Package hvfloat Controlling captions, fullpage and doublepage floats ver 2.34

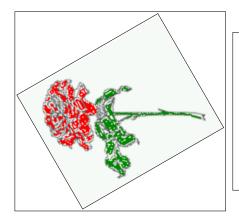
Herbert Voß*

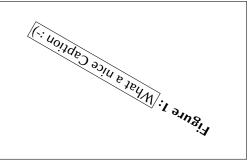
September 23, 2021

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

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

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





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1 The package options

fbox The objects and captions are put into a \fbox command, like in this documenta-

tion. 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 Opt 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, 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 11 on page 19 and 19.2 on page 45 and the optional ∓is explained in section 17.3 on page 34.

\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 LETEX; maybe not always the best setting.	
rotAngle	0	The value for the angle if both the object and the caption should be rotate 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: <i>always</i> 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.	
use0Box	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
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.
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}
```

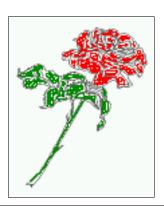


Figure 2: Without any keywords (only the fbox package option)

Code for figure 2:

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

Code for table 3:

hvFloat[capPos=top]{table}{%
begin{tabularx}{\textwidth}{>{\ttfamily}l|l|X}

3 \rmfamily Name & Type & Description\\hline

- 4 \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\\
- 7 \CMD{tabcaption} & command & writes a table caption in a non floating environment\\
- \CMD{hvFloatSetDefaults} & command & sets all options to the defaults\\
- 9 \CMD{hvDefFloatStyle} & command & define a user style
- 10 \end{tabularx}}%

Fig. 2

Tab. 3

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

Name	Туре	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

- With the only Option \texttt{capPos=top} to place the caption on top of the table, which is often the default.}%
- 12 {tab:0}

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

4 Caption width

4.1 Default - natural width

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

- 1 \hvFloat[floatPos=!htb]{figure}{\includegraphics{images/rose}}%

Fig. 3

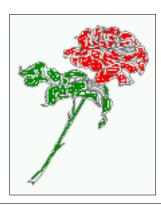


Figure 3: Default caption width setting, which is the natural width with respect to the current linewidth.

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 5).

- 1 \hvFloat[floatPos=!htb,capPos=after,objectFrame]{figure}{\includegraphics[scale=1.5]{images/ rose}}%
- 2 {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:widthl}

Fig. 4

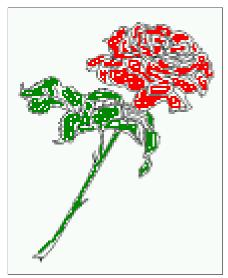


Figure 4: Caption right beside with a *natural* width, which is given by the width of the object, the separation between object and caption, and the current linewidth.

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 \textbf{the\linewidth}. Divide it by 28.82 to get cm.}{fig:width2}
```

Fig. 5

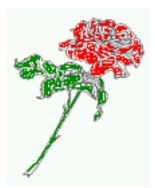


Figure 5: Caption below with a width of 0.9 of the current line width (column width), which is in this special case 376.42744pt. Divide it by 28.82 to get cm.

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:

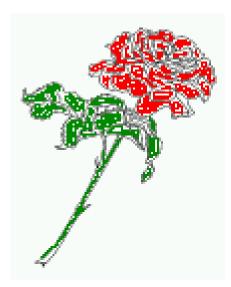


Figure 6: Caption right beside with a width setting of 0.9\linewidth which is too big for this example and therefore corrected by the macro to the maximal width.

4.3 Identical object and caption width

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

- $\label{linear} $$ \ \hvFloat[floatPos=!htb,capWidth=w]{figure}_{\ncludegraphics[width=0.5\\\ncludegraphics[width=0.5\\\ncludegraphics[width=0.5\\\ncludegraphics[width=0.5\\\ncludegraphics]]}$$$
- 2 {Caption below with a width of the given object which may be a problem
- if it is a very small object.}{fig:width4}

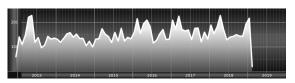


Figure 7: Caption below with a width of the given object which may be a problem if it is a very small object.

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.

- 1 \hvFloat[floatPos=!htb,capPos=after,capWidth=h,capAngle=90,objectFrame]{figure}{\
 includegraphics{images/rose}}%
- 2 {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.

5.1 Caption right with specific length

Code for figure 9:

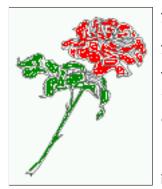


Figure 8: Caption beside with a width of the given object height which may be a problem if it is a very small object.

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



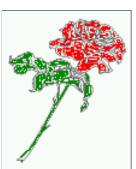


Figure 9: Caption vertically centered right beside the float with a natural caption width (the default). Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information?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

5.2 Caption left and rotated

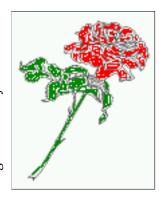
Code for figure 10:

```
1 \hvFloat%
2  [floatPos=htb,
3  capPos=left,
4  capWidth=h,% of \columnwidth
5  capAngle=90,
6  objectFrame
7  ]{figure}{\includegraphics{images/rose}}%
8  [Centered Caption beside Object]%
9  {Caption vertically centered left beside the float with a caption width
10  of \textt{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 (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.

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.



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

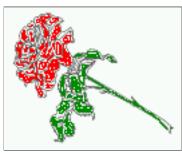


Figure 11: Caption vertically centered right beside the float with a caption width of the height of the image and a rotation of the caption and the object.

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
```



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 12, an even page. We now set a pagebreak at the end of the second image to see if it works with *inner/outer*.

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

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.



Fig. 14

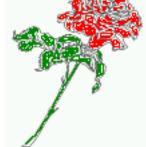


Figure 14: Caption at the bottom right beside the float with a caption width of 0.5\columnwidth and and capPos=outer.

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

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

Code for figure 15:

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

7 Vertical Position of the Caption

The caption can be placed beside the object in the positions

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

The code for figure 16:

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

Fig. 16 The code for figure 17:

```
hvFloat[%
floatPos=htb,
capWidth=0.25,
```

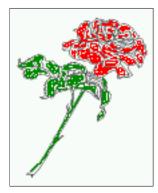


Figure 16: Caption at bottom right beside the float

- capPos=right,
- capVPos=top,
- 6]{figure}{\frame{\includegraphics{images/rose}}}{Caption at top left beside the float}{fig:5}

Figure 17: Caption at top left beside the float

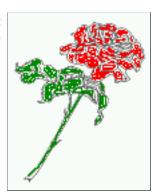
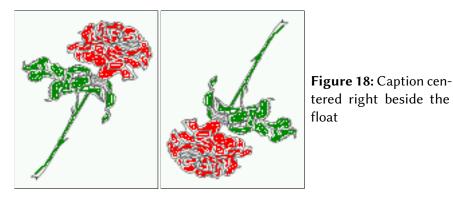


Fig. 17

The code for figure 18:





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

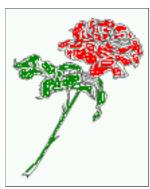


Figure 19

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

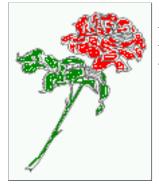


Figure 20: Caption at top right beside the float and object position left

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

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

The same with capPos=left:

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

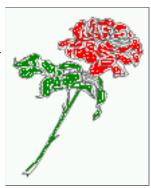


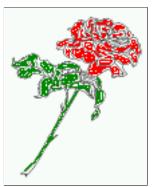
Fig. 21

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 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}
```

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

Fig. 22

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}
```

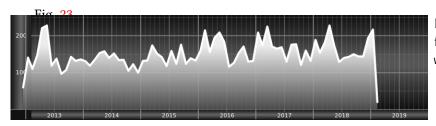
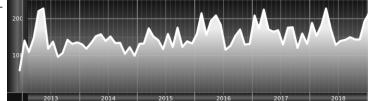


Figure 23: Caption at top right be float and object position left and the wide.

The code for figure 24:

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

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



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

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

```
hvFloat[wide,
capPos=inner,
capVPos=top,

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

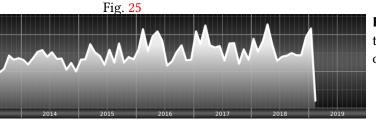


Figure 25: Caption at top and inner beside the float and object position right and the option wide.

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

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

- 1 \hvFloat[wide,
 2 canPos=in
- capPos=inner,
- capVPos=top,
- ${\tt 4} \quad {\tt]{figure}{\tt (includegraphics[width=0.75$\ linewidth]{\tt (images/CTAN)}{\tt (%)}{\tt (includegraphics[width=0.75]{\tt ($
- $_{\scriptsize 5}$ Caption at top inner beside the float and object position right and
- 6 the option \texttt{wide}.}{fig:811}

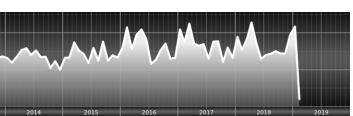


Figure 26: Caption at top inner beside the float and object position right and the option wide.

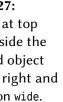
Fig. 26

The caption can be typeset completely into the margin with:

- \captionsetup{justification=RaggedRight}
- 2 \hvFloat[wide,

4

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



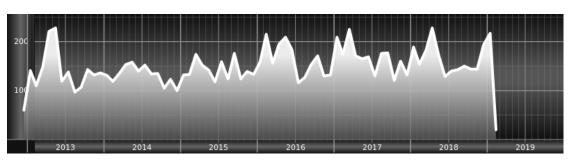


Fig. 27

11 The star version \hvFloat*

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

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

[A float with the default caption setting]%
4 {A default caption of a ``'' object with the default setting, which
5 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
7 real meaning because it fills only the space for a long caption.}%
8 {fig:0}
```

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

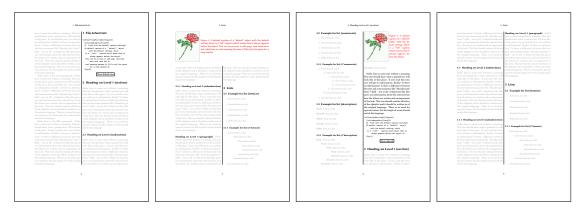


Figure 28: Output of default1s2c (pages 2 -5)

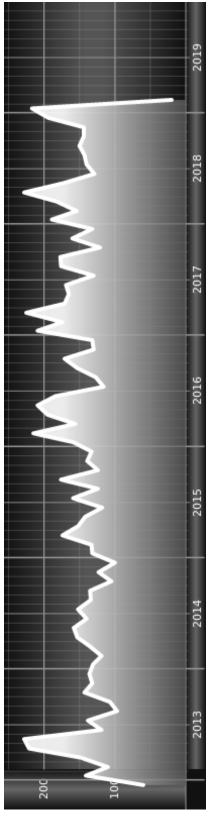
12 Full Page Width in Landscape Mode

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

Code for figure 29:

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

Fig. 129, 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



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 look. This text should contain all letters of the alphabet and it should be written in of the This text should show what a printed text will look like at this place. If you read this text, you you information about the selected font, how the letters are written and an impression of the Figure 29: Caption and object in landscape mode. Hello, here is some text without a meaning. original language. There is no need for special content, but the length of words should match the language.

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

The code for figure 30:

```
\hvFloat[%
        floatPos=p,
2
        capWidth=h,
3
        capPos=right,
        objectAngle=90,
5
         capAngle=-90,
6
        objectPos=left,
   ]{figure}{\includegraphics[width=\textheight]{images/CTAN}}%
         [Rotated Caption in Landscape]{%
10
         Caption right beside the float and object position left. The caption rotated by $-90$
11
            degrees.\blindtext}{fig:10}
```

Fig. 30 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.

13 The nonFloat Option

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

```
Some nonsense text before the following \emph{non floating} object.
1
   \hvFloat[%
        nonFloat,
        capWidth=0.25,
5
        capPos=right,
6
        capVPos=bottom,
        objectPos=center,
8
        objectFrame,
10
   ]{figure}{\includegraphics[scale=1.5]{images/rose}}%
11
         [Nonfloat Captions]{%
         Caption of a ``nonfloat'' Object, using the \texttt{nonfloat} Package}{fig:11}
12
13
   Some nonsense text after the preceding \emph{non floating} object.
```

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

Fig. 31

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 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 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 the original language. There is no need for special content, but the length of words should match the language. 2019

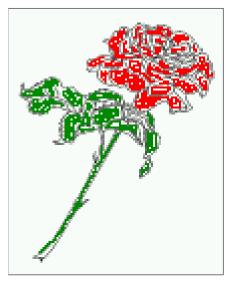


Figure 31: Caption of a "nonfloat" Object, using the nonfloat Package

Some nonsense text after the preceding non floating object.

The image 31 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.

14 Tabulars as Objects

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

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

```
\savebox{\hv0Box}{%

\begin{tabular}{>\small\tfamily}||||}\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 4 and 5 is:

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

```
capPos=top,
3
      useOBox=true]{table}{}{Demonstration of the \texttt{useOBox} Parameter}{table:1}
4
5
6
    \marginnote{Tab.~\ref{table:2}}
8
    \hvFloat[%
9
      floatPos=hb,
10
      useOBox=true,
11
      objectAngle=90,
12
      capPos=right,
13
      capVPos=top,
14
      capWidth=0.3] \{table\} \{\} \{Another\ demonstration\ of\ the\ \ \texttt{texttt} \{use0Box\}\ Parameter\} \{table:2\} \}
15
```

In this case leave the third parameter empty.

Table 4: Demonstration of the use0Box Parameter

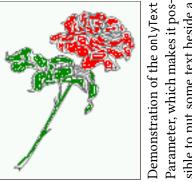
Name	Type	Description
\hvFloat	command	places object and caption in different ways
hvFloatEnv	environment	places object and caption exactly Here
\figcaption	command	writes a figure caption in a non floating environment
\tabcaption	command	writes a table caption in a non floating environment
\hvFloatSetDefaults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

15 Text and objects

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

The code for figure 15:

```
\hvFloat[%
      onlyText=true,
      capAngle=90,
      capPos=right,
      capVPos=top,
      objectFrame,
      capWidth=h]\{\}\{\ \ capWidth=h\}\{\}\}
      [``\texttt{onlyText}'' Caption]{%
        Demonstration of the \texttt{texttt}\{\texttt{onlyText}\}\ \texttt{Parameter}, which makes it
        possible to put some text beside a floating object without getting
10
        a starting \texttt{Figure:} or \texttt{Table:}}{fig:text}
11
```



sible to put some text beside a floating object without getting Tab. 4

Tab. 5

Fig. 15

Type command places object and caption in different ways environment places object and caption exactly Here command writes a figure caption in a non floating environment writes a table caption in a non floating environment sets all options to the defaults

Table 5: Demonstration of the use0Box Parameter

16 Environment hvFloatEnv

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

\hvFloatSetDefaults

Name
\hvFloat
hvFloatEnv
\figcaption
\tabcaption

```
\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{tabular}
\end{hvFloatEnv}
```

Table 6: A caption for a nice table

left	center	right
L	C	R

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

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

Table 7: A caption for a nice table

```
left center right
L C R
```

17 Full page objects in onecolumn mode

For an image or table which needs the whole space of a page the caption can be printed at the bottom of the preceding 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@ewidth{\textwidth}%
  \def\Gin@eheight{\textheight}%
  \Gin@boolkey{false}{iso}%
  \define@key{Gin}{FULLPAGE}[true]{%
  \def\Gin@ewidth{\paperwidth}%
  \def\Gin@ewidth{\paperwidth}%
  \def\Gin@eheight{\paperheight}%
  \def\Gin@eheight{\paperheight}%
  \def\Gin@eheight{\paperheight}%
  \def\Gin@boolkey{false}{iso}%
}
```

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

17.1 Using the textarea

The setting capPos=evenPage (even) or capPos=oddPage (odd) page for a document in twocolumn mode makes no real sense. For a twosided document a setting like capPos=inner for inner or capPos=outer for outer margin makes more sense. For an image or table which needs the whole space of a page the caption can be printed at the bottom of the preceding 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:

17.1.1 Using the default or capPos=before

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

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

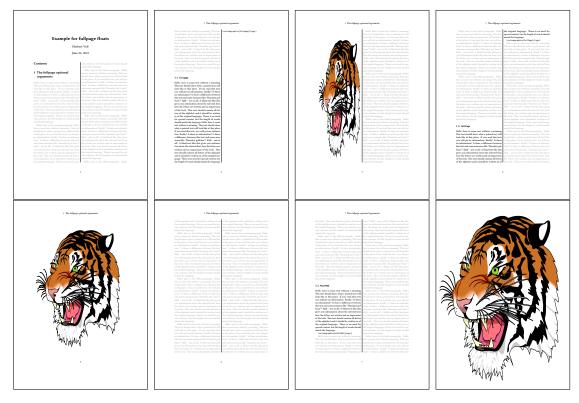


Figure 32: Output of fullpage1s2c (pages 1-8)

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

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

Name	Туре	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 sec-
		tion 17.3 on page 34.
subFloat	true false	For multiple objects with one main and more subcaptions. See
		section 18 on page 36.
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 33 on the following page

shows the output for a oneside document with a setting capPos=before .

