. Using center.}%
  \def\hvSet@capHPos{center}%       it is relativ to the object
 }

\define@choicekey*+{hvSet}{objectPos}[\val\nr]{left,center,right,inner,outer}[center]{%
  \def\hvSet@objectPos{#1}%         it is relativ to the object
}{\PackageWarning{hvfloat}{erroneous input (#1) for objectPos ignored. Using center.}%
  \def\hvSet@capVPos{center}%       it is relativ to the object
 }
\define@key{hvSet}{objectAngle}[0]{%      -360..+360
   \def\hvSet@objectAngle{#1}%
}
\define@key{hvSet}{floatCapSep}[5pt]{%    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@]{useOBox}[true]{}%      use of the hvOBox contents
\define@boolkey{hvSet}[hv@]{nonFloat}[true]{}%     Do not use float environment
\define@boolkey{hvSet}[hv@]{inMargin}[true]{}%     use of the hvOBox contents
\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@]{forceLeft}[true]{}%    use only one \afterpage instead of \afterpage{\
     afterpage{..
\define@boolkey{hvSet}[hv@]{twoColumnCaption}[true]\global\@nameuse{hv@twoColumnCaption#1}{}%   Write the
     caption only as text
\define@boolkey{hvSet}[hv@]{sameHeight}[true]{\@nameuse{hv@sameHeight#1}}% Write the caption only as text
\define@boolkey{hvSet}[hv@]{Debug}[true]{}%     give more infos in the terminal

\newif\ifhv@fullpage
\newif\ifhv@FULLPAGE
\newif\ifhv@doubleFULLPAGE
\newif\ifhv@doublePAGE
\newif\ifhv@doublePage
```

```
\newif\ifhv@setObjectLabel
\newif\ifhv@global@sameHeight
\newif\ifhv@forceOutput


\newlength\hvSet@bindCorrection
\newlength\hvSet@sepLineskip
\newlength\hv@leftPageObjectWidth%  for doublepage images
\newlength\hv@tempWidthA
\newlength\hv@tempWidthB
\newlength\hv@minTextlines
\newlength\hv@floatCapSep
\newlength\hvSet@bindCorr

\define@key{hvSet}{fullpage}[true]{%
    \global\@nameuse{hv@fullpage#1}%
    \hv@doublePagefalse\hv@doublePAGEfalse\hv@doubleFULLPAGEfalse
    \hv@FULLPAGEfalse
    \hvfloat@typeout{>>>>Option fullpage}%
}
\define@key{hvSet}{FULLPAGE}[true]{%
    \global\@nameuse{hv@FULLPAGE#1}%
    \hv@doublePagefalse\hv@doublePAGEfalse\hv@doubleFULLPAGEfalse
    \hv@fullpagefalse
    \hvfloat@typeout{>>>>Option FULLPAGE}%
}
\define@key{hvSet}{doubleFULLPAGE}[true]{%
    \global\@nameuse{hv@doubleFULLPAGE#1}%
    \hv@doublePagefalse\hv@doublePAGEfalse
    \hv@fullpagefalse\hv@FULLPAGEfalse
    \hvfloat@typeout{>>>>Option doubleFULLPAGE->True / doublePAGE->False}%
}
\define@key{hvSet}{doublePAGE}[true]{%
    \global\@nameuse{hv@doublePAGE#1}%
    \hv@doublePagefalse\hv@doubleFULLPAGEfalse
    \hv@fullpagefalse\hv@FULLPAGEfalse
    \hvfloat@typeout{>>>>Option doublePAGE->True / doubleFULLPAGE->False}%
}
\define@key{hvSet}{doublePage}[true]{%
    \global\@nameuse{hv@doublePage#1}%
    \hv@doublePAGEfalse\hv@doubleFULLPAGEfalse
    \hv@fullpagefalse\hv@FULLPAGEfalse
    \hvfloat@typeout{>>>>Option doublepage->True / doubleFULLPAGE->False}%
}
\define@key{hvSet}{bindCorr}[0pt]{%
  \def\hv@temp{#1}%
  \ifx\hv@temp\hv@Inner
    \hvSet@bindCorr=\the\dimexpr1in+\oddsidemargin\relax
  \else
    \setlength\hvSet@bindCorr{#1}%
  \fi
}
%\setlength\hvSet@bindCorrection{#1}}%  for doublepage objects

\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@]{vFill}[true]{}%     \vfill between multifloat objects

\define@boolkey{hvSet}[hv@]{separatorLine}[true]{}%   separator line for caption of a full page float
\define@key{hvSet}{sepLineskip}{\def\hv@sepLineskip{#1}}%
\define@key{hvSet}{minTextlines}{\setlength\hv@minTextlines{#1\baselineskip}}%
\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
}
\define@key{hvSet}{capFormat}{\def\hv@caption@format{#1}}%
\define@key{hvSet}{subcapFormat}{\def\hv@subcaption@format{#1}}%
\define@boolkey{hvSet}[hv@]{forceOutput}[true]{%
  \ifhv@forceOutput\hv@nonFloattrue\fi}%  immediate output, no floating!

\def\hv@set#1{\begingroup\edef\x{\endgroup\noexpand\setkeys{hvSet}{#1}}\x}
\let\hvFloatSet\hv@set
%
\def\defhvstyle#1#2{\@namedef{hv@#1}{#2}}
\let\hvDefFloatStyle\defhvstyle  % better name
%
\newcommand\setDefaults{%
  \hv@set{%
   floatPos=, rotAngle=0, capWidth=n, capAngle=0, objectAngle=0,
   capPos=bottom, capVPos=center, objectPos=center, capHPos=center,
   floatCapSep=5pt, useOBox=false, forceLeft=false,
   onlyText=false, wide=false, fullpage=false, FULLPAGE=false,
   doubleFULLPAGE=false, doublePage=false, doublePAGE=false,
        multiFloat=false,subFloat=false,inMargin=false,
   separatorLine,objectFrame=false,multiFloatSkip=\normalbaselineskip,
   capFormat={}, subcapFormat={}, twoColumnCaption=false,
   sameHeight=false,
   bindCorr=\z@,sepLineskip=0pt,
   vFill=false, minTextlines=2,
   forceOutput=false, nonFloat=false,
}%
}

\let\hvFloatSetDefaults\setDefaults
\hvFloatSetDefaults%  onyl for first loading of the package


\providecommand\@tugclass{\@empty}
\ifx\@tugclass\@empty
\else
  \hv@tugboattrue  % special page handling
  \hvfloat@typeout{>>> we are using a TUGboat class}%
\fi

\newcommand\reset@special@float{%
  \hv@set{subFloat=false,%fullpage=false,
          multiFloat=false,%FULLPAGE=false
}}

\def\hv@vskip{\vspace{\hvMultiFloatSkip}}
%
\newlength\hvAboveCaptionSkip
\newlength\hvBelowCaptionSkip
\newlength\hv@dblfptop
\newlength\hv@fptop
\newcount\hv@@capPos

\newlength\fboxlinewidth
\AtBeginDocument{%
  \fboxlinewidth=\the\dimexpr\linewidth-2\fboxrule-2\fboxsep\relax
}

\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\hv@set@noverticalSpace{%   no space on top for a float page
  \let\hv@dblfptop\@dblfptop
  \let\hv@fptop\@fptop
  \global\@dblfptop=0\p@
  \global\@fptop=0\p@
}

\newcommand\hv@reset@noverticalSpace{%
  \global\@dblfptop=\hv@dblfptop
  \global\@fptop=\hv@fptop
}

\providecommand\figcaption[2][]{}%
\providecommand\tabcaption[2][]{}%
\providecommand\tabcaptionbelow[2][]{}%
%
\renewcommand\figcaption[2][]{%
  \begingroup
  \def\@captype{figure}%
  \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
  \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
  \endgroup}
\renewcommand\tabcaption[2][]{%
  \begingroup
  \def\@captype{table}%
  \expandafter\captionsetup\expandafter{\hv@caption@format,position=top}%
  \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
  \endgroup}
\renewcommand\tabcaptionbelow[2][]{%
  \begingroup
  \def\@captype{table}%
  \expandafter\captionsetup\expandafter{\hv@caption@format,position=below}
  \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
  \endgroup}

%
\newlength\hv@maxImageWidth
\AtBeginDocument{\setlength\hv@maxImageWidth{\columnwidth}}

\define@key{Gin}{columnWidth}[true]{%
  \def\Gin@ewidth{\columnwidth}%
%  \def\Gin@eheight{1ex}%
  \Gin@boolkey{true}{iso}%
}
\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}%
}
\define@key{Gin}{doubleFULLPAGE}[true]{%
```

```
  \def\Gin@ewidth{2\paperwidth}%
  \def\Gin@eheight{\paperheight}%
  \Gin@boolkey{false}{iso}%
}
\define@key{Gin}{doublefullPage}[true]{%
  \def\Gin@ewidth{\the\dimexpr2\paperwidth-2in-2\evensidemargin}%
%  \def\Gin@eheight{\paperheight}%
  \Gin@boolkey{true}{iso}%
}
\define@key{Gin}{doubleFULLPAGEbindCorr}[true]{%
  \def\Gin@ewidth{\the\dimexpr2\paperwidth-2\hvSet@bindCorrection\relax}%
  \def\Gin@eheight{\paperheight}%
  \Gin@boolkey{false}{iso}%
}

\newcommand\IncludeGraphics[2][]{%
  \vspace*{\the\dimexpr-1in-\voffset+\topskip-\headheight-0.5\baselineskip}%
  \leavevmode\checkoddpage
  \ifoddpage
    \hspace*{\dimexpr-\oddsidemargin-\parindent-1in}%
  \else
    \hspace*{\dimexpr-\evensidemargin-\parindent-1in}%
  \fi\noindent
  \includegraphics[#1,width=\paperwidth,height=\paperheight,keepaspectratio=false]{#2}%
}

\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
      % rotated object with a depth need to raise up the \depth
      \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\raisebox{\depth}{\usebox{\hvObjectBox}}\fi%
    \fi
  \fi
}
```

