Package hvfloat Controlling captions, fullpage and doublepage floats ver 2.30

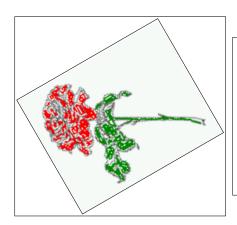
Herbert Voß*

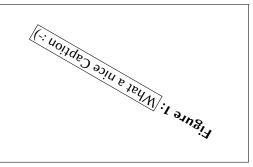
June 20, 2021

The package hyfloat 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 0pt and changed in hvfloat to the same value than \abovecaptionskip. This length can be changed to another value in the usual way with \setlength or \addtolength.

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

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

2 The Macros and optional arguments

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

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

The star version is explained in section 11 on page 24 and 19.2 on page 53 and the optional **±** is explained in section 17.3 on page 40.

\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.

2 The Macros and optional arguments

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

With the macro \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	<i>D</i> efault	Description	
floatPos	tbp	This is the same default placement setting like the one from standard LATEX, but maybe not always the best setting.	
rotAngle	Θ	The value for the angle if both, the object and the caption, should be rotated together.	
capWidth	n	The width of the caption. Can be <code>>n«</code> like a natural width given by the current linewidth, <code>>w«</code> for the width of the object, <code>>h«</code> for the height of the object, or a scale for <code>\columnwidth</code> .	
capAngle	0	The integer value for the angle if the caption should be rotated. Counted counter clockwise.	
capPos	bottom	The position of the caption relative to the object. Possible values are before: always before (left) from the object. top: always on top of the object. left: always before (left) from the object, but on the same page in twocolumn mode. after: always after (right) from the object. bottom: always on the bottom of the object. right: always after (right) from the object, but on the same page in twocolumn mode. inner: in twoside mode always typeset at the inner margin. outer: in twoside mode always typeset at the outer margin. evenPage: in twoside mode with fullpage objects always on an even page.	

Keyword	<i>D</i> efault	Description	
		oddPage: in twoside mode with fullpage objects always on an odd	
		page.	
capVPos	center	This is only important for capPos=left right. Only in this case the	
		caption can vertically placed at the bottom, center and top.	
objectPos	center	The horizontal placement of the object relative to the document.	
		Possible values are (\mathbf{l})eft (\mathbf{c})enter (\mathbf{r})ight.	
objectAngle	0	The integer value for the angle if the object should be rotated.	
		Counted counter clockwise.	
floatCapSep	5pt	The additional space between the object and a left or right placed	
		caption.	
use0Box	false	Instead of passing the object as parameter to the \hvFloat, the con-	
		tents maybe saved in the box \hv0Box With use0Box=true the contents	
		of this box will be used.	
onlyText	false	The caption will be printed as normal text and there is no entry in	
		the list of	
nonFloat	false	The object isn't put in a floating environment. It is printed as stan-	
		dard 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.	
objectFrame -	false	put a frame with no separation around the float object.	
style	_	Use a defined style	
capFormat	_	Define formatting options for \caption (see documentation of pack-	
		age caption).	
subcapFormat	-	Define formatting options for \subcaption.	
fullpage	false	Use a complete column in twocolumn mode.	
FULLPAGE	false	Use the complete paper width/height for the object.	
FullPage	false	Use the complete text area for the object.	
doublePage doublePAGE	false false	Use the textarea on a doublepage with additional text. Use the textarea 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.	
VI ILL	ratse	Tut a (VIIII between every two objects in a multi- of subfloat.	

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}
```

Code for figure 2: Fig. 2

3 The default use of floating environments

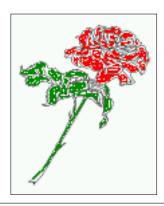


Figure 2: Without any keywords (only the fbox package option)

 $\label{thm:local} $$ \operatorname{figure}{\include graphics[images/rose]}{Without any keywords (only the $$ \text{fbox}) $$ package option)}{fig:0}$

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

Code for table 3:

```
\hvFloat[capPos=top]{table}{%
\begin{tabularx}{\textwidth}{<>{\tifamily}|||X}
  \rmfamily Name & Type & Description\\hline
  \CMD{hvFloat} & command & places object and caption in different ways\\
  hvFloatEnv & environment & places object and caption exactly Here\\
  \CMD{figcaption} & command & writes a figure caption in a non floating environment\\
  \CMD{tabcaption} & command & writes a table caption in a non floating environment\\
  \CMD{hvFloatSetDefaults} & command & sets all options to the defaults\\
  \CMD{hvDefFloatStyle} & command & define a user style
  \end{tabularx}}