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

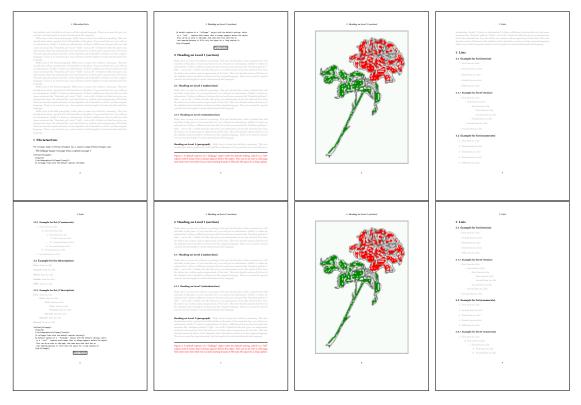


Figure 33: Output of default1s1c (pages 2-9)

17.1.2 Using capPos=after

The caption will be printed always on the right side which is the same as *after* the full page object. The object 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}
```

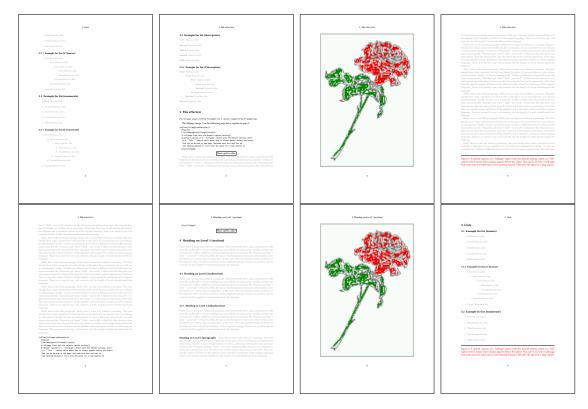


Figure 34: Output of after1s1c (pages 2–9)

17.1.3 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}

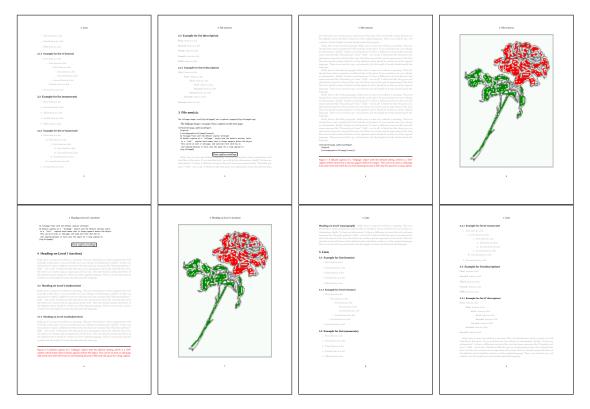


Figure 35: Output of even1s1c (pages 2-9)

17.1.4 Using capPos=oddPage — caption on an odd page

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

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}

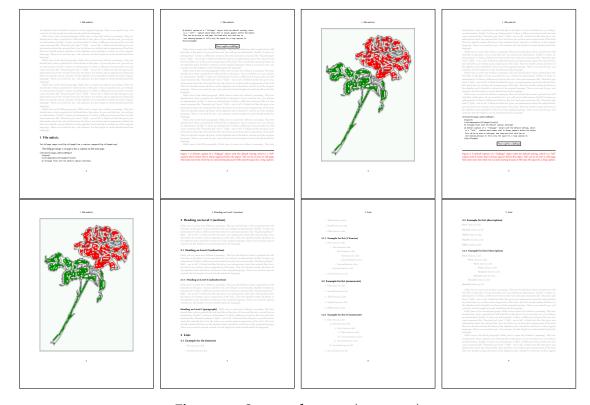


Figure 36: Output of odd1s1c (pages 2-9)

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

These settings make no sense in onecolumn mode.

17.2 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!

1 \hvFloat[FULLPAGE]%
2 {figure}%
3 {\includegraphics[FULLPAGE]{frose.png}}%
4 [A fullpage float with the default caption setting]%
5 {A default caption of a ``fullpage'' object with the default setting, which
6 is a ``left'' caption which means that it always appears before the object.
7 This can be an even or odd page. And some more text which has no
8 real meaning because it fills only the space for a long caption.}%
9 {fig:fullpage0}

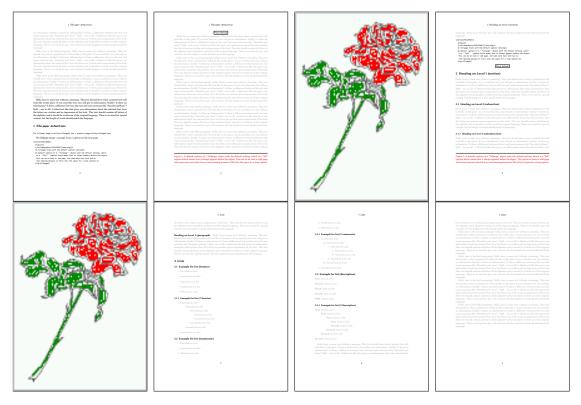


Figure 37: Output of paper-default1s1c (pages 2-9)

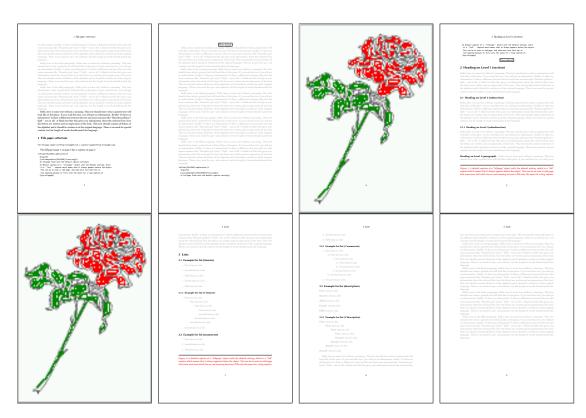


Figure 38: Output of paper-after1s1c (pages 2-9)

17.3 Multifloats

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

```
\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]%
2
     +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%
                                                                                     no 1
      [Short caption A1%
4
      {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.}%
     +{table}{\begin{tabular}{lrcp{3cm}}\hline
                                                                                     no 2
               Linksbündig & Rechtsbündig & Zentriert & Parbox\\\hline
               1
                                        & C & P\\
                           & R
11
               left
                                          & center & Text with possible linebreaks\\
                           & right
12
               \multicolumn{4}{c}{Multicolumn over all columns}\\\hline
13
              \end{tabular}}%
14
       [Short Caption B]%
15
      {A Caption B of a ``fullpage'' object, which follows on the left or
16
           right column. This can be an even or odd page.}{}%
17
18
     +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%
                                                                                      no 3
       {A Caption C of a ``fullpage'' object, which follows on the left or
19
20
         right column.}%
21
      {ima:demo1}
     +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}%%
22
                                                                                      no 4
      {A Caption C of a ``fullpage'' object, which follows on the left or
23
         right column.}%
24
      {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 18 on page 36. The setting \captionsetup{singlelinecheck=false} is needed if you want the captions always left aligned.

17 Full page objects in onecolumn mode

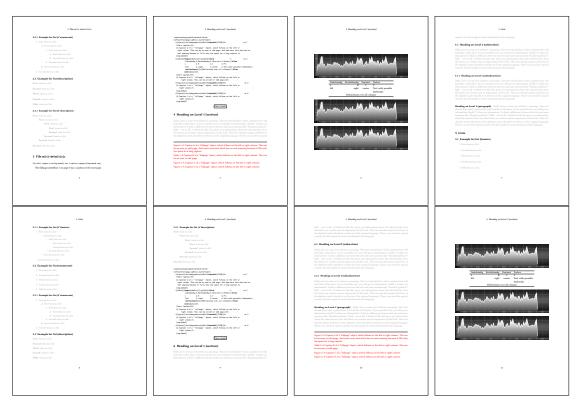


Figure 39: Output of multi-default1s1c (pages 4-11)

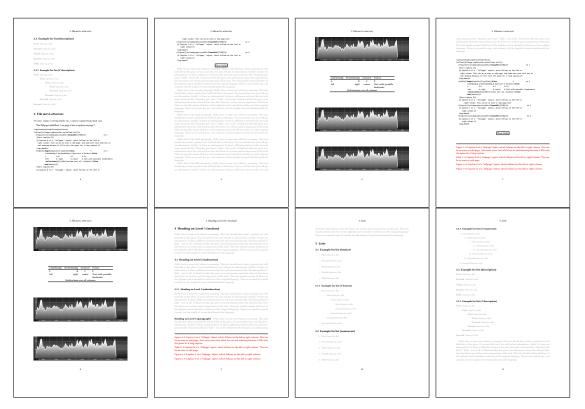


Figure 40: Output of multi-after1s1c (pages 4-11)

18 Subfloat page

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

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
2
      {The main caption of a ``fullpage'' object, which follows on the left or
3
           right column. This can be an even or odd page. And some more text which has no
4
           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
      {}%
10
     +{}{\includegraphics[width=\linewidth]{images/CTAN}}%
11
      {A Caption C of a ``fullpage'' object, which follows on the left or right column.}%
12
13
     +{}{\includegraphics[width=\linewidth]{images/CTAN}}%
14
      {A Caption D of a ``fullpage'' object}{sub:demo2}
15
     +{}{\includegraphics[width=\linewidth]{images/CTAN}}%
      {A Caption E of a ``fullpage'' object}{sub:demo3}
17
```

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].

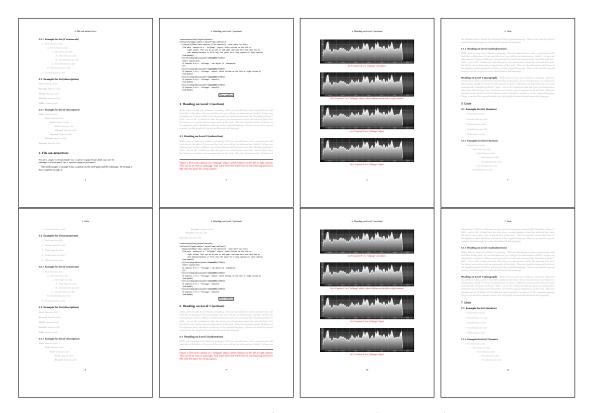


Figure 41: Output of sub-default1s1c (pages 4-11)

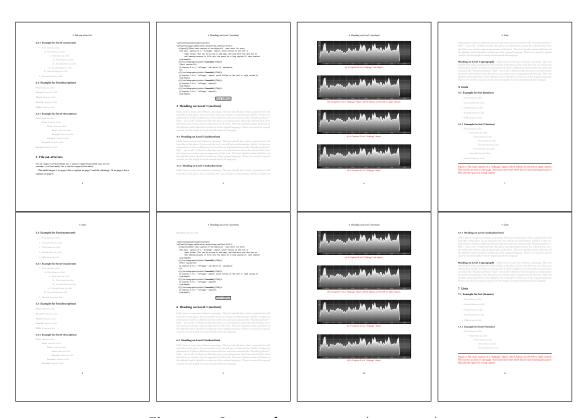


Figure 42: Output of sub-after1s1c (pages 4–11)

19 Full page objects in twocolumn mode

The filenames always have a "2c" for two columns in its names, e.g. left2s2c indicates capPos=before and the documentclass setting twoside and twocolumn. Depending to the used documentclass it can be a problem, if the caption should be placed on the first page of the whole document. In such a case use one of the other setting. Table 8 on page 27 shows the valid optional arguments for a full page floating object.

19.1 Default setting

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

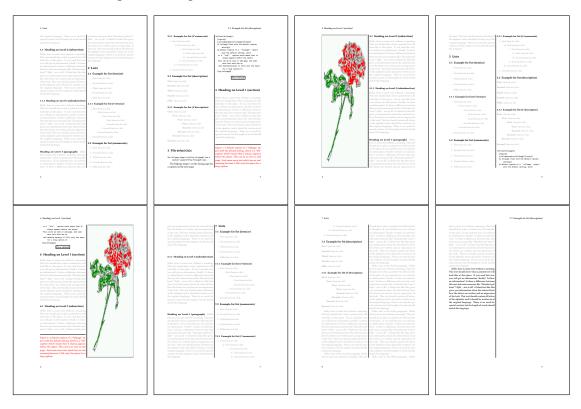


Figure 43: Output of default2s2c (pages 2-9)

```
hvFloat[fullpage]{figure}%

{\includegraphics[width=\columnwidth,height=0.9\textheight]{images/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 43 shows that the caption and the object can be on different pages. If you do not like this behaviour, then use the setting capPos=left, which puts the caption before the

object, but always on the same page (see Figure 44).

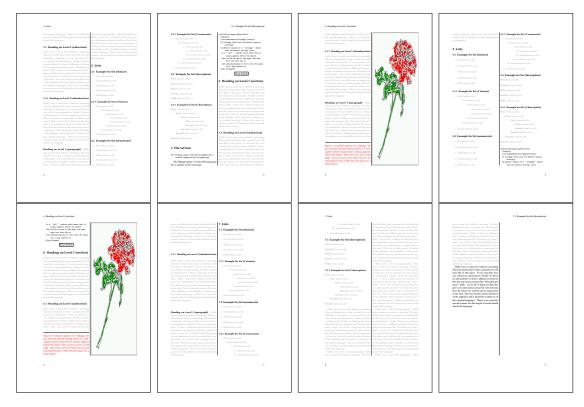


Figure 44: Output of left2s2c (pages 2-9)

19.1.1 Using capPos=after

The caption will be printed always right of the object which is the same as *after* the full page object. With capPos=after it is possible to get the caption in the twocolumn mode always in the right (second) column (see figure 46 on 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 45 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.

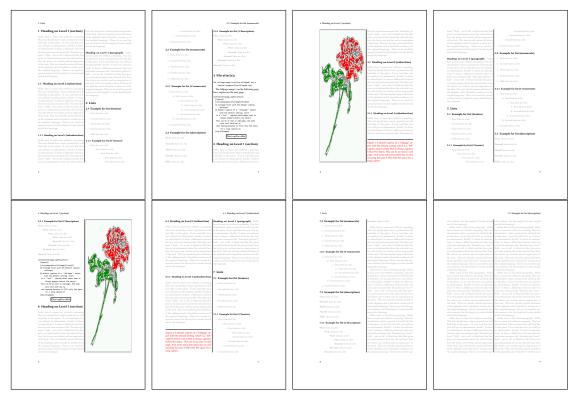


Figure 45: Output of after2s2c (pages 2–9)

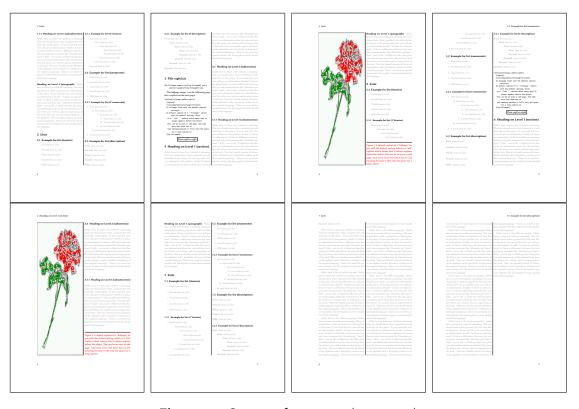


Figure 46: Output of right2s2c (pages 2–9)

19.1.2 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.

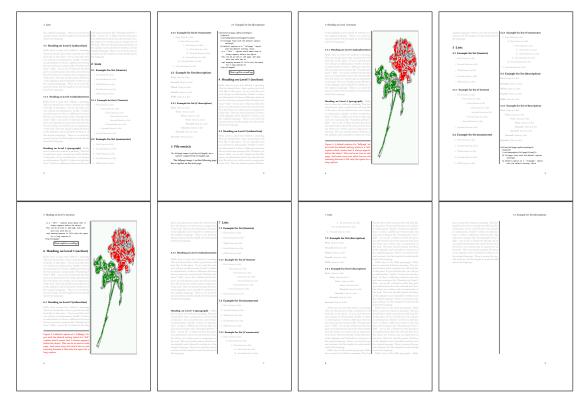


Figure 47: Output of even2s2c (pages 2-9)

19.1.3 Using capPos=oddPage — caption on an odd page

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

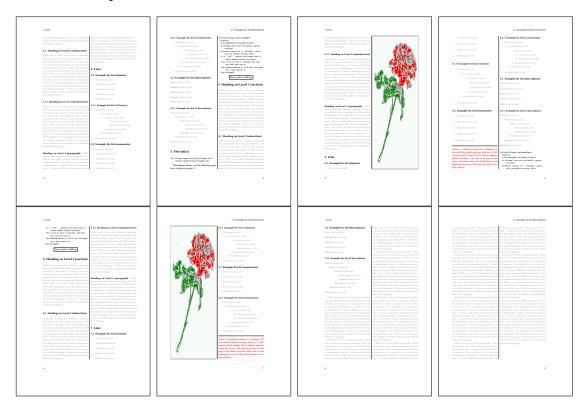


Figure 48: Output of odd2s2c (pages 2-9)

19.1.4 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}}%
- $_{2}$ $\,\,$ [A float which needs the complete column width and height.]%
- $_{\rm 3}$ $\,$ {A Caption of a ``fullpage'' object, which follows on the left or right column.
- This can be an even or odd page. And some more text which has no
- real meaning because it fills only the space for a long caption.}{fig:fullpage3-2}

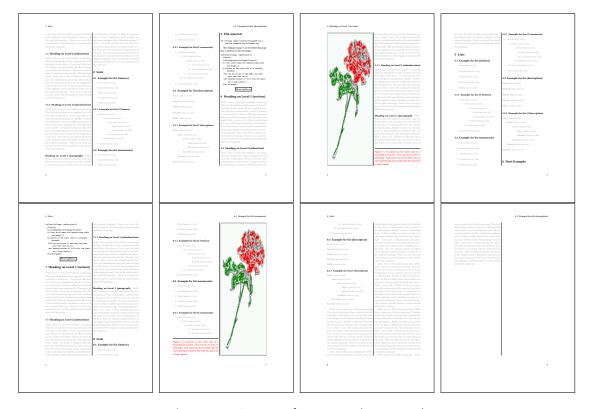


Figure 49: Output of inner2s2c (pages 2-9)

19.1.5 Using capPos=outer — caption on the outer column

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

- $_{1} \quad \verb|\hvFloat[fullpage, capPos=outer]{figure} %$
- {\includegraphics[fullpage]{images/rose}}%
- $_3$ [A float which needs the complete page width and height with **\texttt**{capPos=outer}.]%
- 4 {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 whch has no
- feal meaning because it fills only the space for a long caption.}{fig:fullpage2-2a}

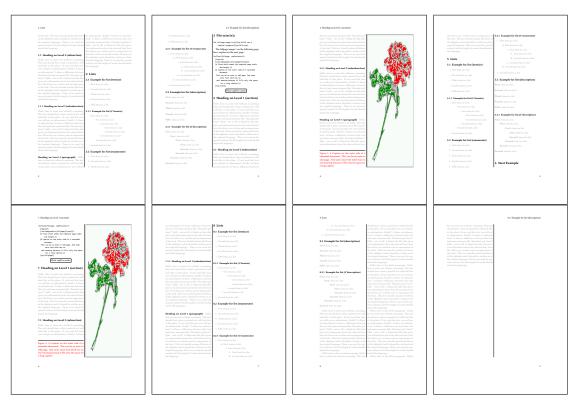


Figure 50: Output of outer2s2c (pages 2-9)