```
462
463 \def\drawSepLine{%
464   \par\noindent
465   \if@twocolumn
466     \ifhv@twoColumnCaption
467       \rule{\linewidth}{0.4pt}\\[-2.5ex]
468     \else
469       \rule{\columnwidth}{0.4pt}\\[-2.5ex]
470     \fi
471   \else
472     \rule{\linewidth}{0.4pt}\\[-2.5ex]
473   \fi
474   \vspace{\hv@sepLineskip}%
475 }
476
477 \newcounter{hv@tempCNTfigA}%
478 \newcounter{hv@tempCNTfigB}%
479 \newcounter{hv@tempCNTtabA}%
480 \newcounter{hv@tempCNTtabB}%
481 \newcounter{hv@pfigure}%
482 \newcounter{hv@ptable}%
483 \newcounter{subhv@pfigure}%
484 \newcounter{subhv@ptable}%
485 \newcount\hv@tempcnt
486
487 \newif\ifhv@star
488 \newif\if@hvsubstar
489 \setDefaults
490
491
492 %\newcommand*{\hvFloat}[5][]+{%
493 % [#1]: keyvalues
494 % #2: type  figure | table | ...
495 % #3: float contents
496 % [#4]: short caption
497 % #5: caption
498 % #6: label
499 %
500
501
502 \def\hvFloat{\@ifnextchar*%     Main macro
503   {\global\hv@startrue\hv@maxImageWidth=\textwidth\hvFloat@i}%
504   {\global\hv@starfalse\hv@maxImageWidth=\columnwidth\hvFloat@i*}%
505 }
506
507 \def\hvFloat@i*{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
508 \def\do@hvFloat[#1]{%
509   \begingroup
510   \hvWideWidth=\the\dimexpr\columnwidth+\marginparwidth+\marginparsep\relax%
511 %  \setlength\hvWideWidth{\dimexpr\textwidth+\marginparwidth+\marginparsep}%
512 %  \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
513   \hv@maxImageWidth=\textwidth
514   \reset@special@float
515   \global\setcounter{hv@pfigure}{\value{figure}}%
516   \global\setcounter{hv@ptable}{\value{table}}%
517   \setcounter{hv@tempCNTfigA}{\value{figure}}%
518   \setcounter{hv@tempCNTfigB}{\value{figure}}%
519   \setcounter{hv@tempCNTtabA}{\value{table}}%
520   \setcounter{hv@tempCNTtabB}{\value{table}}%
521   \gdef\hv@save@setting{#1}%  for later use after \endgroup inside figure/table env
522   \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
523   \ifx\hv@caption@format\@empty\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
524   \ifx\hv@subcaption@format\@empty\else
525       \expandafter
526       \captionsetup\expandafter[\expandafter s\expandafter u\expandafter b\expandafter]\expandafter
527                               {\hv@subcaption@format}%
528   \fi
```

```
  \gdef\hv@floatType{figure}%  presetting
  \@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


\newcount\hv@cnta
\newcount\hv@cntb

\def\hvFloat@ii[#1]#2#3{%     #1: key/value, #2: floattype, #3: object
  \hv@maxImageWidth=\textwidth
%  \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
  \gdef\hv@floatType{#2}%
  \ifx\relax#2\relax
    \setkeys{hvSet}{nonFloat,onlyText}%
    \xdef\hv@save@setting{\hv@save@setting,nonFloat,onlyText}%  for later use after \endgroup inside
         figure/table env
  \fi
%  \xdef\hv@floatListOfExt{\@nameuse{ext@\hv@floatType}}%
  \gdef\hv@floatObject{#3}%
  \@ifnextchar[{\do@@hvFloat}{\do@@hvFloat[]}%
}

```

```
\def\do@@hvFloat[#1]#2#3{%     #1: listof caption,  #2. long caption  #3: label
  \gdef\hv@shortCap{#1}%
  \gdef\hv@longCap{#2}%
  \gdef\hv@label{#3}%
  \ifhv@capbeside\def\@@temp{1}\else\def\@@temp{0}\fi
  \ifhv@sameHeight\global\hv@global@sameHeighttrue\else\global\hv@global@sameHeightfalse\fi
  \global\hvSet@bindCorrection=\hvSet@bindCorr%  for doublepage objects
  \global\hv@floatCapSep=\hvSet@floatCapSep%
%
  \ifhv@fullpage
    \hvfloat@typeout{>>>> do@@hvFloat: fullpage true}%
    \def\hvSet@CapWidth{n}%  relative value
    \do@@@@hvFloat%  fullpage with caption on other page
  \else
    \ifhv@FULLPAGE
      \hvfloat@typeout{>>>> do@@hvFloat: FULLPAGE true}%
      \def\hvSet@CapWidth{n}%  relative value
      \do@@@@hvFloat%  fullpage with caption on other page
    \else
      \ifhv@doubleFULLPAGE
        \hvfloat@typeout{>>>> do@@hvFloat: doubleFULLPAGE true}%
        \setlength\hvCapWidth{\textheight}%
        \expandafter\do@hvFloat@doubleFULLPAGE\@@temp%  fullpage with caption rotated or under on an odd
             page
      \else
        \ifhv@doublePAGE
          \hvfloat@typeout{>>>> do@@hvFloat: doublePAGE true}%
          \expandafter\do@hvFloat@doublePAGE\@@temp%  fullpage with caption rotated or under on an odd
               page
        \else
          \ifhv@doublePage
            \hvfloat@typeout{>>>> do@@hvFloat: doublePage true}%
            \expandafter\do@hvFloat@doublePage\@@temp%  fullpage with caption rotated or under on an odd
                 page
          \else
       \ifhv@inMargin
             \hvfloat@typeout{>>>> do@@hvFloat: inMargin true}%
             \do@@@hvFloatInMargin
            \else
              \hvfloat@typeout{>>>> do@@hvFloat: no special caption}%
              \do@@@hvFloat
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
}
%
\def\do@@@hvFloat{%  no special float page, caption and image on top of each other or side by side
  \def\@tempa{90}%
  \ifx\hvSet@rotAngle\@tempa
    \setlength\hvMaxCapWidth{\textheight}%
  \else
    \setlength\hvMaxCapWidth{\hvWideWidth}%
  \fi
%
% First we save the object in \hvObjectBox
%
  \ifnum\hvSet@objectAngle=0 % rotate the object?
    \ifhv@useOBox
      \let\hvObjectBox\hvOBox
    \else
      \savebox\hvObjectBox{\hv@floatObject}%
    \fi
  \else
    \savebox\hvObjectBox{%
```

```
      \rotatebox{\hvSet@objectAngle}{%
        \ifhv@useOBox\usebox{\hvOBox}\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@LineWidth%            captionwidth=objectheight
        \setlength\hvCapWidth{\linewidth}%
      \else
        \ifx\hvSet@capWidth\hv@Natural%          captionwidth=\linewidth-\objectwidth-separation
          \ifhv@capbeside
            \ifhv@wide
              \hvCapWidth=\the\dimexpr\hvWideWidth-\hvObjectWidth-\hv@floatCapSep\relax
            \else
              \ifhv@star
                \hvCapWidth=\the\dimexpr\textwidth-\hvObjectWidth-\hv@floatCapSep\relax
              \else
                \hvCapWidth=\the\dimexpr\linewidth-\hvObjectWidth-\hv@floatCapSep\relax
              \fi
            \fi
          \else
            \setlength\hvCapWidth{\columnwidth}%
          \fi
        \else
          \ifhv@capbeside
            \ifhv@wide
              \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
              \@tempdima=\the\dimexpr\hvWideWidth-\hvObjectWidth-\hv@floatCapSep\relax
            \else
              \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
              \@tempdima=\the\dimexpr\columnwidth-\hvObjectWidth-\hv@floatCapSep\relax
            \fi
            \ifdim\hvCapWidth>\@tempdima
              \hvCapWidth=\@tempdima
            \fi
          \else
            \ifhv@wide
              \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
            \else
              \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
  \saveCaptionSkip% we put this space ourselve
  \ifnum\hvSet@capAngle=0 % need rotation?
    \savebox\hvCaptionBox{%   NO rotation
      \minipage[b]{\hvCapWidth}%% minipage, to get hyphenation
%    \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
      \ifhv@nonFloat
     \ifhv@onlyText
       \hv@longCap
     \else
       \ifx\hv@floatType\hv@figure
         \ifx\relax\hv@shortCap\relax
           \figcaption{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
```

```
        \else
          \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
        \fi
      \else
        \ifx\relax\hv@shortCap\relax
          \tabcaption{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
        \else
          \tabcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
        \fi
      \fi
    \fi
  \else
    \ifhv@onlyText
      \hv@longCap
    \else
          \expandafter\ifx\hv@longCap\@empty \else
           \let\@captype\hv@floatType
           \ifx\hv@shortCap\@empty\caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}\fi
           \ifx\hv@label\@empty\else\label{\hv@label}\fi
         \fi
       \fi
  \fi
     \endminipage
   }%     end CaptionBox without rotation
 \else
   \savebox\hvCaptionBox{%   with Rotation
     \rotatebox{\hvSet@capAngle}{%
       \minipage[b]{\hvCapWidth}%% minipage, to get hyphenation
%    \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
    \ifhv@nonFloat
      \ifhv@onlyText
        \hv@longCap
           \else
        \ifx\hv@floatType\hv@figure
          \ifx\hv@shortCap\@empty \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
        \else
          \ifx\hv@shortCap\@empty \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
        \fi
      \fi
    \else
      \expandafter\ifx\hv@longCap\@empty \else
      \ifhv@onlyText
        \hv@longCap
           \else
             \let\@captype\hv@floatType
             \ifx\hv@shortCap\@empty \caption{\hv@longCap}\else\caption[\hv@shortCap]{\hv@longCap}%
             \fi
           \fi
         \fi
         \fi
         \ifx\hv@label\@empty\else\label{\hv@label}\fi
       \endminipage
     }%  rotatebox
   }%  \sbox
 \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}%
 \ifx\hvSet@floatPos\@empty      % use type default
 \else
   \@namedef{fps@\hv@floatType}{\hvSet@floatPos}%
 \fi
 \ifhv@nonFloat
   \noindent
```

```
    \begingroup%        Start the nonfloat part
  \else
    \ifhv@star
      \ifx\hvSet@floatPos\hv@floatBottom
        \@nameuse{\hv@floatType*}[b]%     Start the floating environment ****************************
      \else
        \@nameuse{\hv@floatType*}%
      \fi
    \else
      \begin{\hv@floatType}%     Start the floating environment
    \fi
  \fi
  \checkoddpage
  \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
    \ifoddpage\raggedleft\fi
  \fi
  \ifx\hvSet@objectPos\hv@Inner
    \ifoddpage\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
            \ifoddpageoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
          \else
            \ifx\hvSet@capPos\hv@Outer
              \ifoddpage\hv@@capPos=2\else\hv@@capPos=0\fi
%              \ifoddpageoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
              %    even page (left=0) | odd page (oneside) (right=2)
            \else
              \ifx\hvSet@capPos\hv@Before
                \hv@@capPos=0% same as cappos=left
              \else
                \ifx\hvSet@capPos\hv@After
                  \hv@@capPos=2% same as capPos=right
                \fi
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
%%%%
%\typeout{>>>>>>>>>Pos: \the\hv@@capPos}%
  \savebox{\@tempboxa}{%                    ***** @tempbox   start
```