{With the only Option \textt{capPos=top} to place the caption on top of the table, which is often the default.}%

{tab:0}
```

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

4 Caption width

4.1 Default - natural width

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

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

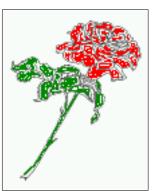


Figure 3: Default caption width setting, which is the natural width with respect to the current linewidth.

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

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

 $\label{lem:continuous} \begin{tabular}{ll} \parbox{0.5cm} & \parbox{0.5$

Fig. 4

Fig. 3

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.

Fig. 5

4 Caption width



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.



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

If such a value like 0.9\\inewidth 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:

Fig. 6

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.

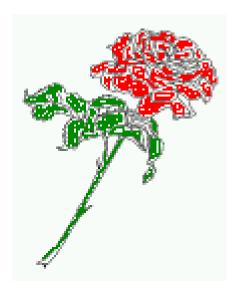


Figure 6: Caption right beside with a width setting of 0.9\linewidth which is too big for this example and therefore corrected by the macro to the maximal width.

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

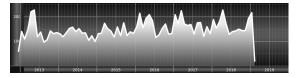


Figure 7: Caption below with a width of the given object which may be a problem if it is a very small object.

4.4 caption width to height of the object

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

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

{Caption beside with a width of the given object height which may be a problem if it is a very small object.}{fig:width5}

Fig. 8

5 Caption left or right of the object

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

5 Caption left or right of the object

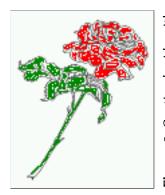


Figure 8: Caption beside with a width of the given object height which may be a problem if it is a very small object.

5.1 Caption right with specific length

Code for figure 9:

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



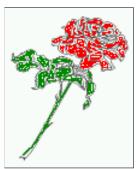


Figure 9: Caption vertically centered right beside the float with a natural caption width (the default). Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information?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

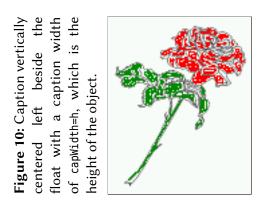
5.2 Caption left and rotated

Code for figure 10:

```
\hvFloat%
  [floatPos=htb,
  capPos=left,
  capWidth=h,% of \columnwidth
  capAngle=90,
```

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

Fig. 10



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

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

Code for figure 11:

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

Fig. 11

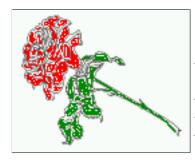


Figure 11: Caption vertically centered right beside the float with a caption width of the height of the image and a rotation of the caption and the object.

6 Caption inner or outer

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

Code for figure 12:

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

Fig. 12



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

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

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

\hvFloat[capPos=outer]{figure}{\includegraphics{images/rose}}%

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



Fig. 14



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



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

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

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

Code for figure 15:

```
\hvFloat[%
    capWidth=0.5,% of \columnwidth
    capPos=inner,% ====> INNER
    capAngle=0,
    capVPos=bottom,
    objectPos=center]{figure}{\includegraphics{images/rose}}%
    [Centered Caption beside Object]{%
```

Caption vertically centered right beside the float with a caption width of $\text{texttt}\{0.5\text{textbackslash} \text{ columnwidth}\}\$ and $\text{texttt}\{\text{capPos=outer}\}\{\text{fig:22}\}\$

Fig. 15

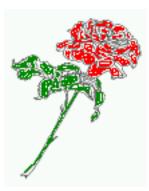


Figure 15: Caption vertically centered right beside the float with a caption width of 0.5\columnwidth and capPos=outer

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

7 Vertical Position of the Caption

The caption can be placed beside the object in the positions

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

The code for figure 16:

```
\hvFloat[%
    floatPos=htb,%
    capWidth=0.25,%
    capPos=right,%
    capVPos=bottom,%
```

 $] \{figure\} \{ \ to est defined at bottom right beside the float\} \{fig: 4\} \\$

Fig. 16

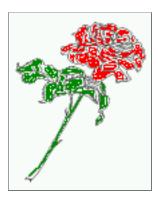


Figure 16: Caption at bottom right beside the float

The code for figure 17:

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

Figure 17: Caption at top left beside the float

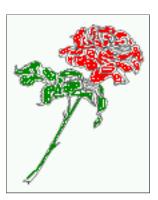


Fig. 17

The code for figure 18:

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



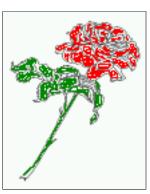


Figure 18: Caption centered right beside the float

8 Caption format

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

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

Fig. 19

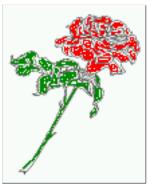


Figure 19

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

9 Horizontal Position of the Float

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

The code for figure 20:

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

Fig. 20 Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

The same with capPos=left:

Fig. 21 Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no

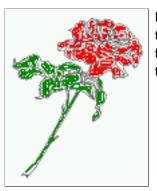
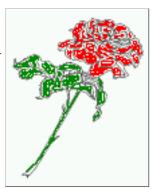


Figure 20: Caption at top right beside the float and object position left

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



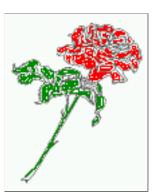
information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and 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}
```

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

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



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:

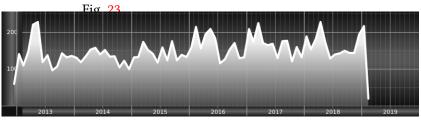


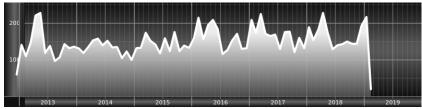
Figure 23: Caption at top right beside the float and object position left and the option wide.

The code for figure 24:

Fig. 24 For a twosided document it will place the object always in the margin.

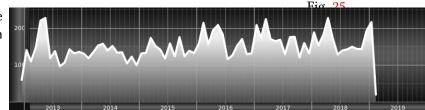
Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how

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



the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Figure 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.

The caption can be typeset completely into the margin with:

Fig. 26

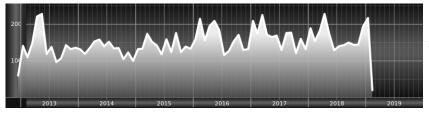
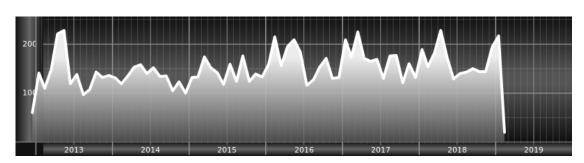


Figure 26: Caption at top inner beside the float and object position right and the option wide.

floatCapSep=\marginparsep,

 $\label{linewidth} $$ \left[\left(\frac{th=\left(\frac{th}{th} \right) {images/CTAN} \right)}{% Caption at top inner beside the float and object position right and the option $$ \left(\frac{texttt}{wide} \right).}{fig:812}$$

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



11 The star version \hvFloat*

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

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

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

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:

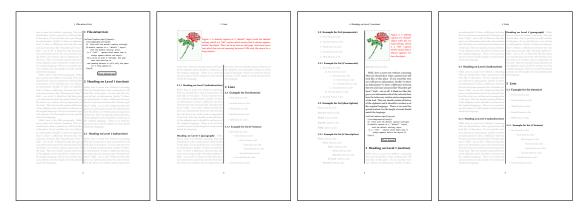


Figure 28: Output of default1s2c (pages 2 -5)

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

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

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

The code for figure 30:

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

Fig. 30

Fig. 29

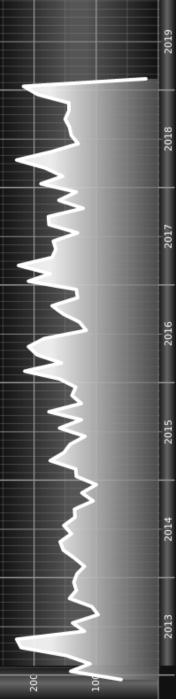


Figure 29: Caption and object in landscape mode. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense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

the length of words should match the language. 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 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 2019

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! Figure 30: Caption right beside the float and object position left. The caption rotated by -90 degrees. Hello, here is some text without

13 The nonFloat Option

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 \ensuremath{\backslash} emph\{\ensuremath{\backslash} non floating\} object.
```

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

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

Fig. 31

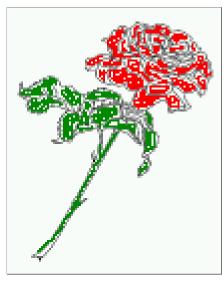


Figure 31: Caption of a "nonfloat" Object, using the nonfloat Package

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\ttfamily}\|\|\|\\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\\
 \end{tabular}%
}
  The code for table 4 and 5 is:
\hvFloat[%
 floatPos=!hb,
 capPos=top,
 use0Box=true]{table}{}{Demonstration of the $$ \text{use0Box} Parameter}{table:1}
\hvblindtext
\marginnote{Tab.~\ref{table:2}}
\hvFloat[%
 floatPos=hb,
 useOBox=true,
 objectAngle=90,
 capPos=right,
 capVPos=top,
 capWidth=0.3] \{table\} \{\} \{Another\ demonstration\ of\ the\ \ \texttt{texttt} \{use0Box\}\ Parameter\} \{table:2\} \}
```