19.2 Using full page in twocolumn mode

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

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

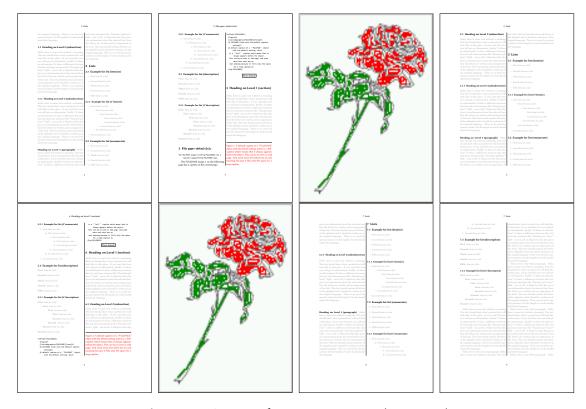


Figure 51: Output of paper-default2s2c (pages 2-9)

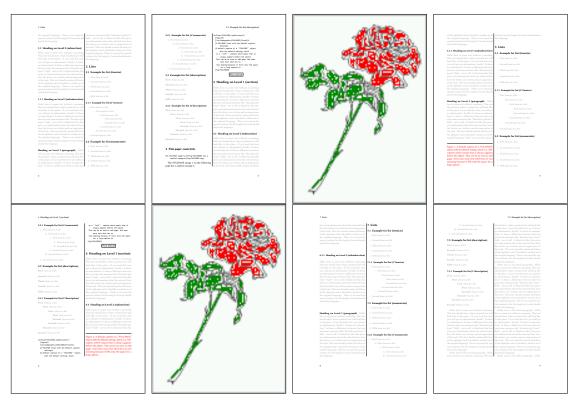


Figure 52: Output of paper-inner2s2c (pages 2-9)

19.3 Multifloats

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

```
\captionsetup{singlelinecheck=false}
   \hvFloat[fullpage,multiFloat,capPos=inner,vFill]%
2
     +{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 whch has no
        real meaning because it fills only the space for a long caption.}%
       {multi:demo0}%
8
     + \{ table \} \{ \ begin \{ tabular \} \{ lr \} \setminus hline \}
                                                            % no 2
                Linksbündig & Rechtsbündig\\
10
                            & R
                                            11
11
                             & right
                                            //
12
                \multicolumn{2}{c}{Multicolumn}\\\hline
13
               \end{tabular}}%
14
       [Short Caption B]%
15
       {A Caption B of a ``fullpage'' object, which follows on the left or
16
            right column. This can be an even or odd page.}%
17
18
     +{figure}{\includegraphics[height=0.4\textheight]{images/rose}}% no 3
19
       {A Caption C of a ``fullpage'' object, which follows on the left or
20
          right column.}%
21
       {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 18 on page 36. The setting \captionsetup{singlelinecheck=false} is needed if you want the captions always left aligned.

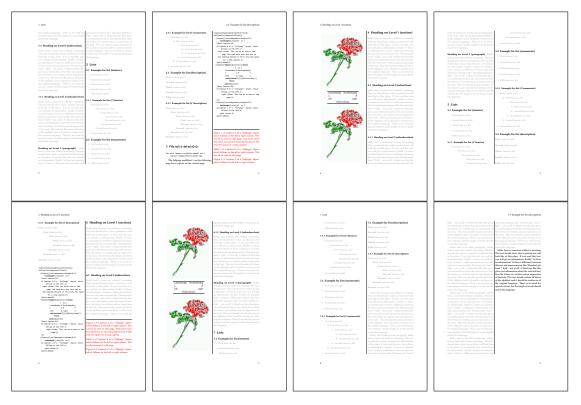


Figure 53: Output of multi-default2s2c (pages 2-9)

20 Subfloat page

A subfloat page can have only one type of floats which will have one main caption and individual subcaptions. Some arguments are ignored for a subfloat, one can leave them empty. The first line defines only the type and the main caption, the object entry is ignored! All 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}%
     + \{\} \{ \inf eght = 0.28 \setminus textheight \} \{ images/rose \} \} \%
      [Short caption B]%
      {A Caption B of a ``fullpage'' sub object.}% subcaption
10
      {}%
11
     +{}{\includegraphics[height=0.28\textheight]{images/rose}}%
12
      {A Caption C of a ``fullpage'' object, which follows on the left or right column.}%
13
      {sub:demo10}
14
15
     +{}{\includegraphics[height=0.28\textheight]{images/rose}}%
      {A Caption D of a ``fullpage'' object}%
16
       {sub:demo20}
```

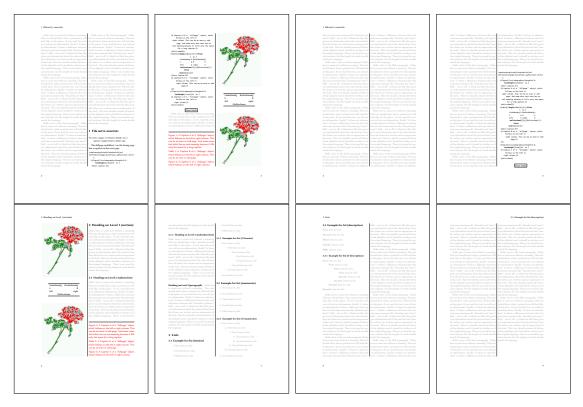


Figure 54: Output of multi-inner2s2c (pages 2-9)

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).

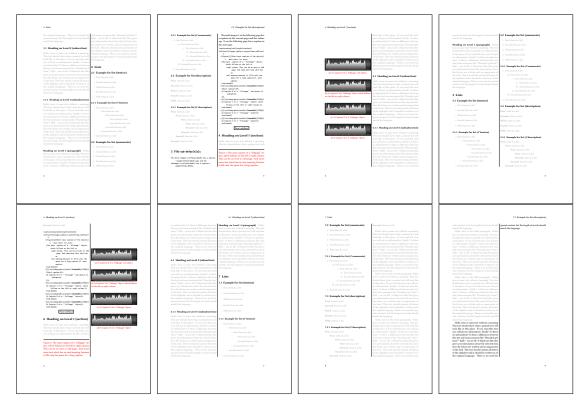


Figure 55: Output of sub-default2s2c (pages 2-9)

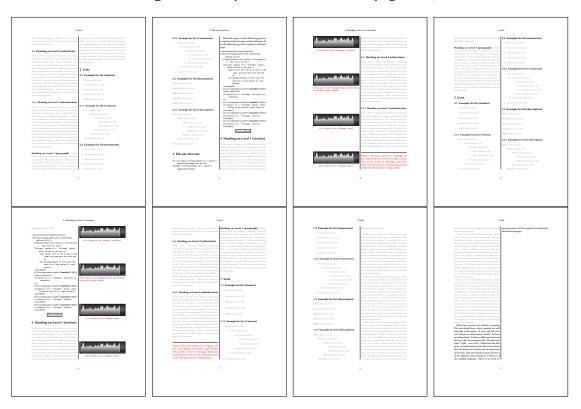


Figure 56: Output of sub-after2s2c (pages 2–9)

21 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.

21.1 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[angle=90,width=2\paperwidth]{images/r+j}}%
 [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}}%
- 9 {fig:doubleFULLPAGE0}

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.

Fig. **57**

21 Doublepage objects - images and/or tabulars

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

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

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

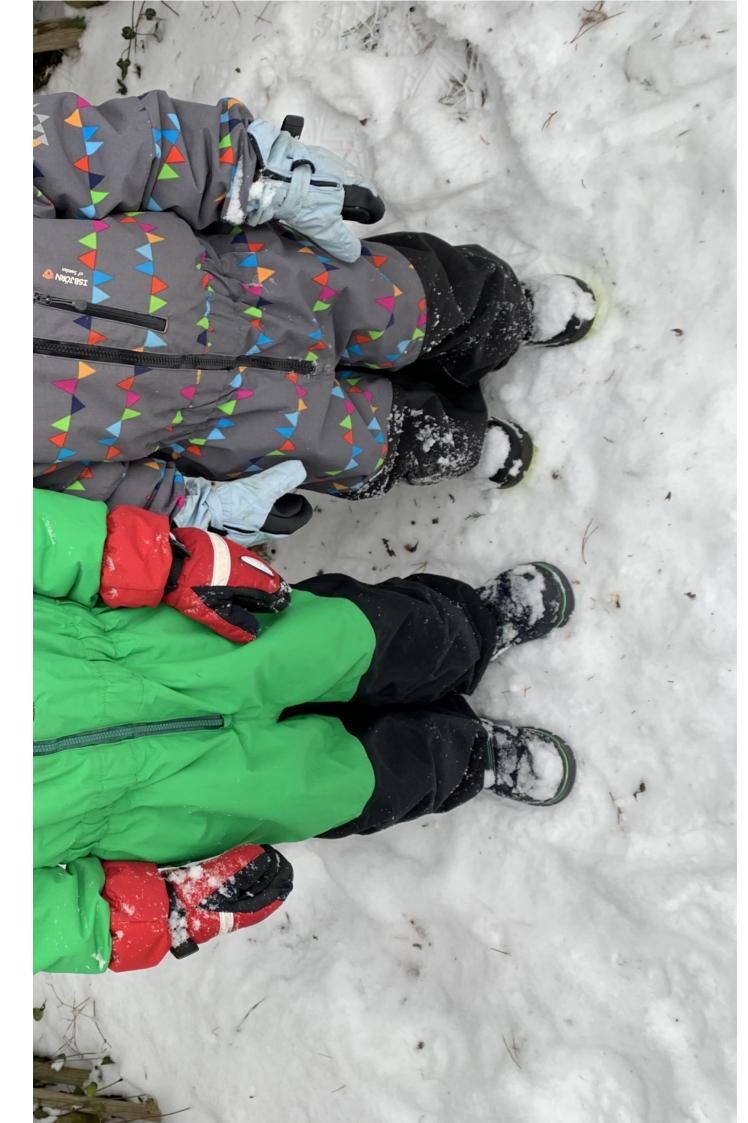
This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest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

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

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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=right,bindCorr=5mm]%

{figure}%

{\includegraphics[angle=90,width=2\paperwidth]{images/r+j}}%

[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}
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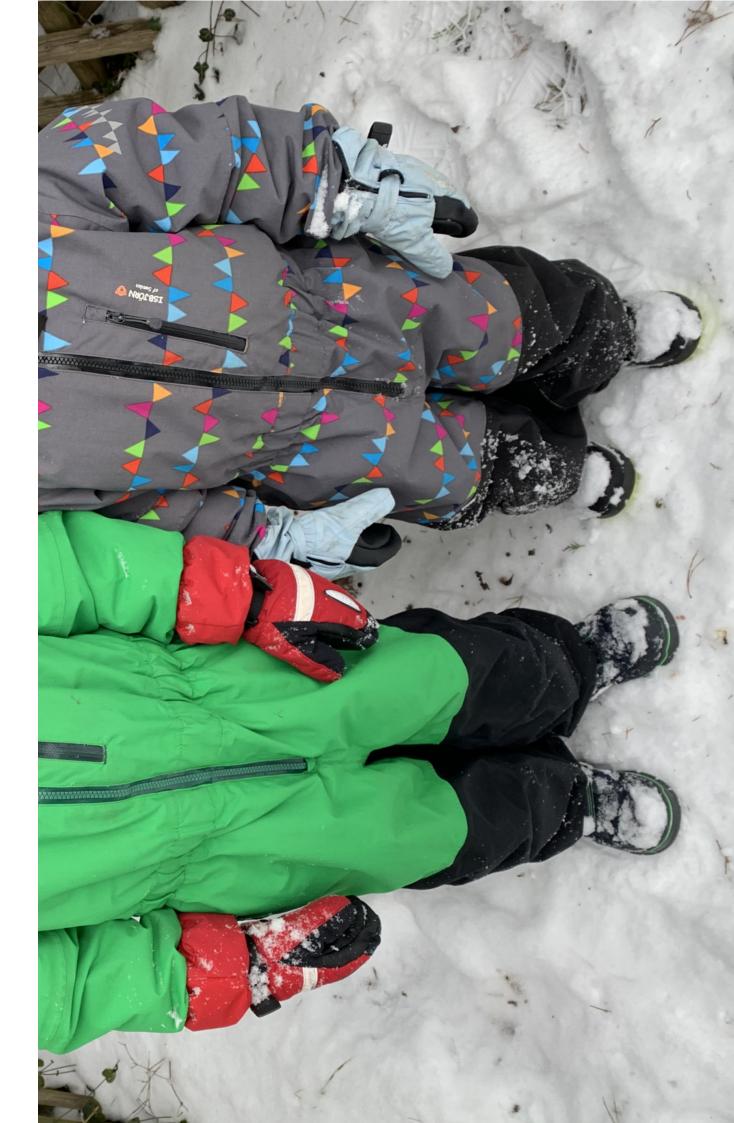
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\hvFloat[doubleFULLPAGE,capPos=right]%
{figure}%
{\includegraphics[height=\paperheight]{images/rheinsberg-1000}}%

{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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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 follwing 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 following example 60 the caption is on page 66, the left image part on page 64 and the right part on page 65. In the following example 61 the caption is on page 69, the left image part on page 70 and the right part on page 71. All three labels points to the same figure or table number:

```
\ref{foo} | \ref{foo-cap} | \ref{foo-2} \rightarrow 60 | 60 | 60 \pageref{foo} | \pageref{foo-cap} | \pageref{foo-2} \rightarrow 64 | 66 | 65
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Figure 60: 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

21 Doublepage objects - images and/or tabulars

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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}
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Fig. 61

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Figure 61: 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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21.2 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]%
- 2 {figure}%
- 3 {\includegraphics[width=\dimexpr2\textwidth+2in]{images/seiser}}%
- 4 [A doublepage image with a caption below the right part.]%
- 5 {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.
- 8 The parameter is \texttt{doublePAGE}}%
- 9 {fig:doublePAGE0}

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Fig. 62

21 Doublepage objects - images and/or tabulars

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And after the second paragraph follows the third paragraph. Hello, here is some text





Figure 62: 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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21.3 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}

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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Fig. 63

21 Doublepage objects - images and/or tabulars

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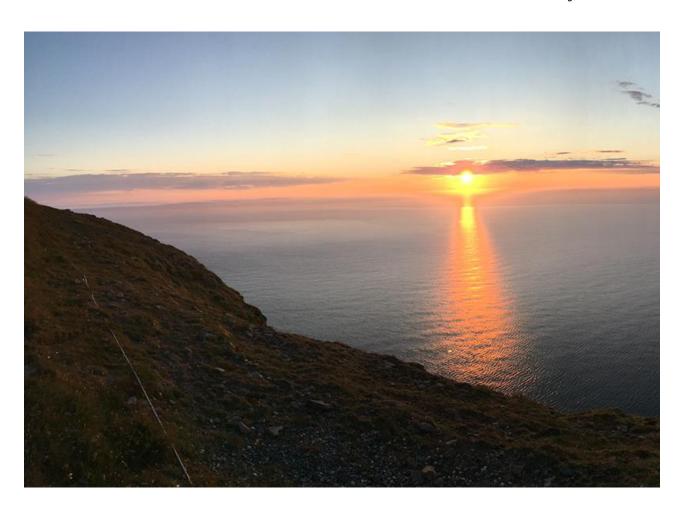
This is the second paragraph. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest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

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- \hvFloat[doublePage,capPos=right,capVPos=top]%
- 2 {figure}%
- 3 {\includegraphics[width=2\textwidth]{images/sonne-meer}}%
- [A doublepage image with a caption on the right side of the right part.]%
- 5 {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.
- 8 The parameter is \texttt{doublePage}}%
- 9 {fig:doublePage0}

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

Fig. 64

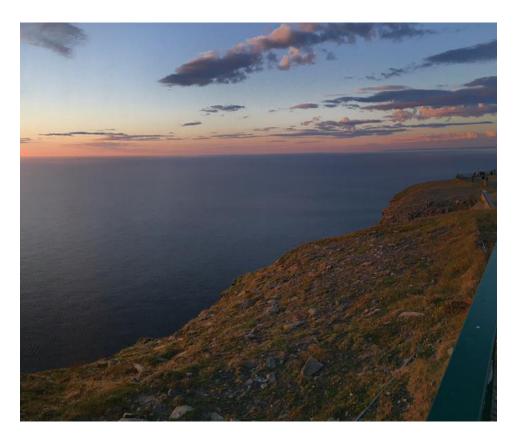


Figure 63: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

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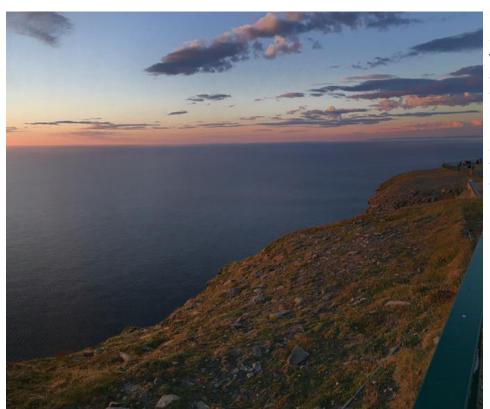


Figure 64: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

words should match the language.

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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 \textt{doublePage}}%

{fig:doublePage0sH2}
```

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Fig. 65

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21.4 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.