```
    \expandafter%
    \ifcase\the\hv@@capPos % 0 is LEFT     START \ifcase
      \ifx\hvSet@capVPos\hv@Center
        \put@CaptionBox
        \hspace{\hv@floatCapSep}% capfloatsep
        \put@ObjectBox
      \else
        \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
          \put@CaptionBox[1]%
          \hspace{\hv@floatCapSep}% capfloatsep
          \put@ObjectBox[1]%
        \else% caption on bottom
          \put@CaptionBox[2]%
          \hspace{\hv@floatCapSep}% 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
      \ifx\hvSet@capHPos\hv@Left% horizontal justification
        \raggedright
      \else
        \ifx\hvSet@capHPos\hv@Center
          \centering
        \else
          \raggedleft
        \fi
      \fi
      \ifhv@fbox
    \fbox{\usebox{\hvCaptionBox}}\\[0.5\hvBelowCaptionSkip]%
    \fbox{\usebox{\hvObjectBox}}%
      \else
    \usebox{\hvCaptionBox}\\[0.5\hvBelowCaptionSkip]%
    \usebox{\hvObjectBox}%
      \fi
      \end{minipage}%
     \or%2 is right
      \ifx\hvSet@capVPos\hv@Center
        \put@ObjectBox
    \hspace{\hv@floatCapSep}%
    \put@CaptionBox
      \else
    \ifx\hvSet@capVPos\hv@Top
           \put@ObjectBox[1]%
           \hspace{\hv@floatCapSep}% capfloatsep
           \put@CaptionBox[1]%
    \else
           \put@ObjectBox[2]%   bottom
           \hspace{\hv@floatCapSep}% capfloatsep
           \put@CaptionBox[2]%
    \fi
      \fi
     \or%3 bottom
      \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
        \begin{minipage}{\wd\hvCaptionBox}%
      \else
        \begin{minipage}{\wd\hvObjectBox}%
      \fi
      \ifx\hvSet@capHPos\hv@Left% horizontal justification
        \raggedright
      \else
        \ifx\hvSet@capHPos\hv@Center
          \centering
```

```
        \else
          \raggedleft
        \fi
      \fi
      \ifhv@fbox
        \fbox{\usebox{\hvObjectBox}}\\[0.5\hvAboveCaptionSkip]%
          \fbox{\usebox{\hvCaptionBox}}%
        \else
          \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\\[0.5\
               hvAboveCaptionSkip]%
          \usebox{\hvCaptionBox}%
        \fi
      \end{minipage}%
    \fi%   \ifcase\the\hv@@capPos
  }% End savebox Object and caption            %%%%%%%%%%%%%%%%%  @tempboxa
%
% now we rotate the object and caption, if needed
%
  \ifhv@wide
    \ifoddpageoroneside
      \if@twocolumn
        \if@firstcolumn
          \noindent
          \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
        \fi
      \fi
    \else
      \ifoddpage
        \if@twocolumn
          \if@firstcolumn
            \noindent
            \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
          \fi
        \fi
      \else% evenpage
        \if@firstcolumn
          \noindent
          \hspace*{\dimexpr-\marginparwidth-\marginparsep}%   <- for wide and left page
        \fi
      \fi
    \fi
  \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
    \ifhv@star
      \@nameuse{end\hv@floatType*}% End the floating environment
    \else
      \end{\hv@floatType}% End the floating environment
    \fi
  \fi
  \endgroup% startet at main \hvFloat
}


\def\do@@@hvFloatInMargin{%  no special float page, caption and image on top of each other or side by side
  \def\@tempa{90}%
```

```
  \ifx\hvSet@rotAngle\@tempa \setlength\hvMaxCapWidth{\textheight}\else\setlength\hvMaxCapWidth{\
       marginparwidth}\fi
%
% First we save the object in \hvObjectBox
%
  \ifnum\hvSet@objectAngle=0 % rotate the object?
    \ifhv@useOBox\let\hvObjectBox\hvOBox\else\savebox\hvObjectBox{\hv@floatObject}\fi
  \else
    \savebox\hvObjectBox{\rotatebox{\hvSet@objectAngle}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\
         fi}}%
  \fi
  \setlength\hvObjectWidth{\wd\hvObjectBox}%
%
% Now we save the caption with its defined \hvCapWidth
%
  \renewcommand*{\raggedleftmarginnote}{}%
  \renewcommand*{\raggedrightmarginnote}{}%
  \marginnote{%
  \ifx\hvSet@capWidth\hv@Width \setlength\hvCapWidth{\hvObjectWidth}%
  \else
    \ifx\hvSet@capWidth\hv@Height \setlength\hvCapWidth{\ht\hvObjectBox}%
    \else
      \ifx\hvSet@capWidth\hv@LineWidth \setlength\hvCapWidth{\marginparwidth}%
      \else
        \ifx\hvSet@capWidth\hv@Natural%          captionwidth=\linewidth-\objectwidth-separation
          \ifhv@capbeside
             \hvCapWidth=\the\dimexpr\marginparwidth-\hvObjectWidth-\hv@floatCapSep\relax
          \else
            \setlength\hvCapWidth{\marginparwidth}%
          \fi
        \else
          \ifhv@capbeside
            \setlength\hvCapWidth{\hvSet@capWidth\marginparwidth}%
            \@tempdima=\the\dimexpr\marginparwidth-\hvObjectWidth-\hv@floatCapSep\relax
            \ifdim\hvCapWidth>\@tempdima \hvCapWidth=\@tempdima \fi
          \else
              \setlength\hvCapWidth{\hvSet@capWidth\marginwidth}%
          \fi
        \fi
      \fi
    \fi
  \fi
  \saveCaptionSkip% we put this space ourselve
  \ifnum\hvSet@capAngle=0 % need rotation?
    \savebox\hvCaptionBox{%   NO rotation
      \minipage[b]{\hvCapWidth}%% minipage, to get hyphenation
   \ifx\hv@floatType\hv@figure
     \ifx\relax\hv@shortCap\relax
       \figcaption{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
     \else
       \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
     \fi
   \else
     \ifx\relax\hv@shortCap\relax
       \tabcaption{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
     \else
       \tabcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\@empty\else\label{\hv@label}\fi}%
     \fi
        \fi
      \endminipage
    }%     end CaptionBox without rotation
  \else
    \savebox\hvCaptionBox{%   with Rotation
      \rotatebox{\hvSet@capAngle}{%
        \minipage[b]{\hvCapWidth}%% minipage, to get hyphenation
     \ifx\hv@floatType\hv@figure
       \ifx\hv@shortCap\@empty \figcaption{\hv@longCap}\else\figcaption[\hv@shortCap]{\hv@longCap}\fi
```

```
    \else
      \ifx\hv@shortCap\@empty \tabcaption{\hv@longCap}\else\tabcaption[\hv@shortCap]{\hv@longCap}\fi
    \fi
        \ifx\hv@label\@empty\else\label{\hv@label}\fi
       \endminipage
     }%  rotatebox
   }%  end \avesbox
  \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}%
  \ifx\hvSet@floatPos\@empty \else\@namedef{fps@\hv@floatType}{\hvSet@floatPos}\fi
  \noindent
  \begingroup%       Start the nonfloat part
  \checkoddpage
  \ifx\hvSet@objectPos\hv@Right \raggedleft\fi
  \ifx\hvSet@objectPos\hv@Center \hspace*{\fill}\fi
  \ifx\hvSet@objectPos\hv@Outer \ifoddpage\raggedleft\fi\fi
  \ifx\hvSet@objectPos\hv@Inner \ifoddpage\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 \ifoddpageoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
          \else
            \ifx\hvSet@capPos\hv@Outer \ifoddpage\hv@@capPos=2\else\hv@@capPos=0\fi
%              \ifoddpageoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
              %    even page (left=0) | odd page (oneside) (right=2)
            \else
              \ifx\hvSet@capPos\hv@Before \hv@@capPos=0% same as cappos=left
              \else
                \ifx\hvSet@capPos\hv@After \hv@@capPos=2% same as capPos=right
                \fi
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
%%%%
%\typeout{>>>>>>>>>Pos: \the\hv@@capPos}%
  \savebox{\@tempboxa}{%                      ***** @tempbox   start
    \expandafter\ifcase\the\hv@@capPos % 0 is LEFT     START \ifcase
      \ifx\hvSet@capVPos\hv@Center
        \put@CaptionBox
        \hspace{\hv@floatCapSep}% capfloatsep
        \put@ObjectBox
      \else
        \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
          \put@CaptionBox[1]%
          \hspace{\hv@floatCapSep}% capfloatsep
```

```
          \put@ObjectBox[1]%
        \else% caption on bottom
          \put@CaptionBox[2]%
          \hspace{\hv@floatCapSep}% 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
      \ifx\hvSet@capHPos\hv@Left% horizontal justification
        \raggedright
      \else
        \ifx\hvSet@capHPos\hv@Center \centering\else\raggedleft\fi
      \fi
      \ifhv@fbox
   \fbox{\usebox{\hvCaptionBox}}\\[0.5\hvBelowCaptionSkip]%
   \fbox{\usebox{\hvObjectBox}}%
      \else
   \usebox{\hvCaptionBox}\\[0.5\hvBelowCaptionSkip]%
   \usebox{\hvObjectBox}%
      \fi
      \end{minipage}%
    \or%2 is right
      \ifx\hvSet@capVPos\hv@Center
        \put@ObjectBox
   \hspace{\hv@floatCapSep}%
   \put@CaptionBox
      \else
   \ifx\hvSet@capVPos\hv@Top
          \put@ObjectBox[1]%
          \hspace{\hv@floatCapSep}% capfloatsep
          \put@CaptionBox[1]%
   \else
          \put@ObjectBox[2]%   bottom
          \hspace{\hv@floatCapSep}% capfloatsep
          \put@CaptionBox[2]%
   \fi
      \fi
    \or%3 bottom
      \ifdim\wd\hvCaptionBox>\wd\hvObjectBox\begin{minipage}{\wd\hvCaptionBox}\else\begin{minipage}{\wd\
           hvObjectBox}\fi
      \ifx\hvSet@capHPos\hv@Left% horizontal justification
        \raggedright
      \else
        \ifx\hvSet@capHPos\hv@Center \centering\else\raggedleft\fi
      \fi
      \ifhv@fbox
        \fbox{\usebox{\hvObjectBox}}\\[0.5\hvAboveCaptionSkip]%
          \fbox{\usebox{\hvCaptionBox}}%
        \else
          \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\\[0.5\
               hvAboveCaptionSkip]%
          \usebox{\hvCaptionBox}%
        \fi
      \end{minipage}%
    \fi%   \ifcase\the\hv@@capPos
  }% End savebox Object and caption            %%%%%%%%%%%%%%%%%  @tempboxa
%
% now we rotate the object and caption, if needed
%
  \ifx\hvSet@rotAngle\hv@Zero\usebox{\@tempboxa}\else\rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}\fi
  \ifx\hvSet@objectPos\hv@Center \hspace{\fill}\fi
  \endgroup%   End the nonfloat part
```