Tab. 4

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

Tab. 5

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]{}{\includegraphics{images/rose}}%
```

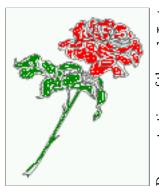
In this case leave the third parameter empty.

Table 5: 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	command	sets all options to the defaults

[''\texttt{onlyText}'' Caption]{%

Demonstration of the **\texttt**{onlyText} Parameter, which makes it possible to put some text beside a floating object without getting a starting **\texttt**{Figure:} or **\texttt**{Table:}}{fig:text}



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

16 Environment hvFloatEnv

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

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

Table 6: A caption for a nice table

left	center	right
L	С	R

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

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

Table 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@eheight{\textheight}%
  \def\Gin@boolkey{false}{iso}%
}
\def\Gin@ewidth{\textheight}%
  \def\Gin@boolkey{false}{iso}%
}
\def\Gin@ewidth{\textheight}%
  \def\Gin@boolkey{false}{iso}%
}
\def\Gin@boolkey{false}[true]{%
  \def\Gin@ewidth{\paperwidth}%
  \def\Gin@eheight{\paperheight}%
  \def\Gin@boolkey{false}{iso}%
}
```

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

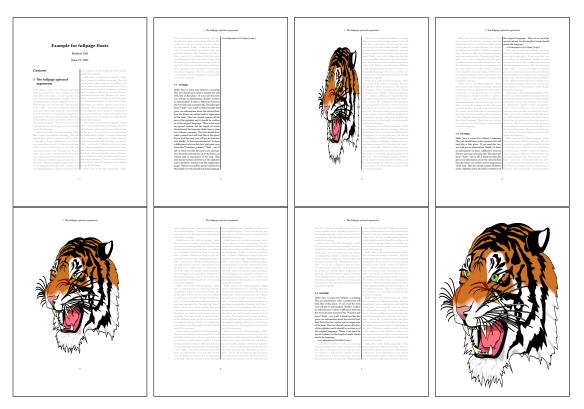


Figure 32: Output of fullpage1s2c (pages 1-8)

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.

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

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 40.
subFloat	true false	For multiple objects with one main and more subcaptions. See
		section 18 on page 42.
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 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 preceding page shows the valid optional arguments for a full page floating object.

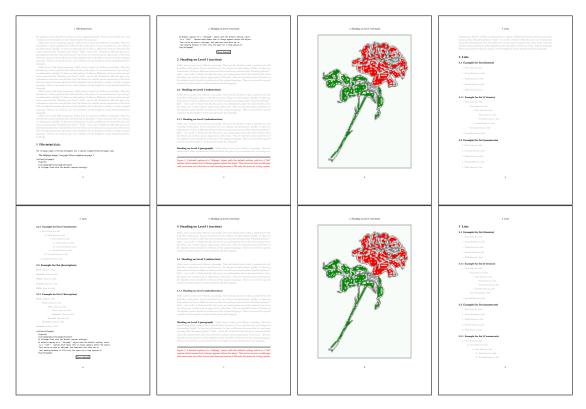


Figure 33: Output of default1s1c (pages 2-9)

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}
```

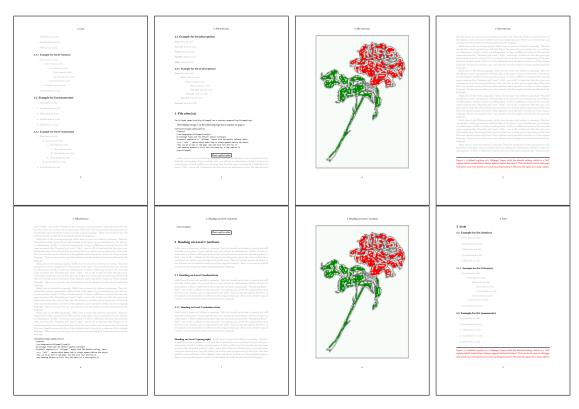


Figure 34: Output of after1s1c (pages 2–9)

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}
```