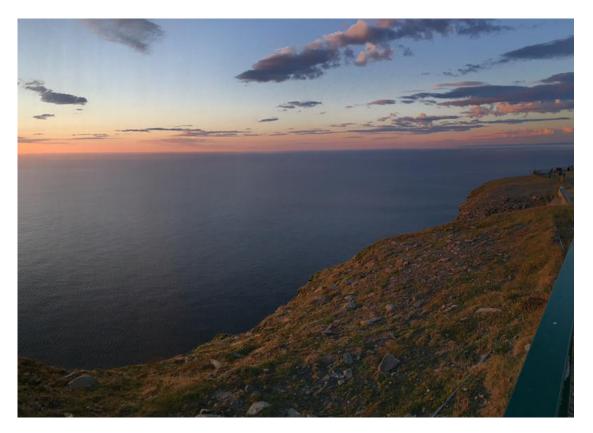


Figure 65: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

The tabular itself can be saved into the internal box \hv0Box or put directly as parameter into the macro.

```
\global\savebox\hv0Box{%
      \begin{tabular}{l*{18}r} \land toprule
 2
       & \text{textbf}\{1972\} & \text{textbf}\{1973\} & \text{textbf}\{1974\} & \text{textbf}\{1975\} & \text{textbf}\{1976\}
       & \textbf{1977} & \textbf{1978} & \textbf{1978} & \textbf{1980} & \textbf{1981} & \textbf{1982} & \textbf{1982} & \textbf{1980} & \textbf{1981} & \textbf{1982} & \textbf{1982} & \textbf{1982} & \textbf{1983} & \textbf{198
                textbf{1983} & \textbf{1984} & \textbf{1985}
       & \text{textbf}\{1986\} & \text{textbf}\{1987\} & \text{textbf}\{1988\} & \text{textbf}\{1989\}
       \\\midrule
      \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 & 0 & 1 & 5 & 3 & 1 & 7 & 7 & 3\\addlinespace[3pt]
10
      Zeile 4 & 1 & 0 & 5 & 1 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 1 & 0 & 3 & 7 & 2 & 1\\addlinespace[3pt]
11
      12
      Zeile 5 & 0 & 0 & 4 & 2 & 1 & 2 & 2 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 2 & 5 & 4 & 3\\addlinespace[3pt]
13
      Zeile 8 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 3 & 2 & 1 & 2 & 1 & 3 & 5 & 3 & 4\\addlinespace[3pt]
14
      Zeile 9 & 0 & 0 & 0 & 0 & 0 & 1 & 2 & 1 & 0 & 0 & 0 & 0 & 4 & 2 & 1 & 4 & 5 & 2\\addlinespace[3pt]
      16
      Zeilel1 & 0 & 2 & 2 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 2 & 6 & 1 & 0 & 2 & 1 & 1 \\\addlinespace[3pt]
17
      18
                  20
      22
      23
              midrule
      Artikel gesamt & 2 & 6 & 13 & 8 & 4 & 3 & 5 & 4 & 0 & 6 & 3 & 5 & 23 & 10 & 8 & 15 & 13 & 1 \\
```

```
\bottomrule
25
    \end{tabular}}
26
27
    \Blindtext
28
29
    \hvFloat[doublePage,capPos=right,capVPos=top,floatCapSep=12pt]%
30
      {table}%
31
      32
      [A doublepage tabular with a caption on the right side of the right part.]%
33
      {A caption for a double-sided tabular that will be placed on the right side of the
34
       right-hand part of the illustration. The illustration begins on the left edge of
35
       the paper. A short form is used for the LOF.
36
      The parameter is \texttt{doublePage}}%
      {tab:doublePage3}
38
```

Tab. 9

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22 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.]%
```

	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	

```
{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 67 is on page 91, but the image itself is on page 92. 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 67 on page 92, which uses a correct page number of the floating object and not the caption pagenumber which is on page 91. The figure 67 is on page 92 and the caption on page 91

33	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 9: 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

23 Defining a style

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

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

For example:



Figure 66: Caption at bottom right beside the float with a caption width of 0.5\columnwidth.

24 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}

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24 Global float setting

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F FULLPAGE (keyword), 6, 26f, 32 false (value), 34, 47 fbox (package option), 4 \fbox, 4 \figcaption, 4, 7, 24f figure (environment), 6f, 23 float (package), 23 floatCapSep (keyword), 5, 15	L l (value), 19 left (value), 5, 9, 15f, 26, 38 \linewidth (length), 8 \listoffigures, 4 lscape (package), 19 M \marginparwidth (length), 5, 17