```
}%  end marginnote
\endgroup}%  end of \marginnote and \@@hvFloatInMargin

%
\newenvironment{hvFloatEnv}[1][\textwidth]
  {\minipage{#1}}
  {\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 images
  \hvfloat@typeout{>>>do@@@@hvFloat: special float page}%
  \ifx\hvSet@capPos\hv@After \global\hv@@capPos=1
  \else
    \ifx\hvSet@capPos\hv@Even  \global\hv@@capPos=2
    \else
      \ifx\hvSet@capPos\hv@Odd   \global\hv@@capPos=3
      \else
        \ifx\hvSet@capPos\hv@Inner   \global\hv@@capPos=4
        \else
          \ifx\hvSet@capPos\hv@Outer   \global\hv@@capPos=5
          \else
            \ifx\hvSet@capPos\hv@Right   \global\hv@@capPos=6% only for twocolumn mode
            \else
              \ifx\hvSet@capPos\hv@Left   \global\hv@@capPos=7% only for twocolumn mode
              \else
                \global\hv@@capPos=0
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
  \hvfloat@typeout{>>>do@@@@hvFloat: hv@capPos is \the\hv@@capPos}%
  \checkoddpage
  \hvfloat@typeout{>>>do@@@@hvFloat: set floattype}%
  \set@caption@object{\hv@floatType}%  set caption and object into a box
  \ifcase\hv@@capPos%   caption before object 0-> _always_ left
    \hvfloat@typeout{>>>do@@@@hvFloat: setBottomCaption and setPageObject (0)}%
    \setBottomCaption\setPageObject
  \or%                  caption after object 1-> _always_ right
    \hvfloat@typeout{>>>do@@@@hvFloat: setPageObject and setBottomCaption (1)}%
    \setPageObject\setBottomCaption
  \or%                  caption on even page 2-> left page
    \ifoddpage
      \hvfloat@typeout{>>>do@@@@hvFloat: afterpage-> oddpage/setBottomCaption and setPageObject (2)}%
      \afterpage{\setBottomCaption\setPageObject}%
    \else% we are on an even page
      \hvfloat@typeout{>>>do@@@@hvFloat: evenpage/setBottomCaption and setPageObject (2)}%
      \setBottomCaption\setPageObject
    \fi
  \or%                caption on odd page  3->right page
    \if@twoside
      \hvfloat@typeout{>>>do@@@@hvFloat: twoside and caption on oddpage (3)}%
      \if@twocolumn
        \hvfloat@typeout{>>>do@@@@hvFloat: twoside/twocolumn and caption on oddpage (3)}%
        \ifoddpage
          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/twocolumn/oddpage and caption on oddpage (3)}%
          \if@firstcolumn%  on right side
```

```
1257            \hvfloat@typeout{>>>do@@@@hvFloat: twoside/twocolumn/oddpage/firstcolumn and caption on
                     oddpage (3)}%
1258            \setBottomCaption\setPageObject
1259          \else
1260            \hvfloat@typeout{>>>do@@@@hvFloat: afterpage->twoside/twocolumn/oddpage/secondcolumn and
                     caption on oddpage (3)}%
1261            \afterpage{\setPageObject\setBottomCaption}% start next column
1262          \fi
1263        \else% left (even) page
1264          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/twocolumn/oddpage and caption on evenpage (3)}%
1265          \if@firstcolumn
1266            \hvfloat@typeout{>>>do@@@@hvFloat: afterpage->twoside/twocolumn/evenpage/firstcolumn and
                     caption on oddpage (3)}%
1267            \afterpage{\setPageObject\setBottomCaption}% start next column
1268          \else
1269            \hvfloat@typeout{>>>do@@@@hvFloat: twoside/twocolumn/evenage/secondcolumn and caption on
                     oddpage (3)}%
1270            \setPageObject\setBottomCaption
1271          \fi
1272        \fi
1273      \else% onecolumn
1274        \hvfloat@typeout{>>>do@@@@hvFloat: twoside/onecolumn and caption on oddpage (3)}%
1275        \ifoddpage
1276          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/onecolumn/oddpage and caption on oddpage (3)}%
1277          \setPageObject\setBottomCaption
1278        \else%  even page
1279          \hvfloat@typeout{>>>do@@@@hvFloat: afterpage->twoside/onecolumn/evenpage and caption on oddpage
                   (3)}%
1280          \afterpage{\setPageObject\setBottomCaption}%
1281        \fi
1282      \fi
1283    \else% oneside
1284      \hvfloat@typeout{>>>do@@@@hvFloat: oneside and caption on oddpage (3)}%
1285      \if@twocolumn
1286        \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn and caption on oddpage (3)}%
1287        \ifoddpage
1288          \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn/oddpage and caption on oddpage (3)}%
1289          \if@firstcolumn%  on right side
1290            \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn/oddpage/firstcolumn and caption on
                     oddpage (3)}%
1291            \setBottomCaption\setPageObject
1292          \else
1293            \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn/oddpage/secondcolumn and caption on
                     oddpage (3)}%
1294            \setPageObject\setBottomCaption
1295          \fi
1296        \else
1297          \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn/evenpage and caption on oddpage (3)}%
1298          \if@firstcolumn%  on left side
1299            \hvfloat@typeout{>>>do@@@@hvFloat: afterpage->oneside/twocolumn/evenpage/firstcolumn and
                     caption on oddpage (3)}%
1300            \afterpage{\setPageObject\setBottomCaption}%
1301          \else
1302            \hvfloat@typeout{>>>do@@@@hvFloat: oneside/twocolumn/evenpage/secondcolumn and caption on
                     oddpage (3)}%
1303            \setPageObject\setBottomCaption
1304          \fi
1305        \fi
1306      \else % onecolumn
1307        \hvfloat@typeout{>>>do@@@@hvFloat: oneside/onecolumn and caption on oddpage (3)}%
1308        \ifoddpage
1309          \hvfloat@typeout{>>>do@@@@hvFloat: oneside/onecolumn/oddpage and caption on oddpage (3)}%
1310          \setBottomCaption\setPageObject
1311        \else
1312          \hvfloat@typeout{>>>do@@@@hvFloat: afterpage->oneside/onecolumn/evenpage and caption on oddpage
                   (3)}%
1313          \afterpage{\setBottomCaption\setPageObject}%
```

```
        \fi
      \fi
    \fi
  \or%                caption on the inner column 4->inner
%    \set@caption@object
    \if@twocolumn
      \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn and caption on inner column (4)}%
      \ifoddpage
        \hvfloat@typeout{>>>do@@@@hvFloat: twoside/oddpage and caption on inner column (4)}%
        \if@firstcolumn%  on right side
          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/oddpage/firstcolumn and caption on inner column (4)}%
     \setBottomCaption\setPageObject
        \else          % right column on right side
          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/oddpage/secondcolumn and caption on inner column (4)}
               %
          \setPageObject\setBottomCaption%  start next firstcolumn next page
        \fi
      \else
        \hvfloat@typeout{>>>do@@@@hvFloat: twoside/evenpage and caption on inner column (4)}%
        \if@firstcolumn%  on left side
          \hvfloat@typeout{>>>do@@@@hvFloat: afterpage^2 -> twoside/evenpage/firstcolumn and caption on
               inner column (4)}%
          \afterpage{\afterpage{\setBottomCaption\setPageObject}}% start next page/first column
        \else% left page/column
          \hvfloat@typeout{>>>do@@@@hvFloat: twoside/evenpage/secondcolumn and caption on inner column (4)
               }%
          \setBottomCaption\setPageObject% start on same page/column
        \fi
      \fi
    \else% onecolumn
      \hvfloat@typeout{>>>do@@@@hvFloat: onecolumn and caption on inner column (4)}%
      \setBottomCaption\setPageObject
    \fi
  \or%                caption on the outer column  5->outer
%    \set@caption@object
    \if@twocolumn
      \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn and caption on outer column (5)}%
      \ifoddpage
        \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/oddpage and caption on outer column (5)}%
        \if@firstcolumn
          \hvfloat@typeout{>>>do@@@@hvFloat: afterpage^2 -> firstcolumn/oddpage/twocolumn and caption on
               outer column (5)}%
          \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
        \else
          \hvfloat@typeout{>>>do@@@@hvFloat: afterpage -> twocolumn/oddpage/secondcolumn and caption on
               outer column (5)}%
          \afterpage{\setBottomCaption\setPageObject}%
        \fi
      \else% even page (left)
        \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/evenpage and caption on outer column (5)}%
        \if@firstcolumn
          \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/evenpage/firstcolumn and caption on outer column
               (5)}%
          \setBottomCaption\setPageObject
        \else
          \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/evenpage/secondolumn and caption on outer column
               (5)}%
%%%          !!!!  to-do: !!!!
        \fi
      \fi
    \else% onecolumn
      \setBottomCaption\setPageObject
    \fi
  \or%                caption after object on same page 6->right for twocolumn
    \if@twocolumn
      \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn and caption after object (6)}%
      \if@firstcolumn
```