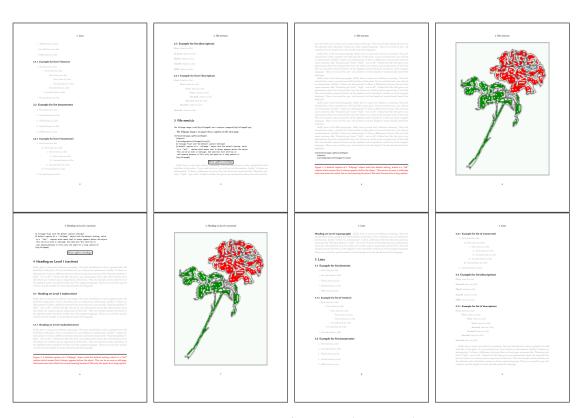


Figure 35: Output of even1s1c (pages 2-9)

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}
```

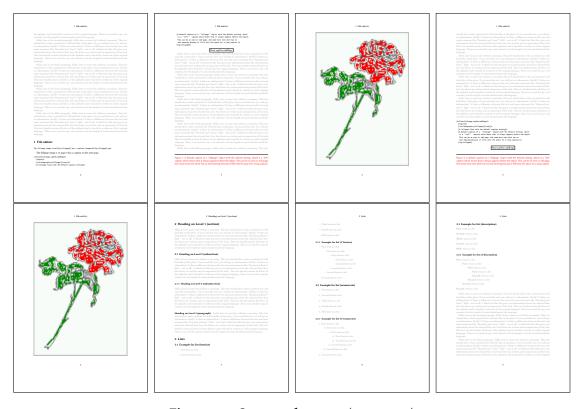


Figure 36: Output of odd1s1c (pages 2-9)

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!

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

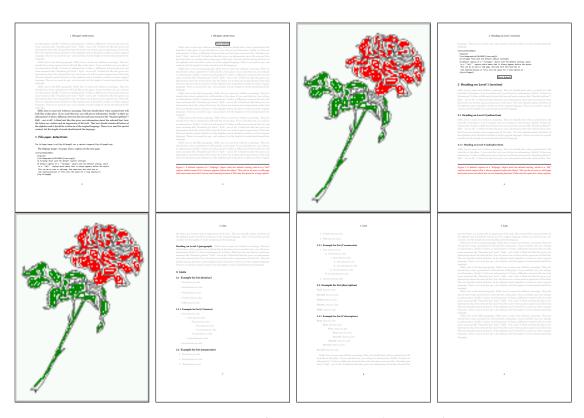


Figure 37: Output of paper-default1s1c (pages 2-9)

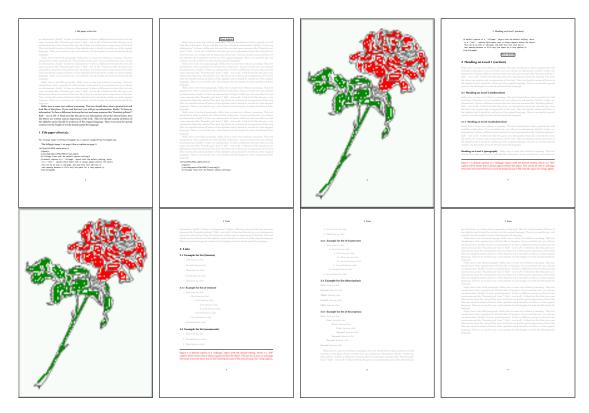


Figure 38: Output of paper-after1s1c (pages 2–9)

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

```
 \label{type} $$ \{float\ type\} \{floating\ object\} \ [short\ caption] \{long\ caption\} \{label\} + \{float\ type\} \{floating\ object\} \ [short\ caption] \{long\ caption\} \{label\} + \dots + \{float\ type\} \{floating\ object\} \ [short\ caption] \{long\ caption\} \{label\} \} $$ (a) $$ (a) $$ (b) $$ (b) $$ (b) $$ (c) $$ (
```

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