multiFloat (keyword), 27	twocolumn, 19, 26, 38
multido (package), 4	twoside (package option), 30, 38
N	twoside, 11
nonFloat (keyword), 4f, 21	U
nonfloat (package), 21	use0Box (keyword), 5, 23
nonfloat (keyword), 24	(110) 1102 dy, 0, 20
nostfloats (package option), 4	\mathbf{V}
hoser todes (package option), i	vFill (keyword), <mark>6</mark>
0	Value
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objectFrame (keyword), 6f	- before, <mark>26, 28, 38</mark>
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oneside, 27	-inner, 11, 26, 31, 43, 45
onlyText (keyword), 5, 24	- l, 19
outer (value), 5, 11f, 18, 26, 31, 44	-left, 15f, 26, 38
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- oddPage, 26, 31, 42
P	-outer, 11f, 18, 26, 31, 44
p (value), <mark>19</mark>	- p, 19
\pageref, <mark>87</mark>	- right, <mark>39</mark>
\paperheight (length), <mark>32</mark>	- w, <mark>9</mark>
\paperwidth (length), <mark>32</mark>	varioref (package), <mark>88</mark>
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R	W
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rotAngle (keyword), 5	wide (keyword), 5, 7, 17
\rotatebox, 10	V
0	X
S	xkeyval (package), 4
sameHeight (keyword), 6	
separatorLine (keyword), 27	
\setlength, 4	
singlelinecheck (keyword), 34, 36, 47f	
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subFloat (keyword), 27, 36, 48	
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\subcaption, 6, 14	
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\tabcaption, 4, 7, 24f	
\tabcaptionhelow, 4	
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25 The Package Source

```
%% $Id: hvfloat.sty 149 2021-08-14 17:39:18Z herbert $
1
2
   99
3
   %% IMPORTANT NOTICE:
   %% This is file `hvfloat.sty',
   %%
7
8
    % Herbert Voss <hvoss@tug.org>
   %% This program can be redistributed and/or modified under the terms
10
   %% of the LaTeX Project Public License Distributed from CTAN archives
11
    %% in directory macros/latex/base/lppl.txt.
12
13
   %% DESCRIPTION:
14
        `hvfloat' offers rotating of captions and objects for floats
15
   %%
16
17
    \NeedsTeXFormat{LaTeX2e}
   \def\fileversion{2.34}
18
   \def\filedate{2021/08/11}
   %\message{`hvfloat' v\fileversion, \filedate\space (Herbert Voss)}
20
    \ProvidesPackage{hvfloat}[\filedate\space v\fileversion\space special floating objects (hv)]
21
   \let\hvFloatFileVersion\fileversion
22
   \newif\ifhv@fbox \hv@fboxfalse
24
    \newif\ifhv@hyperref \hv@hyperreffalse
25
    \newif\ifhv@nostfloats \hv@nostfloatsfalse
26
   \newif\ifhv@tugboat \hv@tugboatfalse
27
28
    29
    \DeclareOption{hyperref}{\hv@hyperreftrue}
   \DeclareOption{nostfloats}{\hv@nostfloatstrue}
31
    \DeclareOption{no-stfloats}{\hv@nostfloatstrue}
33
    \ProcessOptions
35
37
   \PassOptionsToPackage{hypcap}{caption}
    \RequirePackage{caption}
38
39
    \RequirePackage{varwidth}
   \PassOptionsToPackage{hypcap}{subcaption}
42
    \RequirePackage{subcaption}
   \RequirePackage{atbegshi}
44
    \RequirePackage{picture,trimclip}
46
    \RequirePackage{expl3,multido}
   \RequirePackage{graphicx}
48
    \RequirePackage{varwidth}
50
    \RequirePackage{xkeyval}
51
    \RequirePackage{ifoddpage}
52
    \RequirePackage{afterpage}
53
54
   \ifhv@hyperref
55
     \RequirePackage{hyperref}
56
57
    \ifhv@nostfloats\else
     \RequirePackage{stfloats}% for bottom floats in a twocolumn mode
59
    \fi
60
61
   62
63
   \newlength\hv0bjectWidth
```

```
\newlength\hvCapWidth
65
     \newlength\hvWideWidth
66
     \newlength\hvMultiFloatSkip
67
     \newlength\hvMaxCapWidth
68
     %\AtBeginDocument{%
69
     % \setlength\hv@BottomSpace{\dimexpr\paperheight-lin-\topmargin-\headheight-\headsep-\textheight}}
70
71
     \newsavebox\hv0bjectBox
72
73
     \newsavebox\hvCaptionBox
     \newsavebox\hv0Box
74
     \newsavebox\@tempbox
     \newsavebox\hv@caption@box
76
     \newsavebox\hv@leftBox
     \newsavebox\hv@rightBox
78
     \newif\ifhv@capbeside \hv@capbesidefalse
80
     \newif\ifhv@switchType
81
82
     \def\hv@Top{top}
83
     \def\hv@Bottom{bottom}
84
     \def\hv@After{after}
85
     \def\hv@Before{before}
     \def\hv@Right{right}
87
     \def\hv@Left{left}
    \def\hv@Center{center}
89
     \def\hv@Outer{outer}
91
    \def\hv@Inner{inner}
92
     \def\hv@Even{evenPage}
     \def\hv@0dd{oddPage}
93
     \def\hv@Natural{n}
94
95
     \def\hv@Width{w}
     \def\hv@Height{h}
96
97
     \def\hv@Zero{0}
98
99
     \def\hv@figure{figure}
100
     101
        \def \hvSet@floatPos{#1}%
102
103
     \define@key{hvSet}{rotAngle}[0]{%
                                            rotates caption AND image together
104
105
        \def\hvSet@rotAngle{#1}%
106
     \define@key{hvSet}{capWidth}[n]{%
                                            (n)atural width|object (w)idth)|object (h)eight|<scale of \
107
          columnwidth>
        \def\hvSet@capWidth{#1}%
108
109
     \define@key{hvSet}{capAngle}[0]{%
                                            -360..+360, only integers
110
        \label{lem:defhvSet@capAngle} $$ \def\hvSet@capAngle{#1}% $$
112
113
     \define@choicekey*+{hvSet}{capPos}[\val\nr]{bottom,top,left,before,right,after,inner,outer,evenPage,
114
          oddPage}[bottom]{%
115
       \def\hvSet@capPos{#1}%
                                      it is relativ to the object, (e),(d) only valid for fullpage float
       \ifcase\nr\relax
116
117
         \hv@capbesidefalse
118
         \hv@capbesidefalse
119
120
       \else
121
         \hv@capbesidetrue
122
123
     }{\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
124
       \hv@capbesidefalse
125
126
127
     \define@choicekey*+{hvSet}{capVPos}[\val\nr]{bottom,center,top}[center]{%
128
     \def\hvSet@capVPos{#1}%
129
                                      it is relativ to the object
```

```
\ifcase\nr\relax
130
        \def\hv@@capVPos{b}%
131
132
      \or
        \def\hv@@capVPos{c}%
133
134
      \else
        \def\hv@@capVPos{t}%
135
      \fi
136
    }{\PackageWarning{hvfloat}{erroneous input (#1) for capVPos ignored. Using center.}%
137
      \def\hvSet@capVPos{center}%
                                      it is relativ to the object
138
139
140
     \define@choicekey*+{hvSet}{allHPos}[\val\nr]{left,center,right}[center]{%
141
      \def\hvSet@allHPos{#1}%
142
      \ifcase\nr\relax
143
        \gdef\hv@@allHPos{l}%
144
145
      \or
        \gdef\hv@allHPos\{c\}\%
146
147
      \else
        \gdef\hv@@allHPos{r}%
148
      \fi
149
    }{\PackageWarning{hvfloat}{erroneous input (#1) for allHPos ignored. Using center.}%
150
      \def\hvSet@capVPos{center}%
                                      it is relativ to the object
151
152
153
    \define@choicekey*+{hvSet}{objectPos}[\val\nr]{left,center,right,inner,outer}[center]{%
154
                                      it is relativ to the object
155
      \def\hvSet@objectPos{#1}%
156
    {\c objectPos ignored. Using center.}%
157
      \def\hvSet@capVPos{center}%
                                       it is relativ to the object
158
    \define@key{hvSet}{objectAngle}[0]{%
                                             -360..+360
159
160
       \def\hvSet@objectAngle{#1}%
161
162
     \define@key{hvSet}{floatCapSep}[5pt]{%
                                             a width with the unit pt
       \def\hvSet@floatCapSep{#1}%
163
164
    \define@key{hvSet}{multiFloatSkip}[\normalbaselineskip]{% a width with the unit pt
165
       \setlength\hvMultiFloatSkip{#1}%
166
167
    \define@boolkey{hvSet}[hv@]{use0Box}[true]{}%
                                                      use of the hvOBox contents
168
    \define@boolkey{hvSet}[hv@]{nonFloat}[true]{}%
                                                      Do not use float environment
169
    \define@boolkey{hvSet}[hv@]{onlyText}[true]{}%
                                                      Write the caption only as text
170
                                                  Write the caption only as text
171
    \define@boolkey{hvSet}[hv@]{wide}[true]{}%
    172
         caption only as text
    \define@boolkey{hvSet}[hv@]{sameHeight}[true]{\@nameuse{hv@sameHeight#1}}% Write the caption only as text
173
    \define@boolkey{hvSet}[hv@]{Debug}[true]{}%
                                                   give more infos in the terminal
174
175
    \newif\ifhv@fullpage
    \newif\ifhv@FULLPAGE
177
178
     \newif\ifhv@doubleFULLPAGE
    \newif\ifhv@doublePAGE
179
    \newif\ifhv@doublePage
180
181
    \newif\ifhv@setObjectLabel
     \newif\ifhv@global@sameHeight
182
183
    \newif\ifhv@forceOutput
184
185
    \newlength\hvSet@bindCorrection
    \newlength\hvSet@sepLineskip
186
     \newlength\hv@leftPageObjectWidth% for doublepage images
187
    \newlength\hv@tempWidthA
188
189
    \newlength\hv@tempWidthB
    \newlength\hv@minTextlines
190
     \newlength\hv@floatCapSep
191
    \newlength\hvSet@bindCorr
192
193
    \define@key{hvSet}{fullpage}[true]{\global\@nameuse{hv@fullpage#1}}%
194
    \define@key{hvSet}{FULLPAGE}[true]{\global\@nameuse{hv@FULLPAGE#1}}
195
```

```
196
        hv@doublePAGEfalse}
    197
        hv@doubleFULLPAGEfalse}
198
    hv@doubleFULLPAGEfalse}
    \define@key{hvSet}{bindCorr}[0pt]{%
199
     \def\hv@temp{#1}%
200
     \ifx\hv@temp\hv@Inner
201
       \setlength\hvSet@bindCorr{\dimexprlin+\oddsidemargin}%
202
203
       \setlenath\hvSet@bindCorr{#1}%
204
     \fi
206
207
    %\setlength\hvSet@bindCorrection{#1}}% for doublepage objects
208
    \define@boolkey{hvSet}[hv@]{subFloat}[true]{%
                                             typeset values as subfloats
209
210
      \ifnv@subFloat\setkeys{hvSet}{multiFloat=false}\fi%
211
212
    \define@boolkey{hvSet}[hv@]{multiFloat}[true]{%
                                             typeset values as continous floats
      \ifhv@multiFloat\setkevs{hvSet}{subFloat=false}\fi
213
214
                                         \vfill between multifloat objects
    \define@boolkey{hvSet}[hv@]{vFill}[true]{}%
215
216
    \define@boolkey{hvSet}[hv@]{separatorLine}[true]{}% separator line for caption of a full page float
217
    218
219
    \define@boolkey{hvSet}[hv@]{objectFrame}[true]{}% a frame around the object with no separation
220
221
    \define@key{hvSet}{style}{%
     \@ifundefined{hv@#1}%
222
223
       {\errmessage{Custom style `#1' undefined}}%
       {\begingroup
224
225
        \edef\x{\endgroup\noexpand\setkeys{hvSet}{\@nameuse{hv@#1}}}\x}% use a defined style
226
    227
    228
    \define@boolkey{hvSet}[hv@]{forceOutput}[true]{%
     230
231
232
    \def\hv@set#1{\begingroup\edef\x{\endgroup\noexpand\setkeys{hvSet}{#1}}\x}
    \let\hvFloatSet\hv@set
233
234
    \def\defhvstyle#1#2{\@namedef{hv@#1}{#2}}
235
    \let\hvDefFloatStyle\defhvstyle % better name
236
237
    \newcommand\setDefaults{%
238
     \hv@set{%
239
      floatPos=, rotAngle=0, capWidth=n, capAngle=0, objectAngle=0,
      capPos=bottom, capVPos=center, objectPos=center, allHPos=center,
241
242
      floatCapSep=5pt, useOBox=false,
      onlyText=false, wide=false, fullpage=false, FULLPAGE=false,
243
      doubleFULLPAGE=false, doublePage=false, doublePAGE=false,
244
245
          multiFloat=false, subFloat=false,
      separatorLine,objectFrame=false,multiFloatSkip=\normalbaselineskip,
246
247
      capFormat={}, subcapFormat={}, twoColumnCaption=false,
      sameHeight=false,
248
249
      bindCorr=\z@,sepLineskip=0pt,
      vFill=false, minTextlines=2,
250
      forceOutput=false, nonFloat=false,
251
    }%
252
253
254
    \let\hvFloatSetDefaults\setDefaults
255
    \hvFloatSetDefaults% onyl for first loading of the package
256
257
    \newcommand\hv@tvpeout[1]{\ifhv@Debug\tvpeout{>>>> #1}\fi}
258
259
```

```
\providecommand\@tugclass{\@empty}
260
               \ifx\@tugclass\@empty
261
262
              \else
                    \hv@tugboattrue % special page handling
263
                    264
265
266
              \newcommand\reset@special@float{%
267
268
                    \hv@set{subFloat=false,%fullpage=false,
                                           multiFloat=false,%FULLPAGE=false
269
270
271
              \def\hv@vskip{\vspace{\hvMultiFloatSkip}}
272
273
274
              \newlength\hvAboveCaptionSkip
               \newlength\hvBelowCaptionSkip
275
              \newlength\hv@dblfptop
276
277
               \newlength\hv@fptop
               \newcount\hv@@capPos
278
              \newlength\fboxlinewidth
280
              \AtBeginDocument{%
281
                    \ensuremath float linewidth {\dimexpr\linewidth - 2\fboxrule - 2\fboxsep}%
282
283
              \setlength\belowcaptionskip{\abovecaptionskip}% it is in latex.ltx = Opt
284
              \newcommand\saveCaptionSkip{%
285
286
                       \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}%
                        \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}%
287
288
                       \setlength{\abovecaptionskip}{Opt}%
                       \setlength{\belowcaptionskip}{0pt}%
289
290
              \newcommand\restoreCaptionSkip{%
291
                    \setlength\abovecaptionskip{\hvAboveCaptionSkip}%
292
                    \setlength\belowcaptionskip{\hvBelowCaptionSkip}%
293
294
295
                \let\hv@dblfptop\@dblfptop
297
298
                    \label{let-hv@fptop} $$ \end{array} $$ \end{array
                    \global\ setlength{\@dblfptop}{0\p@}%
299
                    \global\setlength{\ensuremath{\emptysetfptop}{0\p@}}
300
301
302
303
                \newcommand\hv@reset@noverticalSpace{%
                    \global\setlength{\@dblfptop}{\hv@dblfptop}%
304
305
                    \global\setlength{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremat
306
307
              \providecommand\figcaption[2][]{}%
308
309
               \providecommand\tabcaption[2][]{}%
              \providecommand\tabcaptionbelow[2][]{}%
310
311
312
              \renewcommand\figcaption[2][]{%
                    \begingroup
313
314
                    \def\@captype{figure}%
                    \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
315
316
                    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
                    \endgroup}
317
                 renewcommand\tabcaption[2][]{%
                    \begingroup
319
320
                    \def\@captype{table}%
                    \expandafter\captionsetup\expandafter{\hv@caption@format,position=top}%
321
                    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
322
                    \endaroup}
323
              \renewcommand\tabcaptionbelow[2][]{%
324
                    \beaingroup
325
                    \def\@captype{table}%
```

```
\expandafter\captionsetup\expandafter{\hv@caption@format,position=below}
327
       \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
328
329
      \endgroup}
330
    \newlength\hv@maxImageWidth
331
    \AtBeginDocument{\hv@maxImageWidth=\columnwidth}
332
333
    \define@key{Gin}{columnWidth}[true]{%
334
335
      \def\Gin@ewidth{\columnwidth}%
     % \def\Gin@eheight{lex}%
336
      \Gin@boolkey{true}{iso}%
337
338
    \define@key{Gin}{fullpage}[true]{%
      \def\Gin@ewidth{\columnwidth}%
340
      \def\Gin@eheight{\textheight}%
341
      \Gin@boolkey{false}{iso}%
342
343
344
     \define@key{Gin}{FullPage}[true]{%
      \def\Gin@ewidth{\textwidth}%
345
346
      \def\Gin@eheight{\textheight}%
      \Gin@boolkey{false}{iso}%
347
     \define@key{Gin}{FULLPAGE}[true]{%
349
       \def\Gin@ewidth{\paperwidth}%
      \def\Gin@eheight{\paperheight}%
351
      \Gin@boolkey{false}{iso}%
352
353
    \define@key{Gin}{doubleFULLPAGE}[true]{%
354
      \def\Gin@ewidth{2\paperwidth}%
355
      \def\Gin@eheight{\paperheight}%
356
357
      \Gin@boolkey{false}{iso}%
358
     \define@key{Gin}{doublefullPage}[true]{%
359
      \def\Gin@ewidth{\dimexpr2\paperwidth-2in-2\evensidemargin}\%
360
       \def\Gin@eheight{\paperheight}%
361
      \Gin@boolkey{true}{iso}%
362
     \define@key{Gin}{doubleFULLPAGEbindCorr}[true]{%
364
       365
      366
      \Gin@boolkey{false}{iso}%
367
368
369
370
     \newcommand\IncludeGraphics[2][]{%
      \vspace*{\the\dimexpr-lin-\voffset+\topskip-\headheight-0.5\baselineskip}%
371
372
       \leavevmode\checkoddpage
      \ifoddpage
373
         \hspace*{\dimexpr-\oddsidemargin-\parindent-lin}%
374
      \else
375
376
         \hspace*{\dimexpr-\evensidemargin-\parindent-lin}%
      \fi\noindent
377
      \includegraphics[#1,width=\paperwidth,height=\paperheight,keepaspectratio=false]{#2}%
378
379
380
     \newcommand\put@CaptionBox[1][0]{%
381
      \ifcase#1
382
383
         \ifhv@fbox
           \fbox{\parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}}%
384
385
           \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}%
386
387
         \fi
388
      \or
         \ifhv@fbox
           \fbox{\raisebox{-\height}{\usebox{\hvCaptionBox}}}%
390
391
           \raisebox{-\height}{\usebox{\hvCaptionBox}}%
392
393
```

```
394
                \or
                     \fint{hv@fbox\\hvCaptionBox}}\else\usebox{hvCaptionBox}\fint{fi}
395
                \fi
396
397
398
           \newcommand\put@ObjectBox[1][0]{%
399
                400
                     \ifhv@fbox
401
402
                         \begin{tabular}{\bf \begin{tab
403
                          404
                                     }%
                     \fi
405
406
                \or
                     \ifhv@fbox
407
                         \fbox{\raisebox{-\height}{\usebox{\hv0bjectBox}}}%
408
409
                         410
                     \fi
411
412
                \or
                     \ifhv@fbox
413
                         \footnote{\hvObjectBox}}%
414
                     \else
415
416
                          % rotated object with a depth need to raise up the \depth
                         417
418
               \fi
419
420
421
422
            \def\drawSepLine{%
423
                \par\noindent
424
425
                \if@twocolumn
                     \ifhv@twoColumnCaption
426
427
                         \mathbf{0.4pt} \leq \mathbf{0.4pt} 
428
                     \else
                         \mathbf{0.4pt} \ [-2.5ex]
                     \fi
430
431
                    \mathbf{0.4pt} \leq \mathbf{0.4pt} 
432
433
434
                \vspace{\hv@sepLineskip}%
435
436
           \newcounter{hv@tempCNTfigA}%
437
             \newcounter{hv@tempCNTfigB}%
           \newcounter{hv@tempCNTtabA}%
439
           \newcounter{hv@tempCNTtabB}%
           \newcounter{hv@pfigure}%
441
442
            \newcounter{hv@ptable}%
            \newcounter{subhv@pfigure}%
443
           \newcounter{subhv@ptable}%
444
445
           \newif\ifhv@star
446
447
            \newif\if@hvsubstar
           \setDefaults
448
449
450
451
           %\newcommand*{\hvFloat}[5][]+{%
           % [#1}: keyvalues
452
453
           % #2: type figure | table | ...
          % #3: float contents
454
           % [#4]: short caption
455
           % #5: caption
456
           % #6: label
457
458
459
```

```
460
                 \def\hvFloat{\@ifnextchar*%
                                                                                                                  Main macro
461
                     {\global\hv@startrue\hv@maxImageWidth=\textwidth\hvFloat@i}%
462
                     463
464
465
               \def\hvFloat@i*{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
466
               \def\do@hvFloat[#1]{%
467
                     \beaingroup
468
                    \setlength\hvWideWidth{\dimexpr\columnwidth+\marginparwidth+\marginparsep}%
469
                        \setlength\hvWideWidth{\dimexpr\textwidth+\marginparwidth+\marginparsep}%
470
                       \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
471
                     \hv@maxImageWidth=\textwidth
                     \reset@special@float
473
                      \global\setcounter{hv@pfigure}{\value{figure}}%
                     \verb|\global\setcounter{hv@ptable}{\value{table}}|
475
                     \setcounter{hv@tempCNTfigA}{\value{figure}}%
476
477
                     \setcounter{hv@tempCNTfigB}{\value{figure}}%
                      \setcounter{hv@tempCNTtabA}{\value{table}}%
478
479
                     \setcounter{hv@tempCNTtabB}{\value{table}}%
                     \qdef\hv@save@setting{#1}% for later use after \endgroup inside figure/table env
480
                     \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
481
                     482
483
                     \ifx\hv@subcaption@format\@empty\else
                                  \expandafter
484
                                  \verb|\captionsetup| \textbf{expandafter} [ \textbf{expandafter } \textbf{s} \textbf{expandafter } \textbf{u} \textbf{expandafter } \textbf{b} \textbf{expandafter} ] \textbf{expandafter } \textbf{expandaf
485
                                                                                                         {\hv@subcaption@format}%
486
487
                      \gdef\hv@floatType{figure}% presetting
488
                      \@ifnextchar+{\do@multiFloat}{\hvFloat@ii[#1]}%
489
490
491
               \ExplSyntax0n
492
493
               \def\do@multiFloat+#1#2{%
494
                     \clist_set:Nn\l_clist_Type{{#1}}%
495
                     \verb|\clist_set:Nn\l_clist_Object{{#2}}|
496
                     \@ifnextchar[\do@multiFloat@i{\do@multiFloat@i[]}%
497
498
               \def\do@multiFloat@i[#1]#2#3{% lof-caption, caption, label
499
                     \ifx\relax#1\relax
500
                           \verb|\clist_set:Nn\l_clist_LofCaption{{}}|
501
                     \else
502
503
                            \clist_set:Nn\l_clist_LofCaption{{#1}}%
504
505
                     \clist_set:Nn\l_clist_Caption{{#2}}%
                     \ifx\relax#3\relax
506
                           \verb|\clist_set:Nn| \mathbf{l}_c list_Label \{\{\}\} \%
507
                     \else
508
                           \clist_set:Nn\l_clist_Label{{#3}}%
                     \fi
510
                     \@ifnextchar+{\do@multiFloat@ii}{}%
511
512
               \def\do@multiFloat@ii+#1#2{%
513
                     \verb|\clist_put_right:Nn\\ \label{local_put_right}| \end{subarray} $$ \clist_Type{$\{\#1\}$} $$
514
                     \clist put right:Nn\l clist Object{{#2}}%
515
                     \@ifnextchar[\do@multiFloat@iii{\do@multiFloat@iii[]}%
516
517
518
                \def\do@multiFloat@iii[#1]#2#3{% lof-caption, caption, label
519
520
                    \ifx\relax#1\relax
                            \clist_put_right:Nn\l_clist_LofCaption{{}}%
521
                           \verb|\clist_put_right:Nn\\ 1_clist_LofCaption{{\#1}}} % $$ $ \clist_put_right:Nn\\ 1_clist_LofCaption{{\#1}} $$ $$ $ \clist_put_right:Nn\\ 1_clist_put_right:Nn\\ 1_clist_put_right:Nn\\
523
                     \clist_put_right:Nn\l_clist_Caption{{#2}}%
525
                     \ifx\relax#3\relax
```

```
\clist_put_right:Nn\l_clist_Label{{}}%
527
      \else
528
        \clist_put_right:Nn\l_clist_Label{{#3}}%
529
530
      \@ifnextchar+\do@multiFloat@ii%
531
        {\def\hvSet@CapWidth{n}%
532
533
         \do@@@hvFloat}%
534
535
    \ExplSyntax0ff
536
    \newcount\hv@cnta
538
    \newcount\hv@cntb
539
540
    \def\hvFloat@ii[#1]#2#3{%
                                 #1: key/value, #2: floattype, #3: object
541
      \verb|\hv@maxImageWidth=\\ \verb|\textwidth||
542
      \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
543
544
      \gdef\hv@floatType{#2}%
      \ifx\relax#2\relax
545
        \setkeys{hvSet}{nonFloat,onlyText}%
546
        \xdef\hv@save@setting{\hv@save@setting,nonFloat,onlyText}% for later use after \endgroup inside
547
      \fi
548
549
       \xdef\hv@floatListOfExt{\@nameuse{ext@\hv@floatType}}%
      \gdef\hv@floatObject{#3}%
550
      \@ifnextchar[{\do@dhvFloat}{\do@dhvFloat[]}%
551
552
553