```
      \hvfloat@typeout{>>>do@@@@hvFloat: afterpage -> twocolumn/firstcolumn and caption after object (6)}%
      \afterpage{\setPageObject\setBottomCaption}%
    \else
      \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/secondcolumn and caption after object (6)}%
      \setPageObject\setBottomCaption
    \fi
  \else%  always caption _after_ object for onecolumn
    \hvfloat@typeout{>>>do@@@@hvFloat: onecolumn and caption after object (6)}%
    \setPageObject\setBottomCaption
  \fi
\or%              caption before object on same page 7->left for twocolumn
  \if@twocolumn
    \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn and caption before object (7)}%
    \if@firstcolumn
      \hvfloat@typeout{>>>do@@@@hvFloat: twocolumn/firstcolumn and caption before object (7)}%
      \setBottomCaption\setPageObject
    \else
      \hvfloat@typeout{>>>do@@@@hvFloat: afterpage -> twocolumn/secondcolumn and caption before object (7)}%
      \afterpage{\setBottomCaption\setPageObject}%
    \fi
  \else%       onecolumn -> same as before
    \hvfloat@typeout{>>>do@@@@hvFloat: onecolumn and caption before object (7)}%
    \setBottomCaption\setPageObject
  \fi
\fi
\endgroup% startet at main \hvFloat
}
%


%% ------------------------------------ the doublepage obejcts --------------------------
%% ||lin+evenside --- |lin+oddside ---||
%
\def\do@hvFloat@doublePage#1{%  image on left and right page with caption on the right page
  % #1-> 0/1 caption under/right
  \hvfloat@typeout{---------------------------- do@hvFloat@doublePage#1 -------------------------}%
  \hvfloat@typeout{>>>do@hvFloat@doublePage: begin with definitions of \hv@floatObject}%
  \global\hv@leftPageObjectWidth=\the\dimexpr\paperwidth-1in-\evensidemargin-\hvSet@bindCorrection\relax
  \global\hv@tempWidthA=\the\dimexpr1in+\oddsidemargin-\hvSet@bindCorrection\relax
  \xdef\hv@caption@format@temp{\hv@caption@format}%  it gets lost otherwise for next afterpage
  \@dblfpbot=0\p@ \@plus 1fil%
  \global\hv@switchTypefalse
  \setcounter{hv@tempCNTfigA}{\value{figure}}%
  \setcounter{hv@tempCNTfigB}{\value{figure}}%
  \setcounter{hv@tempCNTtabA}{\value{table}}%
  \setcounter{hv@tempCNTtabB}{\value{table}}%
  \savebox\hvCaptionBox{%   NO rotation
    \minipage{\textwidth}%% minipage, to get hyphenation
      \let\@captype\hv@floatType
      \caption*{\hv@longCap}%
    \endminipage}%
  \savebox\hvObjectBox{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
  \ifnum#1=0\relax    % no rotation, caption below
    \hvfloat@typeout{Texthöhe: \the\textheight}%
    \hvfloat@typeout{Objekthöhe: \the\ht\hvObjectBox}%
    \hvfloat@typeout{Captionhöhe: \the\ht\hvCaptionBox}%
    \@tempdima=\dimexpr\ht\hvObjectBox+\ht\hvCaptionBox+\abovecaptionskip+\belowcaptionskip +\textfloatsep
        \relax%+|floatsep|relax
    \hvfloat@typeout{Summe: \the\@tempdima}%
    \ifdim\@tempdima > \dimexpr\textheight-\hv@minTextlines\relax
      \hvfloat@typeout{hvfloat: switched to floattype p}%
      \hv@switchTypetrue
    \fi
  \fi
  \hvfloat@typeout{do@hvFloat@doublePage:hv@tempWidthA=\the\hv@tempWidthA}%
```

```
\ifhv@forceOutput
  \do@hvFloat@doublePAGECaptionRight{#1}%   no cheque
\else
\checkoddpage
\ifoddpage
  \hvfloat@typeout{do@hvFloat@doublePage:oddpage}%
  \if@twocolumn
    \hvfloat@typeout{do@hvFloat@doublePage: oddpage/twocolumn}%
    \if@firstcolumn
      \hvfloat@typeout{do@hvFloat@doublePage:oddpage->twocolumn->firstcolumn}%
      \ifhv@switchType
        \hvfloat@typeout{hvfloat: switched to floattype p}%
        \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
      \else
        \hvfloat@typeout{calling do@hvFloat@doublePageCaptionRight}%
        %\afterpage{
        \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%}%
      \fi
    \else
      \hvfloat@typeout{do@hvFloat@doublePage:oddpage->twocolumn->secondcolumn}%
      \ifhv@tugboat
        \do@hvFloat@doublePageCaptionRight{#1}%
      \else
        \ifhv@switchType
          \do@hvFloat@doublePAGECaptionRight{#1}%
        \else
          \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%
        \fi
      \fi
    \fi
  \else% onecolumn
    \hvfloat@typeout{do@hvFloat@doublePage: oddpage/onecolumn}%
    \ifhv@switchType
      \hvfloat@typeout{do@hvFloat@doublePage: oddpage/onecolumn/switchType}%
      \do@hvFloat@doublePAGECaptionRight{#1}%
    \else
      \hvfloat@typeout{do@hvFloat@doublePage: call do@hvFloat@doublePageCaptionRight #1}%
      \ifhv@forceLeft
        \do@hvFloat@doublePageCaptionRight{#1}%   no \afterpage
      \else
        \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%
      \fi
    \fi
  \fi
\else% we have an even page
  \hvfloat@typeout{do@hvFloat@doublePage:evenpage -> (\thepage)}%
  \if@twocolumn
    \if@firstcolumn
      \ifhv@switchType
        \afterpage{\afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}%
      \else
        \afterpage{\afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}}%
      \fi
    \else% second column
      \ifhv@switchType
        \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
      \else
        \afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}%
      \fi
    \fi
  \else% onecolumn
    \hvfloat@typeout{do@hvFloat@doublePage:evenpage/onecolumn -> (\thepage)}%
    \ifhv@switchType
      \hvfloat@typeout{do@hvFloat@doublePage:evenpage/onecolumn/switchType -> (\thepage)}%
      \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
    \else
      \hvfloat@typeout{do@hvFloat@doublePage:evenpage/onecolumn/noSwitchType -> (\thepage)}%
```

```
      \ifhv@forceLeft
        \hvfloat@typeout{do@hvFloat@doublePage:evenpage/onecolumn/noSwitchType/forceLeft -> (\thepage)}%
        \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%
      \else
        \afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}%
      \fi
    \fi
  \fi
  \let\@fptop\hv@fptop
  \fi
 \endgroup% started at main macro \hvFloat
 \hvfloat@typeout{---------------------------- do@hvFloat@doublePage#1 ... Ende ----------------------}%
}
%
\def\do@hvFloat@doublePageCaptionRight#1{%  image on left and right page with caption on the right page
     ---------------------------------
  \hvfloat@typeout{do@hvFloat@doublePageCaptionRight->start}%
  \do@hvFloat@doublePageCaptionRightObjectLeft{0pt}%
  \afterpage{\do@hvFloat@doublePageCaptionRightObjectRight{#1}}%
}
%
\def\do@hvFloat@doublePageCaptionRightObjectLeft#1{% left part of the object
  \begin{\hv@floatType}[!t]
    \hvfloat@typeout{>>>doublePage: begin with left side of the object \hv@floatObject}%
    \hv@set@noverticalSpace
    \hfuzz=\maxdimen
    \let\c@hv@tempCNTfigA\c@figure
    \let\c@hv@tempCNTtabA\c@table
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \hvfloat@typeout{Float position parameter is for left page: !t}%
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
    \ifx\hv@label\@empty
    \else
      \ifx\hv@floatType\hv@figure
        \global\refstepcounter{hv@tempCNTfigA}%
      \else
        \global\refstepcounter{hv@tempCNTtabA}%   before caption
      \fi
      \label{\hv@label}%
    \fi
    \ifhv@global@sameHeight
      \hvfloat@typeout{text should be of same height of both pages}%
      \par\noindent\phantom{\parbox{\textwidth}{\caption*{\hv@longCap}}}%
%      \vspace{-2pt}%
    \fi
    \hv@reset@noverticalSpace
    \hvfloat@typeout{>>>doublePage: end with left side of the object \hv@floatObject}%
  \end{\hv@floatType}%
}

\def\do@hvFloat@doublePageCaptionRightObjectRight#1{% right part of the object
  \begin{\hv@floatType*}[!t]
    \hvfloat@typeout{>>>doublePage: begin with right side of the object \hv@floatObject}%
    \hv@set@noverticalSpace
    \hfuzz=\maxdimen
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \savebox\hvObjectBox{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \hv@tempWidthA=\the\dimexpr1in+\oddsidemargin-\hvSet@bindCorrection\relax%   FÜR DTK
    \hspace*{-\hv@tempWidthA}%
    \hv@leftPageObjectWidth=\the\dimexpr\paperwidth-1in-\evensidemargin-\hvSet@bindCorrection\relax%  FÜR
         FTK
    \savebox\hv@rightBox{\clipbox*{\hv@leftPageObjectWidth{} -\depth{} \width{} \height{}}{\usebox\
         hvObjectBox}}%
    \hv@tempWidthB=\dimexpr\textwidth-\wd\hv@rightBox-\hvSet@bindCorrection+1in+\oddsidemargin-\
         hv@floatCapSep\relax
```