```
\captionsetup{singlelinecheck=false}
\hvFloat[fullpage,capPos=before,multiFloat,vFill]%
   +{figure}{\includegraphics[width=\linewidth]{images/CTAN}}% no 1
   [Short caption A]%
   {A Caption A of a ''fullpage'' object, which follows on the left or
    right column. This can be an even or odd page. And some more text which has no
```

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

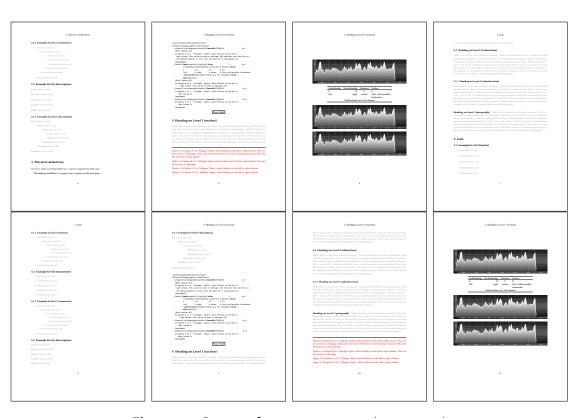


Figure 39: Output of multi-default1s1c (pages 4-11)

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

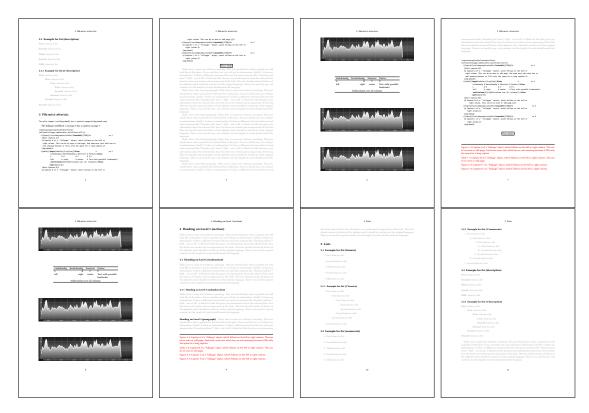


Figure 40: Output of multi-after1s1c (pages 4–11)

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

18 Subfloat page

A subfloat page can have only one type of floats which will have one main caption and individual subcaptions. The syntax is 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
   {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 whch has no
    real meaning because it fills only the space for a long caption.}% main caption
{sub:demo0}%
+{}{\includegraphics[width=\linewidth]{images/CTAN}}%
[Short caption B]%
{A Caption B of a ''fullpage'' sub object.}% subcaption
{}%
+{}{\includegraphics[width=\linewidth]{images/CTAN}}%
{A Caption C of a ''fullpage'' object, which follows on the left or right column.}%
{sub:demo1}
+{}{\includegraphics[width=\linewidth]{images/CTAN}}%
{A Caption D of a ''fullpage'' object}{sub:demo2}
+{}{\includegraphics[width=\linewidth]{images/CTAN}}%
{A Caption E of a ''fullpage'' object}{sub:demo3}
```

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

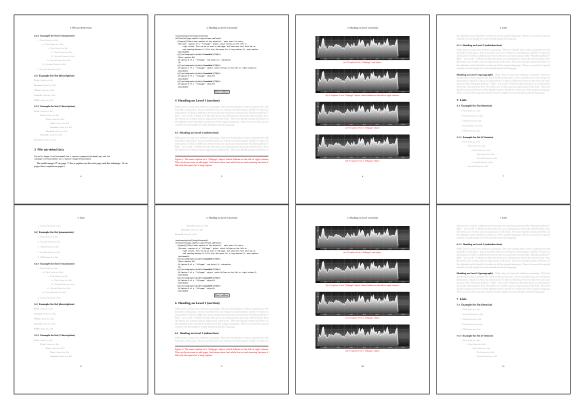


Figure 41: Output of sub-default1s1c (pages 4–11)

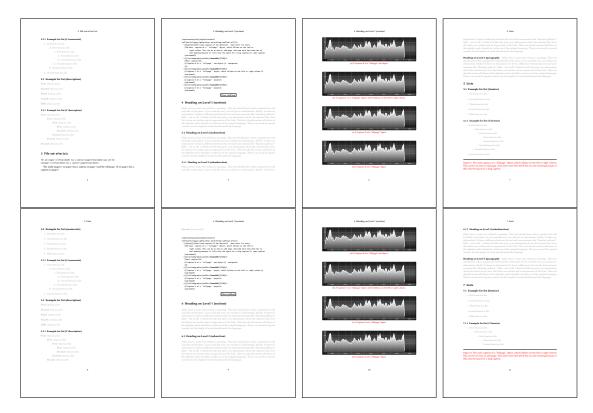


Figure 42: Output of sub-after1s1c (pages 4-11)