                                  #1: listof caption, #2. long caption #3: label
    \def\do@dhvFloat[#1]#2#3{%
554
      \gdef\hv@shortCap{#1}%
555
556
      \gdef\hv@longCap{#2}%
      \gdef\hv@label{#3}%
557
558
      559
      \global\setlength\hvSet@bindCorrection{\hvSet@bindCorr}% for doublepage objects
560
      \global\setlength\hv@floatCapSep{\hvSet@floatCapSep}%
561
562
      \ifhv@fullpage
563
564
        \def \n}\ relative value
        \do@@@hvFloat% fullpage with caption on other page
565
      \else
566
        \ifhv@FULLPAGE
567
          \def\hvSet@CapWidth{n}% relative value
568
569
          \do@@@hvFloat% fullpage with caption on other page
        \else
570
571
          \ifhv@doubleFULLPAGE
            \setlength\hvCapWidth{\textheight}%
572
            \expandafter\do@hvFloat@doubleFULLPAGE\@@temp% fullpage with caption rotated or under on an odd
574
          \else
            \ifhv@doublePAGE
575
              \expandafter\do@hvFloat@doublePAGE\@@temp% fullpage with caption rotated or under on an odd
576
577
              \ifhv@doublePage
578
                \expandafter\do@hvFloat@doublePage\@@temp% fullpage with caption rotated or under on an odd
579
              \else
580
                \do@@dhvFloat
              \fi
582
583
            \fi
          \fi
584
        \fi
585
      \fi
586
587
588
    \def\do@@hvFloat{% no special float page, caption and image on top of each other or side by side
589
```

```
590
             \ifx\hvSet@rotAngle\@tempa
591
                  \setlength\hvMaxCapWidth{\textheight}%
592
593
                  \setlength\hvMaxCapWidth{\hvWideWidth}%
594
             \fi
595
596
         % First we save the object in \hvObjectBox
597
598
             \ifnum\hvSet@objectAngle=0 % rotate the object?
599
                  \ifhv@useOBox
600
                      \let\hv0bjectBox\hv0Box
601
                      \savebox\hv0bjectBox{\hv@float0bject}%
603
                  \fi
604
605
             \else
                  \savebox\hv0bjectBox{%
606
607
                      \rotatebox{\hvSet@objectAngle}{%
                         \ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi
608
609
                 }%
610
             \fi
611
             \setlength\hv0bjectWidth{\wd\hv0bjectBox}%
612
613
         % Now we save the caption with its defined \hvCapWidth
614
615
616
             \ifx\hvSet@capWidth\hv@Width%
                                                                                                       captionwidth=objectwidth
                  \setlength\hvCapWidth{\hvObjectWidth}%
617
618
                  \ifx\hvSet@capWidth\hv@Height%
                                                                                                       captionwidth=objectheight
619
                      \strut_{ht}\hv0bjectBox}
620
                  \else
621
                      \ifx\hvSet@capWidth\hv@Natural%
622
                                                                                                       captionwidth=\linewidth-\objectwidth-separation
                         \ifhv@capbeside
623
624
                             \ifhv@wide
                                 625
627
628
                                     \else
629
                                     \label{lem:linewidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjectWidth-hv0bjec
630
                                 \fi
631
                             \fi
632
633
                         \else
                             \setlength\hvCapWidth{\columnwidth}%
634
635
                         \fi
                      \else
636
                         \ifhv@capbeside
                             \ifhv@wide
638
639
                                 \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
                                 640
641
642
                                 \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
                                 \setlength\@tempdima{\the\dimexpr\columnwidth-\hv0bjectWidth-\hv@floatCapSep\relax}%
643
                             \fi
644
                             \ifdim\hvCapWidth>\@tempdima
645
                                 \verb|\setlength| hvCapWidth{\end{ima}}|
646
                             \fi
647
                         \else
                             \ifhv@wide
649
650
                                 \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
651
                                 \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
                             \fi
653
                         \fi
654
                      \fi
655
656
```

```
\fi
657
                                                            \saveCaptionSkip% we put this space ourselve
658
                                                            \ifnum\hvSet@capAngle=0 % need rotation?
659
                                                                             \savebox\hvCaptionBox{% NO rotation
660
                                                                                              \minipage[b]{\hvCapWidth}% minipage, to get hyphenation
661
                                                                                                                 \ifhv@nonFloat
662
                                                                                      \ifhv@onlyText
663
                                                                                                     \hv@longCap
664
                                                                                      \else
                                                                                                         \ifx\hv@floatType\hv@figure
666
                                                                                                                        \ifx\relax\hv@shortCap\relax
667
                                                                                                                                         \label{$$ \figcaption{\hv@longCap\ifx} $$ igcaption{\hv@longCap\ifx\hv@label\end{\hv@label} $$ igcaption{\hv@longCap\ifx\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@lab
668
669
                                                                                                                                        \label{$$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\end{\hv@label}\fi}% $$ $$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\end{\hv}$} $$ $$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\end{\hv}$} $$ $$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\end{\hv}$} $$ $$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv}$} $$ $$ \figcaption[\hv@shortCap]{\hv}$$ $$ \figcaption[\hv]$$ $$ \figcaption[\hv]$$$ \
670
                                                                                                                        \fi
671
672
                                                                                                         \else
                                                                                                                        \ifx\relax\hv@shortCap\relax
673
                                                                                                                                         \label{$$ \tilde{\hv@longCap}ifx\hv@label\end{hv@label} if i} % $$ $$ $$ in $\mathbb{T}_{\mathbb{T}}^{n} $$ $$ $$ in $\mathbb{T}_{\mathbb{T}}^{n} $$ 
674
675
                                                                                                                                         \label{$$ \tilde{\hv@longCap}ifx\hv@label\eenty} \end{$$ \tilde{\hv@label} \fi} % $$ \hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@label\hv@lab
676
                                                                                                                        \fi
677
                                                                                                     \fi
                                                                                      \fi
679
                                                                    \else
                                                                                      \ifhv@onlyText
681
                                                                                                     \hv@longCap
682
683
                                                                                      \else
                                                                                                                                                     \let\@captype\hv@floatType
684
                                                                                                                                                  685
                                                                                                                                                  \ifx\hv@label\@empty\else\label{\hv@label}\fi
686
                                                                                                                                 \fi
687
                                                                    \fi
688
689
                                                                                              \endminipage
                                                                             }%
690
                                                            \else
                                                                             \savebox\hvCaptionBox{% Rotation
692
                                                                                                \rotatebox{\hvSet@capAngle}{%
                                                                                                                 \minipage[b]{\hvCapWidth}%% minipage, to get hyphenation
694
695
                                                                                       \label{linear_loss} $$ \inf_{x\in \mathbb{R}} \operatorname{linear_loss} \operatorname{linear_loss}
696
                                                                                       \ifhv@nonFloat
                                                                                                         \ifhv@onlyText
697
698
                                                                                                                        \hv@longCap
                                                                                                                                                    \else
699
700
                                                                                                                        \ifx\hv@floatType\hv@figure
                                                                                                                                         \inf x \mapsto \sup_{e \in \mathbb{N}} \left( \frac{hv@ \log Cap} e \right) 
701
702
                                                                                                                                         \label{thm:condition} $$ \inf_{\boldsymbol{\omega}} \align{\colored} \ali
703
                                                                                                                      \fi
704
                                                                                                       \fi
705
706
                                                                                       \else
                                                                                                         \ifhv@onlyText
707
                                                                                                                        \hv@longCap
708
709
                                                                                                                                                    \else
                                                                                                                                                                     \let\@captype\hv@floatType
710
                                                                                                                                                                     711
                                                                                                                                                                   \fi
712
                                                                                                                                                \fi
713
                                                                                                                                  \fi
714
                                                                                                                                 \ifx\hv@label\ensuremath{\hv@label}\fi
715
                                                                                                               \endminipage
716
717
                                                                                              }% rotatebox
                                                                             }% \sbox
718
719
720
                                         % now we have the object and the caption with the right
721
                                         % rotated angles saved in different boxes
722
723
```

```
\restoreCaptionSkip% save old values
724
        \def\fps@figure{\hvSet@floatPos}%
725
       \ifx\hvSet@floatPos\@empty
                                      % use type default
726
727
         728
       \fi
729
730
       \ifhv@nonFloat
         \noindent
731
732
         \begingroup%
                             Start the nonfloat part
       \else
733
734
         \ifhv@star
           \ifx\hvSet@floatPos\hv@floatBottom
735
             \@nameuse{\hv@floatType*}[b]%
                                               Start the floating environment ******************
           \else
737
738
             \@nameuse{\hv@floatType*}%
           \fi
739
740
         \else
           \begin{\hv@floatType}%
741
                                      Start the floating environment
         \fi
742
743
       \fi
       \checkoddpage
744
       \ifx\hvSet@objectPos\hv@Right\raggedleft\fi
745
       \ifx\hvSet@objectPos\hv@Center
746
747
         \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
       \fi
748
       \fint {\bf ifx} \
749
         \ifoddpage\raggedleft\fi
750
751
       \ifx\hvSet@objectPos\hv@Inner
752
753
         \ifoddpage\else\raggedleft\fi
754
755
756
     % to rotate object and caption together, we save all in another box
     % the caption comes first, if its on the left or the top
757
     % O caption left, inner and odd page, oneside inner
759
     % 1 caption top
     % 2 caption right, inner and even page, oneside outer
     % 3 caption bottom
761
762
      \ifx\hvSet@capPos\hv@Left
763
         \hv@@capPos=0
764
765
       \else
         \ifx\hvSet@capPos\hv@Top
766
767
           \hv@@capPos=1
         \else
768
769
           \ifx\hvSet@capPos\hv@Right
             \hv@@capPos=2
770
771
             \ifx\hvSet@capPos\hv@Bottom
772
773
              \hv@@capPos=3
             \else
774
               \ifx\hvSet@capPos\hv@Inner
775
                 \label{lem:condition} $$ \ifoddpageoroneside \hv@capPos=0\else\hv@capPos=2\fi
776
777
                 \ifx\hvSet@capPos\hv@Outer
778
                   \ifoddpageoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
779
780
                 \else
781
                   \ifx\hvSet@capPos\hv@Before
782
                     \hv@@capPos=0% same as cappos=right
                   \else
783
784
                     \ifx\hvSet@capPos\hv@After
                       \hv@@capPos=2% same as capPos=right
785
                     \fi
786
                   \fi
787
                 \fi
788
               \fi
789
             \fi
790
```

```
\fi
791
         \fi
792
       \fi
793
     %%%
794
                                                  ***** @tempbox
       \savebox{\@tempboxa}{%
795
                                                                  start
         \expandafter\ifcase\the\hv@@capPos% 0 is LEFT
                                                           START \ifcase
796
797
           \ifx\hvSet@capVPos\hv@Center
             \put@CaptionBox
798
799
             \hspace{\hv@floatCapSep}% capfloatsep
            \put@ObjectBox
800
801
             \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
802
               \put@CaptionBox[1]%
803
               \hspace{\hv@floatCapSep}% capfloatsep
804
               \put@ObjectBox[1]%
805
806
             \else% caption on bottom
               \put@CaptionBox[2]%
807
               \hspace{\hv@floatCapSep}% capfloatsep
808
               \put@ObjectBox[2]%
809
810
            \fi
           \fi% end caption left
811
         \or%1 is top
812
           \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
813
814
        \begin{minipage}{\wd\hvCaptionBox}%
           \else
815
        \begin{minipage}{\wd\hv0bjectBox}%
816
817
           \fi
           \centering
818
           \ifhv@fbox
819
        \label{loss} $$ \footnote{\continuous} (0.5\hvBelowCaptionSkip) $$
820
821
        \fbox{\usebox{\hv0bjectBox}}%
           \else
822
        \label{lowCaptionBox} $$ \usebox{\hvCaptionBox}\\ [0.5\hvBelowCaptionSkip]% $$
823
        \usebox{\hv0bjectBox}%
824
825
           \fi
           \end{minipage}%
826
         \or%2 is right
827
           \ifx\hvSet@capVPos\hv@Center
828
829
             \put@ObjectBox
        \hspace{\hv@floatCapSep}%
830
        \put@CaptionBox
831
832
           \else
        \ifx\hvSet@capVPos\hv@Top
833
834
               \put@ObjectBox[1]%
               \hspace{\hv@floatCapSep}% capfloatsep
835
               \put@CaptionBox[1]%
        \else
837
               \put@ObjectBox[2]%
838
               \verb|\hspace{\hv@floatCapSep}| % \ capfloatsep \\
839
840
               \put@CaptionBox[2]%
        \fi
841
           \fi
842
         \or%3 bottom
843
           \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
844
845
             \begin{minipage}{\wd\hvCaptionBox}%
           \else
846
847
             \begin{minipage}{\wd\hv0bjectBox}%
           \fi
848
           \centering
           \ifhv@fbox
850
851
             \fbox{\usebox{\hvCaptionBox}}%
852
853
               854
                    hvAboveCaptionSkip]%
              \usebox{\hvCaptionBox}%
855
856
```

```
\end{minipage}%
857
               \ifcase\the\hv@@capPos
858
      }% End savebox Object and caption
                                                     %%%%%%%%%%%%% @tempboxa
859
860
     % now we rotate the object and caption, if needed
861
862
863
      \ifhv@wide
         \ifoddpageoroneside
864
865
           \if@twocolumn
             \if@firstcolumn
866
867
               \noindent
               \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
868
            \fi
           \fi
870
871
         \else
           \ifoddpage
872
            \if@twocolumn
873
874
               \if@firstcolumn
                 \noindent
875
876
                 \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
               \fi
877
878
            \fi
           \else% evenpage
879
             \if@firstcolumn
               \noindent
881
               \hspace*{\dimexpr-\marginparwidth-\marginparsep}% <- for wide and left page
882
             \fi
883
           \fi
884
         \fi
885
886
       \fint \mathbf{fx}\ hvSet@rotAngle\hv@Zero
887
         \usebox{\@tempboxa}%
888
889
       \else
         \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}%
890
891
       \fi
       \ifhv@nonFloat
892
893
         \ifx\hvSet@objectPos\hv@Center
            \ifhv@nonFloat
894
895
          \hspace{\fill}%
896
            ١fi
897
         \fi
         \endgroup% End the nonfloat part
898
       \else
899
900
         \ifhv@star
           \@nameuse{end\hv@floatType*}% End the floating environment
901
902
           \end{\hv@floatType}% End the floating environment
903
904
         \fi
       \fi
905
906
       \endgroup% startet at main \hvFloat
907
908
     \newenvironment{hvFloatEnv}[1][\textwidth]
909
       {\minipage{#1}}
910
       {\ensuremath{\mbox{\colored} \{}}
911
912
913
     \ExplSyntax0n
914
     \let\clist@item@Nn\clist_item:Nn
     \let\l@clist@Type\l_clist_Type
916
     918
     \let\clist@count@N\clist_count:N
919
     \ExplSyntax0ff
920
     \def\do@@@hvFloat{% special float page: caption <-> fullpage images
922
     \ifx\hvSet@capPos\hv@After \global\hv@@capPos=1
```

```
\else
924
        \ifx\hvSet@capPos\hv@Even \global\hv@@capPos=2
925
926
        \else
          \ifx\hvSet@capPos\hv@Odd
                                   \global\hv@@capPos=3
927
928
          \else
            \ifx\hvSet@capPos\hv@Inner
                                      \global\hv@@capPos=4
929
930
            \else
              \ifx\hvSet@capPos\hv@Outer \global\hv@@capPos=5
931
932
                933
                  935
                  \else
                    \global\hv@@capPos=0
937
                  \fi
938
                \fi
939
              \fi
940
941
            \fi
          \fi
942
943
        \fi
      \fi
944
      \checkoddpage
945
      \set@caption@object{\hv@floatType}% set caption and object into a box
946
      \ifcase\hv@capPos% caption before object 0-> _always_ left
        \setBottomCaption\setPageObject
948
                           caption after object 1-> _always_ right
949
      \or%
        \setPageObject\setBottomCaption
950
951
      \or%
                           caption on even page 2-> left page
        \ifoddpage
952
          \afterpage{\setBottomCaption\setPageObject}%
953
954
        \else% we are on an even page
          \setBottomCaption\setPageObject
955
        \fi
956
                         caption on odd page 3->right page
      \or%
957
958
        \if@twoside
          \if@twocolumn
959
            \ifoddpage
960
              \if@firstcolumn% on right side
961
                \setBottomCaption\setPageObject
962
              \else
963
                \afterpage{\setPageObject\setBottomCaption}% start next column
964
              \fi
965
            \else% left (even) page
966
967
              \if@firstcolumn
                \afterpage{\setPageObject\setBottomCaption}% start next column
968
              \else
                \setPageObject\setBottomCaption
970
971
              \fi
            \fi
972
973
          \else% onecolumn
            \ifoddpage
974
              \setPageObject\setBottomCaption
975
976
            \else% even page
              \afterpage{\setPageObject\setBottomCaption}%
977
            \fi
978
          \fi
979
        \else% oneside
980
          \if@twocolumn
981
982
            \ifoddpage
              \if@firstcolumn% on right side
983
984
                \setBottomCaption\setPageObject
              \else
985
                \setPageObject\setBottomCaption
              \fi
987
988
              \if@firstcolumn% on left side
989
                \afterpage{\setPageObject\setBottomCaption}%
990
```

```
\else
991
                  \setPageObject\setBottomCaption
992
                \fi
993
              \fi
994
            \else % onecolumn
995
              \ifoddpage
996
997
                \setBottomCaption\setPageObject
              \else
998
999
                \afterpage{\setBottomCaption\setPageObject}%
              \fi
1000
            \fi
1001
          \fi
1002
                             caption on the inner column 4->inner
1003
        \or%
           \set@caption@object
1004
1005
          \if@twocolumn
1006
            \ifoddpage
              \if@firstcolumn% on right side
1007
1008
           \setBottomCaption\setPageObject