```
    \hvfloat@typeout{Height of right box: \the\ht\hv@rightBox}%
    \hvfloat@typeout{Depth of right box : \the\dp\hv@rightBox}%
       \ifdim\dp\hv@rightBox > \z@
           \raisebox{\depth}{\usebox\hv@rightBox}%
       \else
         \usebox\hv@rightBox
       \fi
       \c@hv@tempCNTfigB=\numexpr\c@figure-1\relax
       \c@hv@tempCNTtabB=\numexpr\c@table-1\relax
       \ifx\hv@label\@empty\else
         \ifx\hv@floatType\hv@figure
           \refstepcounter{hv@tempCNTfigB}%
         \else
           \refstepcounter{hv@tempCNTtabB}%   before caption
         \fi
         \label{\hv@label-2}%
       \fi
       \ifx\hv@caption@format@temp\@empty\else
         \expandafter\captionsetup\expandafter{\hv@caption@format@temp}%
       \fi
       \c@figure=\numexpr\c@hv@tempCNTfigB-1\relax
       \c@table=\numexpr\c@hv@tempCNTtabB-1\relax
       \ifnum#1>\z@     % caption on the right
         \hvfloat@typeout{doublePage: capAngle=\hvSet@capAngle}%
         \ifnum\hvSet@capAngle > \z@
           \hspace{\hv@floatCapSep}%
           \rlap{\rotatebox{\hvSet@capAngle}{\parbox[b]{\the\dimexpr\ht\hvObjectBox+\dp\hvObjectBox}{%
             \abovecaptionskip=0pt% local inside parbox
             \belowcaptionskip=0pt% local inside parbox
             \ifx\relax\hv@shortCap\relax
               \caption{\hv@longCap}%
             \else
               \caption[\hv@shortCap]{\hv@longCap}%
             \fi
           }}}%
           \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
         \else
           \hv@tempWidthB=\dimexpr\textwidth-\wd\hv@rightBox-\hvSet@bindCorrection+1in+\oddsidemargin-\
                hv@floatCapSep\relax
           \hspace{\hv@floatCapSep}%
           \rlap{\parbox[b][\dimexpr\ht\hv@rightBox+\dp\hv@rightBox][\hv@@capVPos]{\hv@tempWidthB}{%
             \abovecaptionskip=0pt % local inside parbox
             \belowcaptionskip=0pt % local inside parbox
             \ifx\hv@shortCap\@empty
               \caption{\hv@longCap}%
             \else
               \caption[\hv@shortCap]{\hv@longCap}%
             \fi
           }}%
           \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
         \fi
       \else % #1 = 0 caption below
         \ifx\relax\hv@shortCap\relax
           \caption{\hv@longCap}%
         \else
           \caption[\hv@shortCap]{\hv@longCap}%
         \fi
         \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
       \fi
    \vspace{0pt}%
    \hv@reset@noverticalSpace
    \hvfloat@typeout{>>>doublePage: end with right side of the object \hv@floatObject}%
  \end{\hv@floatType*}
}
%
\newsavebox\hv@boxLeftPage
\newsavebox\hv@boxRightPage
```

```
%
%% ||1in+evenside --- |1in+oddside ---||
%

\def\do@hvFloat@doublePAGE#1{%  image on left and right page with caption on the right
     ---------------------------------
  % #1-> 0/1 caption under/right
%  \global\setlength\hv@tempWidthA{\the\dimexpr1in+\oddsidemargin-\hvSet@bindCorrection}%
%  \global\setlength\hv@leftPageObjectWidth{\the\dimexpr\paperwidth-1in-\evensidemargin-\
     hvSet@bindCorrection}%
  \expandafter\global\expandafter\savebox\expandafter\hvObjectBox\expandafter{\ifhv@useOBox\usebox{\hvOBox
       }\else\hv@floatObject\fi}%
  \expandafter\global\expandafter\savebox\expandafter\hv@boxLeftPage\expandafter{\clipbox*{0 -\depth{} \
       hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}}%
  \expandafter\global\expandafter\savebox\expandafter\hv@boxRightPage\expandafter{\clipbox*{\
       hv@leftPageObjectWidth{} -\depth{} \width{} \height}{\usebox\hvObjectBox}}%
  \checkoddpage
  \ifoddpage
    \hvfloat@typeout{do@hvFloat@doublePAGE: oddpage}%
    \if@twocolumn
      \if@firstcolumn
        \hvfloat@typeout{do@hvFloat@doublePAGE: ifoddpage->twocolumn->firstcolumn}%
        \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
      \else
        \hvfloat@typeout{do@hvFloat@doublePAGE: ifoddpage->twocolumn->secondcolumn}%
        \do@hvFloat@doublePAGECaptionRight{#1}%
      \fi
    \else
      \do@hvFloat@doublePAGECaptionRight{#1}%
    \fi
  \else
    \hvfloat@typeout{do@hvFloat@doublePAGE: evenpage}%
    \if@twocolumn
      \if@firstcolumn
        \afterpage{\afterpage{\afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}}%
      \else
        \afterpage{\afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}%
      \fi
    \else
      \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%   onecolumn/left page
    \fi
  \fi
  \endgroup% startet at main macro
}
%
\def\do@hvFloat@doublePAGECaptionRight#1{%  image on left and right page with caption on the right
     ---------------------------------
  % #1-> 0/1 caption under/right
    \hvfloat@typeout{do@hvFloat@doublePAGECaptionRight->start}%
    \afterpage{%
      \hfuzz=\maxdimen
      \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
      \ifhv@useOBox
        \global\let\hvObjectBox\hvOBox
      \else
        \global\savebox\hvObjectBox{\hv@floatObject}%
      \fi
      \noindent
      \global\hv@tempWidthA=\the\dimexpr1in+\oddsidemargin-\hvSet@bindCorrection%
      \global\hv@leftPageObjectWidth=\the\dimexpr\paperwidth-1in-\evensidemargin-\hvSet@bindCorrection%
      \clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
      \null\newpage\if@twocolumn\null\newpage\fi
      \expandafter\global\expandafter\savebox\expandafter\hvObjectBox\expandafter{\ifhv@useOBox\usebox{\
           hvOBox}\else\hv@floatObject\fi}%
      \noindent
      \hspace*{\dimexpr-\hv@tempWidthA}%
      \clipbox*{\the\hv@leftPageObjectWidth{} -\depth{} \width{} \height{}}{\usebox\hvObjectBox}%
```

```
      \begingroup
          \ifnum#1>0
            \medskip
            \ifdim\dp\hvObjectBox > \z@
              \rotatebox[origin=c]{90}{\parbox{\the\dimexpr\ht\hvObjectBox+\dp\hvObjectBox}{%
                \ifx\relax\hv@shortCap\relax
                  \captionof{\hv@floatType}{\hv@longCap}%
                \else
                  \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
                \fi
              }}%
              \ifx\hv@label\@empty\else\label{\hv@label}\fi
            \else
              \rotatebox{90}{\parbox{\the\dimexpr\ht\hvObjectBox+\dp\hvObjectBox}{%
                \ifx\relax\hv@shortCap\relax
                  \captionof{\hv@floatType}{\hv@longCap}%
                \else
                  \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
                \fi
              }}%
              \ifx\hv@label\@empty\else\label{\hv@label}\fi
            \fi
        \else% caption not rotated
          \par\noindent
          \parbox{\textwidth}{%
              \ifx\relax\hv@shortCap\relax
                \captionof{\hv@floatType}{\hv@longCap}%
              \else
                \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
              \fi
              \ifx\hv@label\@empty\else\label{\hv@label}\fi
            }%
        \fi
        \endgroup
        \newpage\if@twocolumn\null\newpage\fi
  }%
}
%
%% ||1in+evenside --- |1in+oddside ---||
%
\def\do@hvFloat@doubleFULLPAGE#1{%  image on left and right page with caption before/below/right/after
  % #1-> 0/1 caption under/right
  \hvfloat@typeout{>>> do@hvFloat@doubleFULLPAGE: #1}%
  \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
  \ifx\hvSet@capPos\hv@After \global\hv@@capPos=1
  \else
    \ifx\hvSet@capPos\hv@Before  \global\hv@@capPos=0
    \else
      \global\hv@@capPos=2 % other caption type
  \fi\fi
  \checkoddpage
  \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
  \global\hv@tempWidthA=\dimexpr-\oddsidemargin-1in-\parindent+\hvSet@bindCorrection%  the width of the
       right side offset
  \global\hv@tempWidthB=\dimexpr\ht\hvCaptionBox+\wd\hvObjectBox+2\hvSet@bindCorrection%
  \global\hv@leftPageObjectWidth=\dimexpr\paperwidth-\hvSet@bindCorrection%
%  \savebox\hv@leftBox{\clipbox*{0 0 \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}}%
%  \savebox\hv@rightBox{\clipbox*{\the\hv@leftPageObjectWidth{} \depth{} \width{} \height}{\usebox\
      hvObjectBox}}%
%  \expandafter\captionsetup\expandafter{\hv@caption@format}%
  \ifoddpage
    \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage}%
    \ifcase\hv@@capPos % =0 Caption before
      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption before (0)}%
      \if@twocolumn
        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption before/twocolumn}%
        \if@firstcolumn
```

```
1759          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption before/twocolumn/firstcolumn}%
1760          \ifhv@twoColumnCaption
1761            \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> oddpage/caption before/twocolumn/
                    firstcolumn/twoColumnCaption}%
1762            \set@Normal@Bottom@Caption*
1763            \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionBefore}%
1764          \else
1765            \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> oddpage/caption before/twocolumn/
                    firstcolumn/oneColCaption}%
1766            \afterpage{\set@Normal@Bottom@Caption\do@hvFloat@doubleFULLPAGE@CaptionBefore}%
1767          \fi
1768        \else
1769          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption before/twocolumn/secondcolumn}%
1770          \set@Normal@Bottom@Caption
1771          \do@hvFloat@doubleFULLPAGE@CaptionBefore
1772        \fi
1773      \else
1774        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption before/onecolumn}%
1775        \set@Normal@Bottom@Caption
1776        \do@hvFloat@doubleFULLPAGE@CaptionBefore
1777      \fi
1778    \or  % =1 Caption after
1779      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after (1)}%
1780      \ifhv@twoColumnCaption
1781        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/twoColCaption (1)}%
1782        \if@firstcolumn
1783          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/firstcolumn (1)}%
1784          \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol}%
1785        \else
1786          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/secondcolumn (1)}%
1787          \do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol
1788        \fi
1789      \else
1790        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/oneColCaption (1)}%
1791        \if@twocolumn
1792          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/twoColCaption/twocolumn (1)}%
1793          \if@firstcolumn
1794            \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> oddpage/caption after/twoColCaption/
                    twocolumn/firstcolumn (1)}%
1795            \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
1796          \else
1797            \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/twoColCaption/twocolumn/
                    secondcolumn (1)}%
1798            \do@hvFloat@doubleFULLPAGE@CaptionAfter
1799          \fi
1800        \else
1801          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: oddpage/caption after/twoColCaption/onecolumn (1)}%
1802          \do@hvFloat@doubleFULLPAGE@CaptionAfter
1803        \fi
1804      \fi
1805    \else% \ifcase >1 all other Captions
1806      \if@twocolumn
1807        \if@firstcolumn
1808          \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}%
1809        \else
1810          \do@hvFloat@doubleFULLPAGE@CaptionOther{#1}%
1811        \fi
1812      \else % \if@twocolumn
1813        \do@hvFloat@doubleFULLPAGE@CaptionOther{#1}%
1814      \fi
1815    \fi%  \ifcase
1816  \else% we have an even page
1817    \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage (1 -- \thepage)}%
1818    \ifcase\hv@@capPos%   Before
1819      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption before (0 -- \thepage)}%
1820      \if@twocolumn
1821        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption before/twocolumn (0 -- \thepage)}%
```