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

19.1 Default setting

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

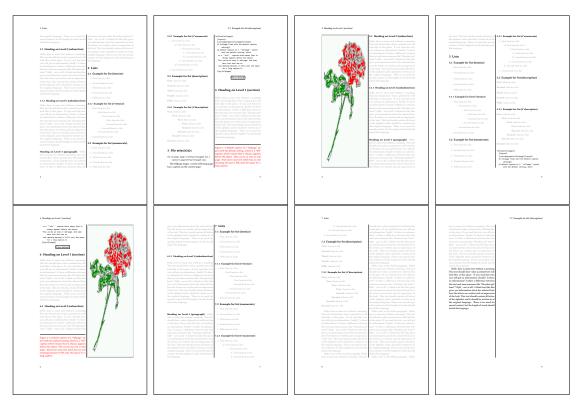


Figure 43: Output of default2s2c (pages 2–9)

```
\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 on the following page).

19.1.1 Using capPos=after

The caption will be printed always right of the object which is the same as *after* the full page object. With capPos=after it is possible to get the caption in the twocolumn mode always in the right (second) column (see figure 46 on page 48)

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

19 Full page objects in twocolumn mode

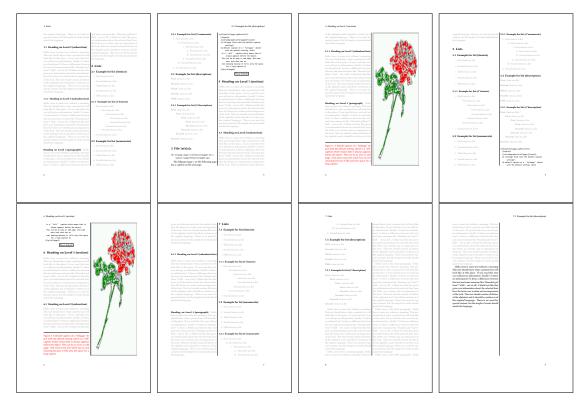


Figure 44: Output of left2s2c (pages 2-9)

```
[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 facing 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.

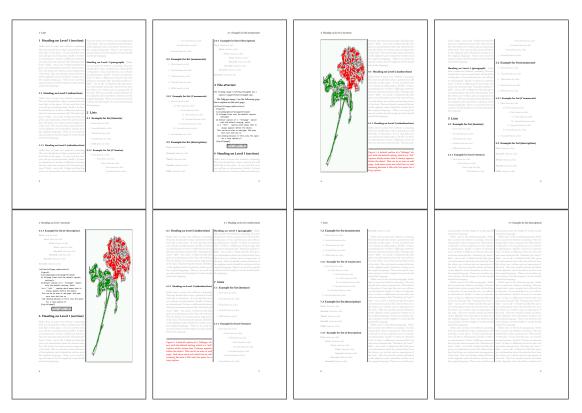


Figure 45: Output of after2s2c (pages 2–9)

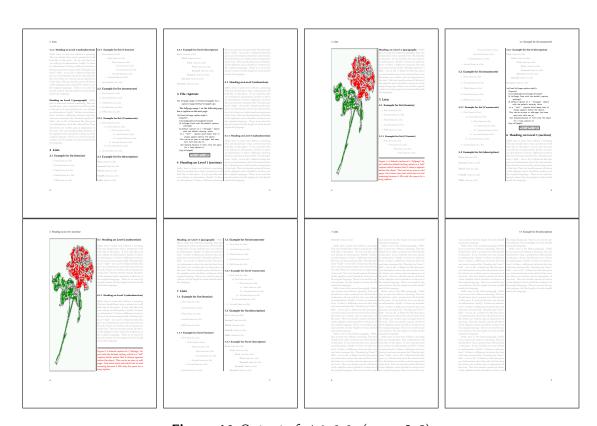


Figure 46: Output of right2s2c (pages 2-9)

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.

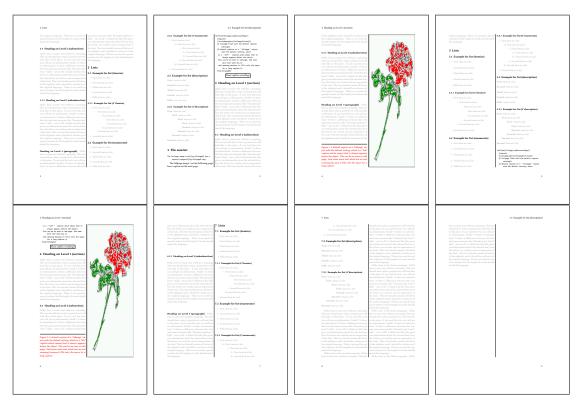


Figure 47: Output of even2s2c (pages 2–9)

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.