                              % right column on right side
1009
1010
                \setPageObject\setBottomCaption% start next firstcolumn next page
              \fi
1011
            \else
1012
              \if@firstcolumn% on left side
1013
1014
                \afterpage{\afterpage{\setBottomCaption\setPageObject}}% start next page/first column
              \else% left page/column
1015
                \setBottomCaption\setPageObject% start on same page/column
1016
              \fi
1017
            \fi
1018
          \else% onecolumn
1019
            \setBottomCaption\setPageObject
1020
          \fi
1021
                             caption on the outer column 5->outer
       \or%
1022
1023
           \set@caption@object
          \if@twocolumn
1024
1025
            \ifoddpage
              \if@firstcolumn
1026
                \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
1027
              \else
1028
1029
                \afterpage{\setBottomCaption\setPageObject}%
              \fi
1030
1031
            \else% even page (left)
1032
              \if@firstcolumn
                \setBottomCaption\setPageObject
1033
1034
              \else
     %%%
                         !!!! to-do: !!!!
1035
              \fi
            \fi
1037
          \else% onecolumn
1038
            \setBottomCaption\setPageObject
1039
1040
          \fi
                             caption after object on same page 6->right for twocolumn
1041
        \or%
          \if@twocolumn
1042
1043
            \if@firstcolumn
              \afterpage{\setPageObject\setBottomCaption}%
1044
            \else
1045
              \setPageObject\setBottomCaption
1046
            \fi
1047
          \else% always caption _after_ object for onecolumn
1048
1049
            \verb|\setPageObject\setBottomCaption| \\
          \fi
1050
1051
                             caption before object on same page 7->left for twocolumn
          \if@twocolumn
1052
            \if@firstcolumn
1053
              \setBottomCaption\setPageObject
1054
1055
              \afterpage{\setBottomCaption\setPageObject}%
1056
1057
```

```
\else%
                                                             onecolumn -> same as before
1058
                               \setBottomCaption\setPageObject
1059
                         \fi
1060
                    \fi
1061
1062
                    \endgroup% startet at main \hvFloat
1063
1064
1065
1066
               % ----- the doublepage obejcts -----
1067
               % ||1in+evenside --- |1in+oddside ---||
1068
1069
               \def\do@hvFloat@doublePage#1{% image on left and right page with caption on the right page
1070
                   % #1-> 0/1 caption under/right
1071
                    1072
                    \verb|\global| setlength| hv@tempWidthA{\the \dimexprlin+\dodsidemargin-\hvSet@bindCorrection}| \% | for the context of the conte
1073
                    \xdef\hv@caption@format@temp{\hv@caption@format}% it gets lost otherwise for next afterpage
1074
1075
                         \ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ensuremath{\ens
                    \global\hv@switchTypefalse
1076
                      \endgroup% started at main macro \hvFloat
1077
                    \setcounter{hv@tempCNTfigA}{\value{figure}}%
1078
                    \setcounter{hv@tempCNTfigB}{\value{figure}}%
1079
                    \setcounter{hv@tempCNTtabA}{\value{table}}%
1080
 1081
                    \setcounter{hv@tempCNTtabB}{\value{table}}%
                    \savebox\hvCaptionBox{% NO rotation
1082
                         \minipage{\textwidth}%% minipage, to get hyphenation
1083
1084
                               \let\@captype\hv@floatType
1085
                               \caption*{\hv@longCap}%
1086
                         \endminipage}%
                    \savebox\hv0bjectBox{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1087
1088
                    \ifnum#1=0\relax
                                                                     % no rotation, caption below
                         \hv@typeout{Texthöhe: \the\textheight}%
1089
1090
                         \hv@typeout{Objekthöhe: \the\ht\hvObjectBox}%
                         \hv@typeout{Captionhöhe: \the\ht\hvCaptionBox}%
1091
                         \@tempdima=\dimexpr\ht\hv0bjectBox+\ht\hvCaptionBox+\abovecaptionskip+\belowcaptionskip +\textfloatsep
1092
                                       \relax%+\floatsep\relax
                         1093
                         \ifdim\@tempdima > \dimexpr\textheight-\hv@minTextlines\relax
1094
1095
                               \hv@typeout{hvfloat: switched to floattype p}%
1096
                              \hv@switchTypetrue
                         \fi
1097
                   \fi
1098
                    \hv@typeout{do@hvFloat@doublePage:hv@tempWidthA=\the\hv@tempWidthA}%
1099
1100
                    \ifhv@forceOutput
                         \do@hvFloat@doublePAGECaptionRight{#1}% no cheque
1101
                    \else
1102
                    \checkoddpage
1103
                    \ifoddpage
1104
                         \if@twocolumn
1105
1106
                               \if@firstcolumn
                                   \ifhv@switchTvpe
1107
                                        \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1108
1109
                                   \else
                                        \afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}%
1110
                                   \fi
1111
                               \else
1112
1113
                                    \ifhv@tugboat
                                        \do@hvFloat@doublePageCaptionRight{#1}%
1114
                                    \else
1115
                                        \ifhv@switchType
1116
1117
                                              \do@hvFloat@doublePAGECaptionRight{#1}%
                                         \else
1118
                                              1119
                                        \fi
1120
                                   \fi
1121
                              \fi
1122
1123
                         \else
```

```
\ifhv@switchType
1124
                                      \do@hvFloat@doublePAGECaptionRight{#1}%
1125
                                \else
1126
1127
                                      \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%
1128
                                \fi
                           \fi
1129
1130
                     \else% we have an even page
                           \if@twocolumn
1131
                                \if@firstcolumn
1132
                                      \ifhv@switchType
1133
                                           1134
                                      \else
1135
                                           1136
                                     \fi
1137
1138
                                \else% second column
1139
                                      \ifhv@switchType
                                           1140
1141
                                      \else
                                           \afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}%
1142
1143
                                      \fi
                                \fi
1144
                           \else% onecolumn
1145
                                \ifhv@switchTvpe
1146
1147
                                     \else
1148
                                      1149
1150
                                \fi
1151
                           \fi
                     \fi
1152
                     \label{let_condition} $$ \end{area} $$ \en
1153
1154
                  \endgroup% started at main macro \hvFloat
1155
1156
1157
                \def\do@hvFloat@doublePageCaptionRight#1{% image on left and right page with caption on the right page
1158
                     \verb|\do@hvFloat@doublePageCaptionRightObjectLeft{Opt}| % \label{log_hvFloat} % \label{log_hvFloat} % \label{log_hvFloat} % \label{log_hvFloat} % \label{log_hvFloat} % \label{log_hvFloat} % % \label{log_hvFloat} % \label{log_hvFloat} % % \label{lo
1159
                     1160
1161
1162
                \def\do@hvFloat@doublePageCaptionRightObjectLeft#1{% left part of the object
1163
1164
                     \begin{\hv@floatType*}[!t]
                           \hv@set@noverticalSpace
1165
1166
                           \hfuzz=\maxdimen
                           \let\c@hv@tempCNTfigA\c@figure
1167
                           \let\c@hv@tempCNTtabA\c@table
                           \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1169
                           \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
                           \hv@typeout{Floatpositionsparameter: !t}%
1171
1172
                           \clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
1173
                           \ifx\hv@label\@empty
1174
1175
                           \else
                                \ifx\hv@floatType\hv@figure
1176
                                      \global\refstepcounter{hv@tempCNTfigA}%
1177
                                \else
1178
1179
                                      \global\refstepcounter{hv@tempCNTtabA}% before caption
                                \fi
1180
                                \label{\hv@label}%
1181
                           \fi
1182
1183
                           \ifhv@global@sameHeight
                                \hv@typeout{text should be of same height of both pages}%
1184
                                 \par\noindent\phantom{\parbox{\textwidth}{\caption*{\hv@longCap}}}%
1185
                                   \vspace{-2pt}%
1186
                           \fi
1187
                           \hv@reset@noverticalSpace
1188
1189
                     \end{\hv@floatType*}%
```

```
1190
     \def\do@hvFloat@doublePageCaptionRightObjectRight#1{% right part of the object
1191
1192
       \begin{\hv@floatType*}[!t]
         \hv@set@noverticalSpace
1193
1194
         \hfuzz=\maxdimen
         \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1195
         \global\savebox\hv0bjectBox{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
         \hspace*{-\hv@tempWidthA}%
1197
         \savebox\hv@rightBox{\clipbox*{\hv@leftPageObjectWidth{} -\depth{} \midth{} \height{}}{\usebox\
1198
              hv0biectBox}}%
         \global\setlength\hv@tempWidthB{\dimexpr\textwidth-\wd\hv@rightBox-\hvSet@bindCorrection+lin+\
1199
              oddsidemargin-\hv@floatCapSep\relax}%
         \hv@typeout{Height of right box: \the\ht\hv@rightBox}%
1201
         \ifdim\dp\hv@rightBox > \z@
1202
1203
               \rack {\depth}{\usebox}\hv@rightBox}\%
            \else
1204
1205
              \usebox\hv@rightBox
            \fi
1206
            \c@hv@tempCNTfigB=\numexpr\c@figure-1\relax
1207
            \c@hv@tempCNTtabB=\numexpr\c@table-1\relax
1208
            \ifx\hv@label\@empty\else
1209
             \ifx\hv@floatType\hv@figure
1210
1211
               \refstepcounter{hv@tempCNTfigB}%
             \else
1212
                \refstepcounter{hv@tempCNTtabB}%
                                                before caption
1213
              \fi
1214
              \label{\hv@label-2}%
1215
            \fi
1216
            \ifx\hv@caption@format@temp\@empty\else
1217
             \expandafter\captionsetup\expandafter{\hv@caption@format@temp}%
1218
            \fi
1219
1220
            \c@figure=\numexpr\c@hv@tempCNTfigB-1\relax
            \c@table=\numexpr\c@hv@tempCNTtabB-1\relax
1221
            \ifnum#1>\z@
                           % caption on the right
1222
              \hv@typeout{doublePage: capAngle=\hvSet@capAngle}%
1223
              \int \int \mathbf{ifnum} \hvSet@capAngle > \z@
1224
1225
               \hspace{\hv@floatCapSep}%
               1226
1227
                 \abovecaptionskip=0pt% local inside parbox
                 \belowcaptionskip=0pt% local inside parbox
1228
1229
                 \ifx\relax\hv@shortCap\relax
                   \caption{\hv@longCap}%
1230
1231
                 \else
                   \caption[\hv@shortCap]{\hv@longCap}%
1232
                 \fi
               }}}%
1234
               \else
1236
1237
               oddsidemargin-\hv@floatCapSep\relax}%
               \hspace{\hv@floatCapSep}%
1238
1239
               \rlap{\parbox[b][\dimexpr\ht\hv@rightBox+\dp\hv@rightBox][\hv@eapVPos]{\hv@tempWidthB}{%
                 \abovecaptionskip=0pt% local inside parbox
1240
1241
                 \belowcaptionskip=0pt% local inside parbox
                 \ifx\hv@shortCap\@empty
1242
1243
                   \caption{\hv@longCap}%
                 \else
1244
                   \caption[\hv@shortCap]{\hv@longCap}%
1245
                 \fi
1246
1247
               }}%
               \ifx\hv@label\ellower=\hv@label\hv@label-cap}\fi
1248
             \fi
1249
            \else % #1 = 0 caption below
1250
             \ifx\relax\hv@shortCap\relax
1251
               \caption{\hv@longCap}%
1252
1253
```

```
\caption[\hv@shortCap]{\hv@longCap}%
1254
1255
                          1256
                      \fi
1257
1258
                 \vspace{0pt}%
                 \hv@reset@noverticalSpace
1259
1260
             \end{\hv@floatType*}
1261
1262
          \newsavebox\hv@boxLeftPage
1263
          \newsavebox\hv@boxRightPage
1264
1265
          % ||1in+evenside --- |1in+oddside ---||
1266
1267
1268
1269
          \def\do@hvFloat@doublePAGE#1\{% image on left and right page with caption on the right
1270
             % #1-> 0/1 caption under/right
          % \global\setlength\hv@tempWidthA{\the\dimexprlin+\oddsidemargin-\hvSet@bindCorrection}%
1271
               \global\setlength\hv@leftPageObjectWidth{\the\dimexpr\paperwidth-lin-\evensidemargin-\
                   hvSet@bindCorrection}%
             1273
                       }\else\hv@floatObject\fi}%
             \label{lem:condition} $$\operatorname{cxpandafter}_{\colored{condition}} \exp \operatorname{cxpandafter}_{\colored{condition}} -\operatorname{cxpandafter}_{\colored{condition}} $$\operatorname{cxpandafter}_{\colored{condition}} $$
                       \verb|\expandafter\global| expandafter \\ \verb|\expandafter\hv@boxRightPage\expandafter\floor| \\ | \expandafter\floor| \\ | \expandaf
1275
                       1276
              \checkoddpage
1277
             \ifoddpage
                 \if@twocolumn
1278
1279
                     \if@firstcolumn
                        \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1280
1281
                     \else
                         \do@hvFloat@doublePAGECaptionRight{#1}%
1282
                     \fi
1283
1284
                 \else
                     \verb|\do@hvFloat@doublePAGECaptionRight{#1}%|
1285
                 \fi
1286
1287
                 \if@twocolumn
1288
1289
                        1290
                     \else
1291
1292
                         \afterpage{\afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}%
                     \fi
1293
                 \else
1294
                     1295
                 \fi
             \fi
1297
1298
              \endgroup% startet at main macro
1299
1300
1301
          \def\do@hvFloat@doublePAGECaptionRight#1{% image on left and right page with caption on the right
             % #1-> 0/1 caption under/right
1302
                 \afterpage{%
1303
1304
                     \hfuzz=\maxdimen
                     \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1305
                     \ifhv@useOBox
1306
                         \global\let\hv0bjectBox\hv0Box
1307
1308
                     \else
                         \global\savebox\hv0bjectBox{\hv@float0bject}%
1309
                     \fi
1310
                     \noindent
1311
                     \global\setlength\hv@tempWidthA{\the\dimexprlin+\oddsidemargin-\hvSet@bindCorrection}%
1312
                     \global\setlength\hv@leftPageObjectWidth{\the\dimexpr\paperwidth-lin-\evensidemargin-\
1313
                              hvSet@bindCorrection}%
```

```
\clipbox*{0 -\depth{} \hv@leftPaqeObjectWidth{} \height}{\usebox\hvObjectBox}%
1314
          \null\newpage\if@twocolumn\null\newpage\fi
1315
          \expandafter\global\expandafter\savebox\expandafter\hv0bjectBox\expandafter{\ifhv@use0Box\usebox{\
1316
               hv0Box}\else\hv@float0bject\fi}%
1317
          \noindent
          \hspace*{\dimexpr-\hv@tempWidthA}%
1318
          \clipbox*{\the\hv@leftPageObjectWidth{} -\depth{} \width{} \height{}}{\usebox\hvObjectBox}%
1319
1320
          \begingroup
             \ifnum#1>0
1321
               \medskip
1322
               \ifdim\dp\hv0bjectBox > \z@
1323
                 1324
1325
                   \ifx\relax\hv@shortCap\relax
1326
                    \captionof{\hv@floatType}{\hv@longCap}%
                   \else
1327
1328
                     \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
                   \fi
1329
1330
                 }}%
                 \ifx\hv@label\@empty\else\label{\hv@label}\fi
1331
               \else
1332
                 \rotatebox{90}{\parbox{\the}\dimexpr\ht\hv0bjectBox+\dp\hv0bjectBox}{\%}
1333
                   \ifx\relax\hv@shortCap\relax
1334
                    \captionof{\hv@floatType}{\hv@longCap}%
1335
1336
                     \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1337
                   \fi
1338
1339
                 }}%
                 \ifx\hv@label\@empty\else\label{\hv@label}\fi
1340
               \fi
1341
            \else% caption not rotated
1342
             \par\noindent
1343
             \parbox{\textwidth}{%
1344
1345
                 \ifx\relax\hv@shortCap\relax
                   \captionof{\hv@floatType}{\hv@longCap}%
1346
                 \else
1347
1348
                   \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
                 \fi
                 \label{$\vec{\mathbf{h}}$ if $\mathbf{x} \rightarrow \mathbb{C}_{\mathbf{b}} \
1350
               }%
1351
            \fi
1352
            \endgroup
1353
1354
            \newpage\if@twocolumn\null\newpage\fi
      }%
1355
1356
1357
    % ||1in+evenside --- |1in+oddside ---||
1358
1359
     \def\do@hvFloat@doubleFULLPAGE#1{\%}\ image\ on\ left\ and\ right\ page\ with\ caption\ before/below/right/after
1360
      % #1-> 0/1 caption under/right
1361
1362
      \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
      \ifx\hvSet@capPos\hv@After \global\hv@@capPos=1
1363
      \else
1364
1365
        \ifx\hvSet@capPos\hv@Before \global\hv@@capPos=0
        \else
1366
1367
          \global\hv@@capPos=2 % other caption type
      \fi\fi
1368
1369
      \checkoddpage
      1370
      1371
           width of the right side offset
1372
      \global\setlength\hv@leftPageObjectWidth{\dimexpr\paperwidth-\hvSet@bindCorrection}%
1373
       1374
       \savebox\hv@rightBox{\clipbox*{\the\hv@leftPageObjectWidth{} \depth{} \width{} \height}{\usebox\
1375
       \expandafter\captionsetup\expandafter{\hv@caption@format}%
1376
    \ifoddpage
1377
```

```
\ifcase\hv@@capPos % =0 Caption before
1378
1379
          \if@twocolumn
            \if@firstcolumn
1380
             \ifhv@twoColumnCaption
1381
               \set@Normal@Bottom@Caption*
1382
               \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionBefore}%
1383
1384
             \else
               1385
             \fi
1386
            \else% \if@firstcolumn
1387
              \set@Normal@Bottom@Caption
1388
             \verb|\doghvFloat@doubleFULLPAGE@CaptionBefore||
1389
            \fi
          \else% \if@twocolumn
1391
1392
            \set@Normal@Bottom@Caption
            \verb|\do@hvFloat@doubleFULLPAGE@CaptionBefore| \\
1393
          \fi
1394
1395
        \or % =1 Caption after
          \ifhv@twoColumnCaption
1396
1397
            \if@firstcolumn
             \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol}%
1398
1399
             \do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol
1400
1401
            \fi
          \else
1402
            \if@twocolumn
1403
1404
             \if@firstcolumn
               \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
1405
              \else
1406
               \do@hvFloat@doubleFULLPAGE@CaptionAfter
1407
             \fi
1408
            \else
1409
1410
             \do@hvFloat@doubleFULLPAGE@CaptionAfter
            \fi
1411
          \fi
1412
        \else% \ifcase >1 all other Captions
1413
          \if@twocolumn
1414
            \if@firstcolumn
1415
              1416
1417
            \else
1418
             \do@hvFloat@doubleFULLPAGE@CaptionOther{#1}%
            \fi
1419
          \else % \if@twocolumn
1420
1421
            \do@hvFloat@doubleFULLPAGE@CaptionOther{#1}%
          \fi
1422
1423
        \fi% \ifcase
      \else% we have an even page
1424
        \ifcase\hv@@capPos% Before
1425
          \if@twocolumn
1426
1427
            \if@firstcolumn
             \ifhv@twoColumnCaption
1428
               \afterpage{\afterpage\set@Normal@Bottom@Caption*\afterpage{\
1429
                    do@hvFloat@doubleFULLPAGE@CaptionBefore \{\#1\}\}\}\%
             \else
1430
               \afterpage{\afterpage{\set@Normal@Bottom@Caption\
1431
                    do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}}%
             \fi
1432
            \else
1433
             1434
            \fi
1435
1436
          \else% \if@twocolumn
            1437
1438
        \or % capPos after
1439
          \if@twocolumn
1440
            \if@firstcolumn
1441
1442
             \ifhv@twoColumnCaption
```

```
\afterpage{\afterpage\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{#1}}}%
1443
              \else
1444
                1445
              \fi
1446
1447
            \else
              \ifhv@twoColumnCaption
1448
                1449
              \else
1450
1451
                \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter{#1}}}%
              \fi
1452
            \fi
1453
          \else% \ifatwocolumn
1454
            \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
1455
          \fi
1456
         \else % \ifcase Any other caption
1457
1458
          \if@twocolumn
            \if@firstcolumn
1459
              1460
            \else
1461
1462
              \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}}%
            \fi
1463
          \else
1464
            \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}}%
1465
1466
          \fi
        \fi% \ifcase
1467
       ∖fi% main ifoddpage
1468
1469
       \endgroup% started at main macro \hvFloat
1470
1471
     \def\set@Normal@Bottom@Caption{\@ifnextchar*\set@Normal@Bottom@CaptionStar\set@Normal@Bottom@Caption@}
1472
1473
     \def\set@Normal@Bottom@Caption@{%
        \begin{\hv@floatType}[!b]
1474
1475
          \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
          \ifhv@separatorLine\drawSepLine\fi
1476
1477
           \expandafter\captionsetup\expandafter{\hv@caption@format}%
          \ifhv@onlvText
1478
            \hv@longCap
          \else
1480
            \ifx\hv@shortCap\@empty
1481
              \caption of {\hv@floatType} {\hv@longCap} % \\
1482
1483
1484
              \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
            \fi
1485
1486
          \fi
          \ifx\hv@label\@empty\else\label{\hv@label-cap}\fi
1487
        \end{\hv@floatType}%
1489
     \def\set@Normal@Bottom@CaptionStar*{%
1490
        \begin{\hv@floatType*}[!b]
1491
1492
          \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
          \ifhv@separatorLine\drawSepLine\fi
1493
           \expandafter\captionsetup\expandafter{\hv@caption@format}%
1494
1495
          \ifhv@onlvText
            \hv@longCap
1496
1497
          \else
            \ifx\hv@shortCap\@empty