```
      \if@firstcolumn
        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption before/twocolumn/firstcolumn (0 -- \thepage)}%
        \ifhv@twoColumnCaption
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage^2->evenpage/caption before/twocolumn/firstcolumn/twocolCap (0 -- \thepage)}%
          \afterpage{\afterpage\set@Normal@Bottom@Caption*\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}%
        \else
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage^2 -> evenpage/caption before/twocolumn/firstcolumn/oneColCap (0 -- \thepage)}%
          \afterpage{\afterpage{\afterpage{\set@Normal@Bottom@Caption\do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}}%
        \fi
      \else
        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage^2->evenpage/caption before/twocolumn/secondcolumn (0 -- \thepage)}%
        \afterpage{\afterpage{\set@Normal@Bottom@Caption\do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}%
      \fi
    \else
      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> evenpage/caption before/onecolumn (0 -- \thepage)}%
      \afterpage{\set@Normal@Bottom@Caption\do@hvFloat@doubleFULLPAGE@CaptionBefore}%
    \fi
  \or % capPos after
    \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption after (1 -- \thepage)}%
    \if@twocolumn
      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption after/twocolumn (1 -- \thepage)}%
      \if@firstcolumn
        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption after/twocolumn/firstcolumn (1 -- \thepage)}%
        \ifhv@twoColumnCaption
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> evenpage/caption after/twocolumn/firstcolumn/twoColCaption (1 -- \thepage)}%
          \afterpage{\afterpage\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{#1}}}%
        \else
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> evenpage/caption after/twocolumn/firstcolumn/oneColCaption (1 -- \thepage)}%
          \afterpage{\afterpage\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter{#1}}}%
        \fi
      \else
        \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: evenpage/caption after/twocolumn/secondcolumn (1 -- \thepage)}%
        \ifhv@twoColumnCaption
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage1 2 -> evenpage/caption after/twocolumn/secondcolumn/twoColCaption (1 -- \thepage)}%
          \afterpage{\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{#1}}}%
        \else
          \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage1 2 -> evenpage/caption after/twocolumn/secondcolumn/oneColCaption (1 -- \thepage)}%
          \afterpage{\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter{#1}}}%
        \fi
      \fi
    \else
      \hvfloat@typeout{do@hvFloat@doubleFULLPAGE: afterpage -> evenpage/caption after/onecolumn (1 -- \thepage)}%
      \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
    \fi
  \else % \ifcase Any other caption
    \if@twocolumn
      \if@firstcolumn
        \afterpage{\afterpage{\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}}}%
      \else
        \afterpage{\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}}%
      \fi
    \else
      \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}%
```

```
      \fi
    \fi% \ifcase
  \fi% main ifoddpage
  \endgroup% started at main macro \hvFloat
}

\def\set@Normal@Bottom@Caption{\@ifnextchar*\set@Normal@Bottom@CaptionStar\set@Normal@Bottom@Caption@}
\def\set@Normal@Bottom@Caption@{%
    \begin{\hv@floatType}[!b]
      \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
      \ifhv@separatorLine\drawSepLine\fi
%      \expandafter\captionsetup\expandafter{\hv@caption@format}%
      \ifhv@onlyText
        \hv@longCap
      \else
        \ifx\hv@shortCap\@empty
          \captionof{\hv@floatType}{\hv@longCap}%
        \else
          \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
        \fi
      \fi
      \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
    \end{\hv@floatType}%
}
\def\set@Normal@Bottom@CaptionStar*{%
    \begin{\hv@floatType*}[!b]
      \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
      \ifhv@separatorLine\drawSepLine\fi
%      \expandafter\captionsetup\expandafter{\hv@caption@format}%
      \ifhv@onlyText
        \hv@longCap
      \else
        \ifx\hv@shortCap\@empty
          \captionof{\hv@floatType}{\hv@longCap}%
        \else
          \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
        \fi
      \fi
      \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
    \end{\hv@floatType*}%
}

\def\do@hvFloat@doubleFULLPAGE@CaptionBefore{%
  \afterpage{%
    \hfuzz=\maxdimen
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\lineskip
         }%  no interlineskip
    \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%
    \thispagestyle{empty}%
    \ifx\hv@floatType\hv@figure
      \global\refstepcounter{hv@tempCNTfigB}%
    \else
      \global\refstepcounter{hv@tempCNTtabB}%   before caption
    \fi
    \expandafter\label\expandafter{\hv@label}%
    \clipbox*{0 0 \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
    \afterpage{%
      \if@twocolumn\newpage\null\newpage\fi
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \thispagestyle{empty}%
      \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\
           lineskip}%    -0.5\paperheight+0.5\ht\hvObjectBox
      \hspace*{\hv@tempWidthA}%
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \clipbox*{\the\hv@leftPageObjectWidth{} \dp\hvObjectBox{} \wd\hvObjectBox{} \ht\hvObjectBox}{\usebox
           \hvObjectBox}%
```

```
      \ifx\hv@floatType\hv@figure
        \global\refstepcounter{hv@tempCNTfigA}%
      \else
        \global\refstepcounter{hv@tempCNTtabA}%   before caption
      \fi
      \expandafter\label\expandafter{\hv@label-2}%
      \newpage\if@twocolumn\null\newpage\fi
  }}%
}

\newif\ifhv@temp

\def\do@hvFloat@doubleFULLPAGE@CaptionAfter{%
  \afterpage{%
    \hfuzz=\maxdimen
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\lineskip
        }%  no interlineskip
    \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%
    \thispagestyle{empty}%
    \clipbox*{0 \the\dp\hvObjectBox{} \the\hv@leftPageObjectWidth{} \the\ht\hvObjectBox}{\usebox\
        hvObjectBox}%
    \ifx\hv@floatType\hv@figure
      \refstepcounter{hv@tempCNTfigA}%
    \else
      \refstepcounter{hv@tempCNTtabA}%   before caption
    \fi
    \ifx\hv@label\@empty\else\label{\hv@label}\fi
      \newpage\if@twocolumn\null\newpage\fi
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \thispagestyle{empty}%
      \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\
          lineskip}%    -0.5\paperheight+0.5\ht\hvObjectBox
      \hspace*{\hv@tempWidthA}%
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \clipbox*{\the\hv@leftPageObjectWidth{} \dp\hvObjectBox{} \wd\hvObjectBox{} \ht\hvObjectBox}{\usebox
          \hvObjectBox}%
      \ifx\hv@floatType\hv@figure
        \refstepcounter{hv@tempCNTfigB}%
      \else
        \refstepcounter{hv@tempCNTtabB}%   before caption
      \fi
      \expandafter\label\expandafter{\hv@label-2}%
      \newpage\if@twocolumn\null\newpage\fi
      \begin{\hv@floatType}[!b]
        \ifhv@separatorLine\drawSepLine\fi
%        \expandafter\captionsetup\expandafter{\hv@caption@format}%
        \ifhv@onlyText
          \hv@longCap
        \else
          \ifx\hv@shortCap\@empty
            \captionof{\hv@floatType}{\hv@longCap}%
          \else
            \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
          \fi
        \fi
        \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
      \end{\hv@floatType}%
  }%
}

\def\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{%
  \hvfloat@typeout{do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol: start}  %
  \afterpage{%
    \hvfloat@typeout{do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol: afterpage start}  %
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\lineskip
```

```
        }%  no interlineskip
    \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%
    \thispagestyle{empty}%
    \ifx\hv@floatType\hv@figure
      \refstepcounter{hv@tempCNTfigA}%
    \else
      \refstepcounter{hv@tempCNTtabA}%   before caption
    \fi
    \ifx\hv@label\@empty\else\label{\hv@label}\fi
    \clipbox*{0 0 \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
    \newpage\if@twocolumn\null\newpage\fi
    \hvfloat@typeout{do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol: insert newpage}  %
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \thispagestyle{empty}%
      \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\
          lineskip}%    -0.5\paperheight+0.5\ht\hvObjectBox
      \hspace*{\hv@tempWidthA}%
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \clipbox*{\the\hv@leftPageObjectWidth{} \dp\hvObjectBox{} \wd\hvObjectBox{} \ht\hvObjectBox}{\usebox
          \hvObjectBox}%
      \ifx\hv@floatType\hv@figure
        \refstepcounter{hv@tempCNTfigB}%
      \else
        \refstepcounter{hv@tempCNTtabB}%   before caption
      \fi
      \ifx\hv@label\@empty\else\label{\hv@label-2}\fi
      \newpage\if@twocolumn\null\newpage\fi
      \begin{\hv@floatType*}[!b]
        \hv@twoColumnCaptiontrue
        \ifhv@separatorLine\drawSepLine\fi
%        \expandafter\captionsetup\expandafter{\hv@caption@format}%
        \ifhv@onlyText
          \hv@longCap
        \else
          \ifx\hv@shortCap\@empty
            \captionof{\hv@floatType}{\hv@longCap}%
          \else
            \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
          \fi
        \fi
        \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
      \end{\hv@floatType*}%
  }%
  \hvfloat@typeout{do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol: afterpage done}  %
}

\def\do@hvFloat@doubleFULLPAGE@CaptionOther#1{%
  \afterpage{%
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\lineskip
        }%    -0.5\paperheight+0.5\ht\hvObjectBox
    \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \thispagestyle{empty}%
    \hfuzz=\maxdimen
    \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
    \clipbox*{0 \depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
    \ifx\hv@floatType\hv@figure
      \refstepcounter{hv@tempCNTfigA}%
    \else
      \refstepcounter{hv@tempCNTtabA}%   before caption
    \fi
    \label{\hv@label}%
    \afterpage{%
      \if@twocolumn\newpage\if@firstcolumn\else\null\newpage\fi\fi
      \global\savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}%
      \thispagestyle{empty}%
      \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep-\baselineskip-\parskip+1.5\
```

```
          lineskip}%    -0.5\paperheight+0.5\ht\hvObjectBox
      \hspace*{\hv@tempWidthA}%
      \clipbox*{\hv@leftPageObjectWidth{} \dp\hvObjectBox{} \wd\hvObjectBox{} \ht\hvObjectBox}{\usebox\
          hvObjectBox}%
      \ifx\hv@floatType\hv@figure
        \refstepcounter{hv@tempCNTfigB}%
      \else
        \refstepcounter{hv@tempCNTtabB}%   before caption
      \fi
      \expandafter\label\expandafter{\hv@label-2}%
      \savebox\hvCaptionBox{\parbox{0.9\ht\hvObjectBox}{\captionof*{\hv@floatType}{\hv@longCap}}}%
      \ifnum#1 > 0\relax    % rotation with 90°
%       \setlength\hv@tempWidthB{\dimexpr\ht\hvCaptionBox+\wd\hvObjectBox+2\hvSet@bindCorrection}%
        \ifdim\hv@tempWidthB < 2\paperwidth
          \rotatebox[origin=lb]{90}{\makebox[\paperheight][c]{\parbox{0.8\ht\hvObjectBox}{%
%           \expandafter\captionsetup\expandafter{\hv@caption@format}%
            \ifhv@onlyText
              \hv@longCap
            \else
              \ifx\hv@shortCap\@empty
                \captionof{\hv@floatType}{\hv@longCap}%
              \else
                \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
              \fi
            \fi
          }}}% rotatebox
          \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
        \else% ifdim: no space left on page
          \put(-2\ht\hvCaptionBox,0.5\ht\hvObjectBox){\makebox(0,0){\rotatebox{90}{\minipage{\textwidth}\
              centering
            \parbox{0.8\textwidth}{%
              \ifhv@onlyText
           \hv@longCap
         \else
               \ifx\hv@shortCap\@empty
                 \captionof{\hv@floatType}{\hv@longCap}%
               \else
                 \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
               \fi
              \fi
            }%
            \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
          \endminipage}}}%
        \fi
      \else% ifnum, caption not rotated, under or over the right page
        \hv@tempWidthA=\the\dimexpr\paperheight-\ht\hvObjectBox\relax
        \ifdim\hv@tempWidthA > \ht\hvCaptionBox
        \else
          \put(\the\dimexpr1.5\paperwidth-\wd\hvObjectBox-\hvSet@bindCorrection,\the\dimexpr\ht\
              hvCaptionBox+\abovecaptionskip+\belowcaptionskip){\makebox[0pt][c]{\parbox{\textwidth}{%%
%           \expandafter\captionsetup\expandafter{\hv@caption@format}%
       \ifhv@onlyText
         \hv@longCap
       \else
              \ifx\hv@shortCap\@empty
                \captionof{\hv@floatType}{\hv@longCap}%
              \else
                \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
              \fi
            \fi
          }}}%
          \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
        \fi
      \fi% end \ifnum#1>0
      \newpage\if@twocolumn\null\newpage\fi
    }%
  }%
```

```
}


\def\setBottomCaption{%
  \ifhv@twoColumnCaption
    \begin{\hv@floatType*}[!b]%
  \else
    \begin{\hv@floatType}[!b]%
  \fi
  \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
  \ifhv@separatorLine\drawSepLine\fi
  \par
  \usebox\hvCaptionBox
  \ifhv@twoColumnCaption
    \end{\hv@floatType*}%
  \else
    \end{\hv@floatType}%
  \fi
}

\def\setPageObject{%
  \hvfloat@typeout{>>>> setPageObject/start environment ...}%
  \afterpage{\checkoddpage}%
  \ifhv@star
    \begin{\hv@floatType*}[p]%
  \else
    \begin{\hv@floatType}[p]%
  \fi
  \hv@tempcnt=\@floatpenalty% suppress "float too big" message
  \hfuzz=\maxdimen
  \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \ifhv@FULLPAGE
    \hvfloat@typeout{>>>> setPageObject/FULLPAGE}%
    \@floatpenalty=\z@%   no message that float too large
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep}%-0.5\baselineskip%
    \if@twoside
      \hvfloat@typeout{>>>> setPageObject/FULLPAGE/twoside}%
      \ifoddpage
        \hvfloat@typeout{>>>> setPageObject/FULLPAGE/twoside/oddpage (\thepage)}%
        \hspace*{\the\dimexpr-\oddsidemargin-\parindent-1in}%
      \else
        \hvfloat@typeout{>>>> setPageObject/FULLPAGE/twoside/evenpage (\thepage)}%
        \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%
      \fi
    \else
      \hvfloat@typeout{>>>> setPageObject/FULLPAGE/oneside}%
      \hspace*{\the\dimexpr-\oddsidemargin-\parindent-1in}%
    \fi
    \hvfloat@typeout{>>>> setPageObject/FULLPAGE/set pagestyle empty}%
    \AtBeginShipoutNext{\thispagestyle{empty}}%  to prevent heading/footer
%    \afterpage{\AddToHookNext{shipout/after}{\thispagestyle{empty}}}%
    \usebox\hvObjectBox
  \else
    \hvfloat@typeout{>>>> setPageObject/NO FULLPAGE}%
    \usebox\hvObjectBox
  \fi
  \hvfloat@typeout{>>>> setPageObject/stop environment}%
  \ifhv@star
    \end{\hv@floatType*}%
  \else
    \end{\hv@floatType}%
  \fi
  \@floatpenalty=\hv@tempcnt%   restore
}

\ExplSyntaxOn

```

```
\def\getMultiCaptionAndLabel{%
  \ifhv@twoColumnCaption\hv@tempWidthA=\textwidth \else \hv@tempWidthA=\linewidth\fi
  \global\sbox\hvCaptionBox{\minipage[b]{\hv@tempWidthA}%
    \captionsetup{aboveskip=\z@,belowskip=\z@,position=below,parbox=none}%,skip=-1ex}%
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \parskip=-0.5\baselineskip
    \hv@cntb=\clist_count:N\l_clist_Type
    \advance\hv@cntb by \@ne
    \hv@cnta=1
    \loop
      \edef\@captype{\clist_item:Nn\l_clist_Type{\hv@cnta}}%
      \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cnta}}%
      \ifx\@tempa\@empty
        \caption{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
      \else
        \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
      \fi
      \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
      \ifx\@tempa\@empty
      \else
        \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cnta}-cap}\fi
      \advance\hv@cnta by \@ne
    \ifnum\hv@cnta<\hv@cntb
    \repeat
    \vspace{-\baselineskip}%  no vspace at the end
  \endminipage}%
}

\def\getMultiObjectAndLabel{%
  \global\sbox\hvObjectBox{%
    \ifhv@vFill
      \minipage[b][\textheight][s]{\columnwidth}%
    \else
      \minipage{\columnwidth}%
    \fi
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \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@cnta=1
    \loop
      \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cnta}}%
      \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
      \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
      \edef\@tempb{\clist_item:Nn\l_clist_Type{\hv@cnta}}%
      \edef\@captype{hv@p\@tempb}%
      \ifx\@tempa\@empty
      \else
        \refstepcounter{\@captype}%
        \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
      \fi
      \ifnum\hv@cnta<\clist_count:N\l_clist_Type\par\hv@vskip\fi
      \advance\hv@cnta by \@ne
    \ifnum\hv@cnta<\hv@cntb
      \ifhv@vFill\vfill\fi
    \repeat
  \endminipage}%
}
\def\getMultiSubCaptionAndLabel{%
  \global\sbox\hvCaptionBox{%
    \minipage{\linewidth}%
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \setlength\belowcaptionskip{5pt}%
    \setlength\abovecaptionskip{0pt}%
```

```
    \xdef\@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\sbox\hvObjectBox{%
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \ifhv@vFill
      \minipage[b][\textheight][s]{\columnwidth}%
      \captionsetup{belowskip=0pt}%
    \else
      \minipage{\columnwidth}%
    \fi
%    \ifx\hv@subcaption@format\@empty\else
%      \expandafter
%      \captionsetup\expandafter[\expandafter s\expandafter u\expandafter b\expandafter]\expandafter
%                              {\hv@subcaption@format}%
%    \fi
    \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@cnta=2
    \edef\@captype{\clist_item:Nn\l_clist_Type{1}}%  the same for all subfloats
    \ifx\@tempa\@empty
    \else
%      \refstepcounter{\@captype}%
%      \expandafter\label\expandafter{\@tempa}%
    \fi
    \loop
      \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cnta}}%
      \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
      \begingroup
      \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cnta}}%
      \ifx\@tempa\@empty
        \subcaption{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
      \else
        \expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
      \fi
      \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
      \ifx\@tempa\@empty
      \else
        \expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
      \fi
      \endgroup
      \ifnum\hv@cnta<\clist_count:N\l_clist_Type\par\hv@vskip\fi
      \advance\hv@cnta by \@ne
      \ifnum\hv@cnta<\hv@cntb
      \ifhv@vFill\vfill\fi
    \repeat
    \edef\@tempa{\clist_item:Nn\l_clist_Label{1}}%    the  main label at the end
    \ifx\@tempa\@empty
    \else
      \edef\@temp{hv@p\@captype}%
      \refstepcounter{\@temp}%
      \expandafter\label\expandafter{\@tempa}%
    \fi
```

```
  \endminipage}%
}
\ExplSyntaxOff

\def\getSingleCaptionAndLabel{%
  \global\sbox\hvCaptionBox{\minipage{\linewidth}%
    \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
    \setlength\belowcaptionskip{5pt}%
    \setlength\abovecaptionskip{0pt}%
    \ifhv@onlyText
      \hv@longCap
    \else
      \edef\@captype{\hv@floatType}%
      \expandafter\ifx\expandafter\relax\hv@shortCap\relax
         \expandafter\ifx\hv@longCap\@empty \else % empty caption?
         \caption{\hv@longCap}%
       \fi
      \else
       \expandafter\ifx\hv@longCap\@empty
          \caption[\hv@shortCap]{}%
        \else
          \caption[\hv@shortCap]{\hv@longCap}%
        \fi
      \fi
    \fi
  \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
  \endminipage}%
}

\def\set@caption@object#1{%    first caption, then object  #1=\hv@floatType
  \ifhv@multiFloat
    \setcounter{hv@pfigure}{\value{figure}}%
    \setcounter{hv@ptable}{\value{table}}%
    \getMultiCaptionAndLabel
  \else
    \ifhv@subFloat
      \setcounter{hv@pfigure}{\value{figure}}%
      \setcounter{hv@ptable}{\value{table}}%
      \getMultiSubCaptionAndLabel
    \else
      \getSingleCaptionAndLabel
    \fi
  \fi
  \edef\@captype{hv@p#1}%
  \ifhv@multiFloat
    \getMultiObjectAndLabel
  \else
    \ifhv@subFloat
      \getMultiSubObjectAndLabel
    \else
      \global\sbox\hvObjectBox{%
        \refstepcounter{\@captype}%
        \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
}
%
\endinput
```