1498
1499
              \captionof{\hv@floatType}{\hv@longCap}%
            \else
1500
              \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1501
            \fi
1502
1503
          \fi
          1504
        \end{\hv@floatType*}%
1505
1506
1507
     \def\do@hvFloat@doubleFULLPAGE@CaptionBefore{%
1508
      \afterpage{%
1509
```

```
\hfuzz=\maxdimen
1510
        1511
1512
        \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
            interlineskip
1513
        \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
        \thispagestyle{empty}%
1514
        \ifx\hv@floatType\hv@figure
1515
         \global\refstepcounter{hv@tempCNTfigB}%
1516
        \else
1517
         \global\refstepcounter{hv@tempCNTtabB}% before caption
1518
        \expandafter\label\expandafter{\hv@label}%
1520
        \clipbox*{0 0 \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
1522
        \afterpage{%
1523
         \if@twocolumn\newpage\null\newpage\fi
         1524
1525
         \thispagestyle{empty}%
1526
         \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
             -0.5\paperheight+0.5\ht\hv0bjectBox
         \hspace*{\hv@tempWidthA}%
1527
         \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1528
         1529
             \hv0bjectBox}%
1530
         \global\refstepcounter{hv@tempCNTfigA}%
1531
         \else
1532
1533
           \global\refstepcounter{hv@tempCNTtabA}% before caption
1534
         \expandafter\label\expandafter{\hv@label-2}%
1535
         \newpage\if@twocolumn\null\newpage\fi
1536
1537
      }}%
1538
1539
    \newif\ifhv@temp
1540
1541
    \def\do@hvFloat@doubleFULLPAGE@CaptionAfter{%
1542
      \afterpage{%
1544
        1545
1546
        \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
            interlineskip
1547
        \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
        \thispagestyle{empty}%
1548
        \clipbox*{0 \the\dp\hv0bjectBox{} \the\hv@leftPageObjectWidth{} \the\ht\hv0bjectBox}{\usebox\
1549
            hv0biectBox}%
        \ifx\hv@floatType\hv@figure
1550
         \refstepcounter{hv@tempCNTfigA}%
1551
         \refstepcounter{hv@tempCNTtabA}% before caption
1553
1554
        \fi
        1555
         \newpage
1556
1557
         \if@twocolumn\null\newpage\fi
         \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1558
1559
         \thispagestyle{empty}%
         \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
1560
             -0.5\paperheight+0.5\ht\hv0bjectBox
         \hspace*{\hv@tempWidthA}%
1561
         1563
             \hv0bjectBox}%
         \ifx\hv@floatType\hv@figure
1564
           \refstepcounter{hv@tempCNTfigB}%
1565
         \else
1566
1567
           \refstepcounter{hv@tempCNTtabB}%
         \fi
1568
         \expandafter\label\expandafter{\hv@label-2}%
1569
```

```
\newpage\if@twocolumn\null\newpage\fi
1570
          \begin{\hv@floatType}[!b]
1571
            \ifhv@separatorLine\drawSepLine\fi
1572
             \expandafter\captionsetup\expandafter{\hv@caption@format}%
1573
1574
            \ifhv@onlyText
             \hv@longCap
1575
1576
            \else
              \ifx\hv@shortCap\@emptv
1577
                \captionof{\hv@floatType}{\hv@longCap}%
1578
              \else
1579
                \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1580
             \fi
1581
            \fi
1582
            \  \ifx \ \end{\ended} \ \fi
1583
          \end{\hv@floatType}%
1584
1585
      }%
1586
1587
     \def\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{%
1588
1589
        \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1590
        \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
1591
             interlineskip
        \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
        \thispagestyle{empty}%
1593
        \ifx\hv@floatType\hv@figure
1594
1595
          \refstepcounter{hv@tempCNTfigA}%
        \else
1596
          \refstepcounter{hv@tempCNTtabA}% before caption
1597
        \fi
1598
1599
        \ifx\hv@label\ellower=\hv@label\hv@label\fi
        \verb|\clipbox*{0 0 $$ \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}% $$
1600
          \newpage\if@twocolumn\null\newpage\fi
          1602
          \thispagestyle{empty}%
1603
          \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
1604
               -0.5\paperheight+0.5\ht\hv0bjectBox
          \hspace*{\hv@tempWidthA}%
1605
          1606
          1607
               \hv0bjectBox}%
1608
          \ifx\hv@floatType\hv@figure
            \refstepcounter{hv@tempCNTfigB}%
1609
1610
          \else
            \refstepcounter{hv@tempCNTtabB}% before caption
1611
          \fi
          \ifx\hv@label\ellower=2\fi
1613
1614
          \newpage
          \begin{\hv@floatType*}[!b]
1615
            \hv@twoColumnCaptiontrue
1616
            \ifhv@separatorLine\drawSepLine\fi
1617
             \expandafter\captionsetup\expandafter{\hv@caption@format}%
1618
1619
            \ifhv@onlyText
              \hv@longCap
1620
1621
            \else
              \ifx\hv@shortCap\@empty
1622
1623
               \captionof{\hv@floatType}{\hv@longCap}%
              \else
1624
                \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1625
              \fi
1626
1627
            \fi
            1628
          \end{\hv@floatType*}%
1629
      }%
1630
1631
1632
     \def\do@hvFloat@doubleFULLPAGE@CaptionOther#1{%
1633
```

```
\afterpage{%
1634
                \hfuzz=\maxdimen
1635
                1636
                \thispagestyle{empty}%
1637
1638
                \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                                                                                                                                                                                     -0.51
                        paperheight+0.5\ht\hv0bjectBox
                \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
1639
                \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1640
                \clipbox*{0 \depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
1641
                \ifx\hv@floatType\hv@figure
1642
                    \refstepcounter{hv@tempCNTfigA}%
                \else
1644
                   \refstepcounter{hv@tempCNTtabA}%
1645
                                                                              before caption
                \fi
1646
1647
                \label{\hv@label}%
1648
                \afterpage{%
                   \if@twocolumn\newpage\if@firstcolumn\else\null\newpage\fi\fi
1649
1650
                   \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
                   \thispagestyle{empty}%
1651
                   \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                            -0.5\paperheight+0.5\ht\hv0bjectBox
                   \hspace*{\hv@tempWidthA}%
1653
                   \clipbox^{hv@leftPage0bjectWidth{} \dp\hv0bjectBox{} \wd\hv0bjectBox{} \ht\hv0bjectBox}{\usebox\}
1654
                            hv0bjectBox}%
                   \ifx\hv@floatType\hv@figure
1655
                       \refstepcounter{hv@tempCNTfigB}%
1656
1657
                   \else
                       \refstepcounter{hv@tempCNTtabB}% before caption
1658
                   \fi
1659
                   \expandafter\label\expandafter{\hv@label-2}%
1660
                   \label{local-prob} $$\served \ \end{0.9} $$ \served \ \end{0.9} $$ \
1661
                   \ifnum#1 > 0\relax
                                                      % rotation with 90°
1662
1663
                         \setlength\hv@tempWidthB{\dimexpr\ht\hvCaptionBox+\wd\hvObjectBox+2\hvSet@bindCorrection}%
                       \ifdim\hv@tempWidthB < 2\paperwidth
1664
                          \rotatebox[origin=lb]{90}{\makebox[\paperheight][c]{\parbox{0.8\ht\hv0bjectBox}{%
1665
1666
                               \expandafter\captionsetup\expandafter{\hv@caption@format}%
                             \ifhv@onlyText
1667
                                 \hv@longCap
1668
1669
                                 \ifx\hv@shortCap\@empty
1670
                                    \captionof{\hv@floatType}{\hv@longCap}%
1671
1672
                                    \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1673
1674
                                \fi
                             \fi
1675
                          }}}% rotatebox
                          1677
                       \else% ifdim: no space left on page
                          1679
                                   centering
                              \parbox{0.8\textwidth}{%
1680
                                 \ifhv@onlyText
1681
1682
                           \hv@longCap
                        \else
1683
1684
                                    \ifx\hv@shortCap\@empty
                                       \captionof{\hv@floatType}{\hv@longCap}%
1685
1686
                                    \else
                                       \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1687
                                    \fi
                                \fi
1689
1690
                             1691
                          \endminipage}}}%
                       \fi
1693
                   \else% ifnum, caption not rotated, under or over the right page
1694
                       \setlength\hv@tempWidthA{\dimexpr\paperheight-\ht\hvObjectBox}%
1695
                       \ifdim\hv@tempWidthA > \ht\hvCaptionBox
1696
```

```
\else
1697
                                     \put(\the\dimexpr1.5\paperwidth-\wd\hv0bjectBox-\hvSet@bindCorrection,\the\dimexpr\ht\
1698
                                                 hv Caption Box + \ above captions kip + \ below captions kip) \\ \{\ makebox[0pt][c] \\ \{\ parbox \\ \ textwidth \\ \} \\ \{\% \ parbox \\ parbox \\ \ p
                                           \expandafter\captionsetup\expandafter{\hv@caption@format}%
1699
                             \ifhv@onlyText
1700
                                 \hv@longCap
1701
1702
                              \else
                                              \ifx\hv@shortCap\@empty
1703
1704
                                                   \captionof{\hv@floatType}{\hv@longCap}%
                                              \else
1705
1706
                                                   \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
                                              \fi
1707
                                         \fi
1708
                                    }}}%
1709
1710
                                    \fi
1711
                           \fi% end \ifnum#1>0
1712
                           \verb|\newpage| if @twocolumn| \verb|\newpage| fi|
1713
1714
1715
                 }%
1716
1717
1718
1719
             \def\setBottomCaption{%
                  \begin{\hv@floatType}[!b]%
1720
                  \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1721
1722
                  1723
                  \par
                  \usebox\hvCaptionBox
1724
                  \end{\hv@floatType}%
1725
1726
1727
             \def\setPageObject{%
1728
                  \ifhv@star
1729
1730
                      \begin{\hv@floatType*}[p]%
                  \else
1731
1732
                       \begin{\hv@floatType}[p]%
                  \fi
1733
1734
                  \hfuzz=\maxdimen
                  \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1735
1736
                      \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep}%-0.5\baselineskip%
1737
                      \checkoddpage
1738
1739
                      \if@twoside
                           \ifoddpage
1740
1741
                                \hspace*{\the\dimexpr-\oddsidemargin-\parindent-lin}%
                           \else
1742
1743
                                \fi
1744
1745
                      \else
                           \hspace*{\the\dimexpr-\oddsidemargin-\parindent-lin}%
1746
                      \fi
1747
1748
                      \AtBeginShipoutNext{\thispagestyle{empty}}%
                      \usebox\hv0bjectBox
1749
1750
                  \else
                      \usebox\hv0bjectBox
1751
1752
                  \fi
1753
                  \ifhv@star
1754
                      \end{\hv@floatType*}%
                  \else
1755
1756
                      \end{\hv@floatType}\%
                  \fi
1757
1758
1759
             \ExplSyntax0n
1760
1761
             \def\getMultiCaptionAndLabel{%
1762
```

```
\global\sbox\hvCaptionBox{\minipage[b]{\linewidth}%
1763
                           \captionsetup{aboveskip=\z@,belowskip=\z@,position=below,parbox=none}%,skip=-lex}%
1764
                           \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1765
                           \parskip=-0.5\baselineskip
1766
1767
                           \hv@cntb=\clist\_count:N\l_clist\_Type
                           \advance\hv@cntb by \@ne
1768
1769
                           \hv@cnta=1
                           \loop
1770
                                \edef\@captype{\clist_item:Nn\l_clist_Type{\hv@cnta}}%
1771
                                \label{lem:nnl_clist_LofCaption_hv@cnta} $$ \end{area} $$ \operatorname{LofCaption}_{\norm{n}} $$
1772
                                \ifx\@tempa\@empty
1773
                                      \caption{\clist_item:Nn\l_clist_Caption{\hv@cnta}}{
1774
                                      \label{lem:nnl_clist_Caption} $$ \operatorname{caption}\exp{\operatorname{caption}_{\operatorname{chist_item:Nn}_c}} $$
1776
1777
                                \fi
                                \label{$\endalign*} $$ \endalign* \endalig
1778
1779
                                \ifx\@tempa\@empty
1780
                                      \expandafter\label\expandafter{\clist item:Nn\l clist Label{\hv@cnta}-cap}\fi
1781
                                 \advance\hv@cnta by \@ne
1782
                           \ifnum\hv@cnta<\hv@cntb
1783
1784
                           \vspace{-\baselineskip}% no vspace at the end
1785
1786
                    \endminipage}%
1787
1788
                \def\getMultiObjectAndLabel{%
1789
                     \global\sbox\hv0bjectBox{%
1790
                           \ifhv@vFill
1791
                                \minipage[b][\textheight][s]{\columnwidth}%
1792
1793
                                \minipage{\columnwidth}%
1794
                           \fi
1795
                           \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1796
                           \ifx\hvSet@objectPos\hv@Right\raggedleft\else
1797
                                \ifx\hvSet@objectPos\hv@Left\raggedleft\else
1798
                                       \ifx\hvSet@objectPos\hv@Center\centering
                           \fi\fi\fi
1800
                           \hv@cntb=\clist_count:N\l_clist_Type
1801
1802
                           \advance\hv@cntb by \@ne
                           \hv@cnta=1
1803
1804
                           \loop
                                \def\@temp{\clist item:Nn\l clist Object{\hv@cnta}}%
1805
1806
                                \ifhv@objectFrame\frame{\@temp}\else\@temp\fi
                                \edef\@tempa{\clist_item:Nn\l_clist_Label{\hv@cnta}}%
1807
                                \label{lem:nnl_clist_Type} $$\end{ \clist_item:Nn\l_clist_Type_{\hv@cnta}} $$
                                \edef\@captype{hv@p\@tempb}%
1809
                                \fint \mathbf{x}\ @tempa\@empty
                                \else
1811
1812
                                      \refstepcounter{\@captype}%
                                      1813
                                \fi
1814
1815
                                \int Type\par\hv@vskip\fi
                                 \advance\hv@cnta by \@ne
1816
1817
                           \ifnum\hv@cnta<\hv@cntb
                                \ifhv@vFill\vfill\fi
1818
1819
                           \repeat
                    \endminipage}%
1820
1821
                \def\getMultiSubCaptionAndLabel{%
1822
1823
                    \global\sbox\hvCaptionBox{%
                           \minipage{\linewidth}%
1824
                           \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1825
                           \setlength\belowcaptionskip{5pt}%
1826
                           \setlength\abovecaptionskip{0pt}%
1827
                           \label{lem:nnl_clist_Type} $$ xdef \ensuremath{$0$} the same for all subfloats $$ xdef \ensuremath{$0$} the same for all
1828
1829
                           \edef\@tempa{\clist item:Nn\l clist LofCaption{1}}%
```

```
\ifx\@tempa\@emptv
1830
                                  \caption{\clist item:Nn\l clist Caption{1}}%
1831
                           \else
1832
                                  \expandafter\caption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{1}}%
1833
                           \fi
1834
                           \edef\@tempa{\clist item:Nn\l clist Label{1}}%
1835
1836
                           \ifx\@tempa\@empty\else\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{1}-cap}\fi
                     \endminipage}%
1837
1838
1839
                 \def\getMultiSubObjectAndLabel{%
1840
                     \global\sbox\hv0bjectBox{%
1841
                            \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1842
1843
                           \ifhv@vFill
                                  \minipage[b][\textheight][s]{\columnwidth}%
1844
1845
                                 \captionsetup{belowskip=0pt}%
                           \else
1846
1847
                                  \minipage{\columnwidth}%
                           \fi
1848
                               \ifx\hv@subcaption@format\@empty\else
1849
                                    \expandafter
1850
                                    \colone{temp} 
1851
                                                                                                      {\hv@subcaption@format}%
1852
1853
                               \fi
                           \ifx\hvSet@objectPos\hv@Right\raggedleft\else
1854
                                  \ifx\hvSet@objectPos\hv@Left\raggedleft\else
1855
1856
                                       \ifx\hvSet@objectPos\hv@Center\centering
                            \fi\fi\fi
1857
                           1858
                           \advance\hv@cntb by \@ne
1859
1860
                           \hv@cnta=2
                           \ensuremath{\mbox{\sf edef}\ensuremath{\mbox{\sf @captype}\{\clist_item:Nn\l_clist_Type\{1\}\}\%} the same for all subfloats
1861
1862
                           \ifx\@tempa\@empty
                           \else
1863
                                    \refstepcounter{\@captype}%
1864
                                    \expandafter\label\expandafter{\@tempa}%
1865
                           \fi
1866
1867
                                  \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cnta}}%
1868
                                  1869
                                  \begingroup
1870
                                  \edef\@tempa{\clist_item:Nn\l_clist_LofCaption{\hv@cnta}}%
1871
                                  \ifx\@tempa\@empty
1872
1873
                                       \subcaption{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
                                  \else
1874
                                       \expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
1875
                                 \fi
1876
                                  \label{$\endalign{ \clist_item:Nn\l_clist_Label{\hv@cnta}}} % \label{$\endalign{ \clist_item:Nn\l_clist_Label{\hv@cnta}} % \label{\clist_item:Nn\l_clist_Label{\hv@cnta}} % \label{\clist_item:Nn\l_clist_Label{\hv@cnta}} % \label{\clist_item:Nn\l_clist_Label{\hv@cnta}} % \label{\clist_item:Nn\l_clist_Label{\hv}} % \label{\clist_item:Nn\l_clist_Label{\hv}} % \label{\clist_item:Nn\l_clist_Label{\hv}} % \label{\clist_item:Nn\l_clist_Label{\hv}} % \label{\clist_item:Nn\l_clist_Label} % \label{\clist_item:Nn\l_clist_Label} % \label{\clist_item:Nn\l_clist_Label} % \label{\clist_item:Nn\l_clist_Label} % \label{\clist_item} % \label{\clist_label} % \label{\clist_item} % \label\cline{\clist_item} % \label\cline{\cline{\clist_item}} % \label\cline{\cline{\clist_item}} % \label\cline{\cline{\cline{\clist_item}} % \label\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline(\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\cline{\clis
1877
                                  \ifx\@tempa\@empty
1878
1879
                                  \else
                                       \label{$\expandafter(\clist_item:Nn\l_clist_Label(\hv@cnta)}$
1880
                                  \fi
1881
1882
                                  \endgroup
                                  \ifnum\hv@cnta<\clist count:N\l clist Type\par\hv@vskip\fi
1883
1884
                                  \advance\hv@cnta by \@ne
                                 \ifnum\hv@cnta<\hv@cntb
1885
1886
                                 \ifhv@vFill\vfill\fi
                           \repeat
1887
                           \label{locality} $$ \edf_{\mathrm{empa}(\clist_item:Nn\l_clist_Label{1})}^* $$
                                                                                                                                                                        the main label at the end
                           \ifx\@tempa\@empty
1889
1890
                                  \edef\@temp{hv@p\@captype}%
1891
                                  \refstepcounter{\@temp}%
1892
                                 \expandafter\label\expandafter{\@tempa}%
1893
                           \fi
1894
                     \endminipage}%
1895
1896
```

```
\ExplSyntaxOff
1897
1898
      \def\getSingleCaptionAndLabel{%
1899
       \global\sbox\hvCaptionBox{\minipage{\linewidth}%
1900
          \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1901
          \setlength\belowcaptionskip{5pt}%
1902
1903
          \setlength\abovecaptionskip{0pt}%
         \ifhv@onlyText
1904
1905
            \hv@longCap
          \else
1906
            \edef\@captype{\hv@floatType}%
            \verb|\expandafter\ifx\expandafter\relax\hv@shortCap\relax|
1908
                \caption{\hv@longCap}%
            \else
1910
1911
                \caption[\hv@shortCap]{\hv@longCap}%
            \fi
1912
          \fi
1913
       1914
       \endminipage}%
1915
1916
1917
1918
      \def\set@caption@object#1{%
                                      first caption, then object #1=\hv@floatType
       \ifhv@multiFloat
1919
          \setcounter{hv@pfigure}{\value{figure}}%
          \setcounter{hv@ptable}{\value{table}}%
1921
          \getMultiCaptionAndLabel
1922
1923
       \else
          \ifhv@subFloat
1924
            \setcounter{hv@pfigure}{\value{figure}}%
1925
            \setcounter{hv@ptable}{\value{table}}%
1926
1927
            \getMultiSubCaptionAndLabel
          \else
1928
1929
            \getSingleCaptionAndLabel
         \fi
1930
1931
       \fi
       \edef\@captype{hv@p#1}%
1932
1933
       \ifhv@multiFloat
         \getMultiObjectAndLabel
1934
1935
          \ifhv@subFloat
1936
1937
            \getMultiSubObjectAndLabel
          \else
1938
            \global\sbox\hv0bjectBox{%
1939
1940
              \refstepcounter{\@captype}%
              \ifhv@objectFrame\frame{\hv@floatObject}\else\hv@floatObject\fi
1941
              \expandafter\ifx\expandafter\relax\hv@label\relax
              \else
1943
                \verb|\expandafter\\| abel\\| expandafter\\| hv@label\\| %
              \fi
1945
1946
         \fi
1947
       \fi
1948
1949
1950
     \endinput
1951
```