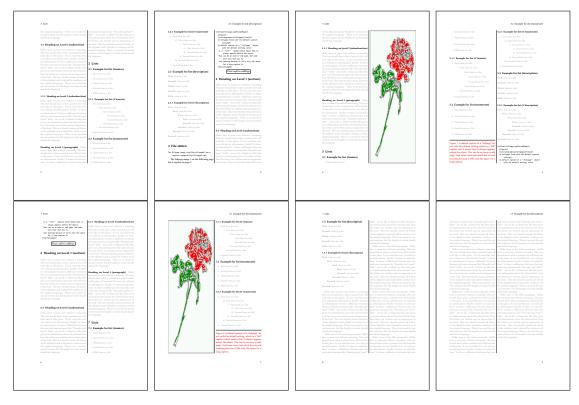


Figure 48: Output of odd2s2c (pages 2-9)

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

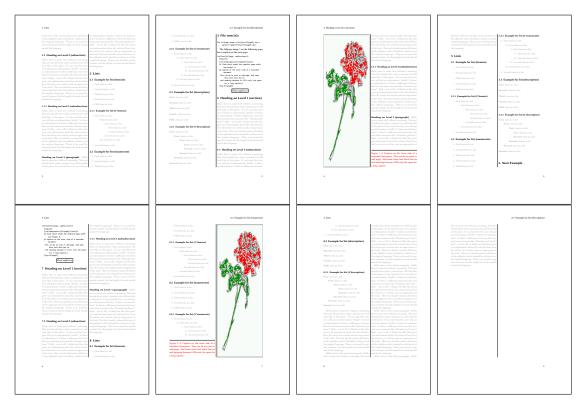


Figure 49: Output of inner2s2c (pages 2-9)

19.1.5 Using capPos=outer — caption on the outer column

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

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

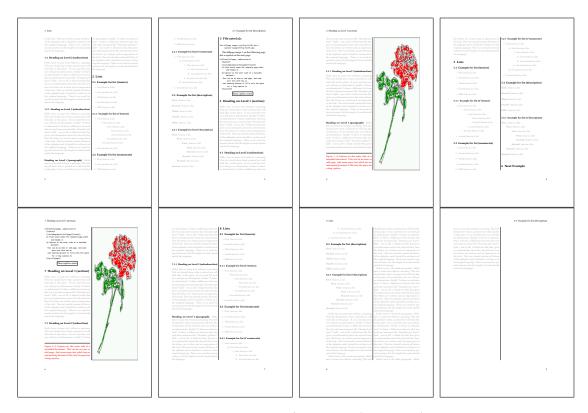


Figure 50: Output of outer2s2c (pages 2-9)

19.2 Using full page in twocolumn mode

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

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

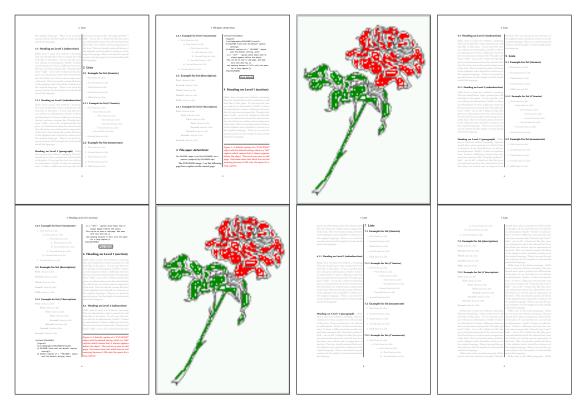


Figure 51: Output of paper-default2s2c (pages 2-9)

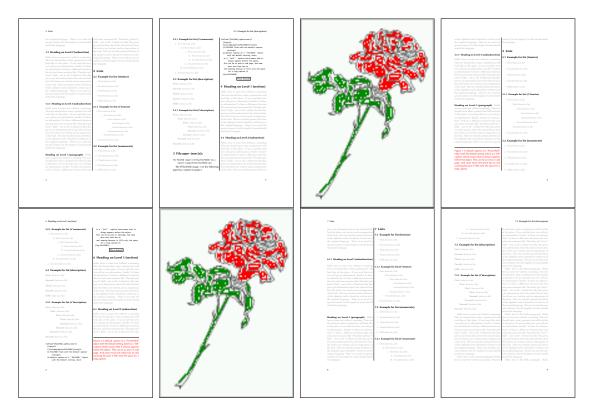


Figure 52: Output of paper-inner2s2c (pages 2-9)

19.3 Multifloats

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

```
\captionsetup{singlelinecheck=false}
\hvFloat[fullpage,multiFloat,capPos=inner,vFill]%
 + \{ figure \} \{ \\ include graphics [height=0.4 \\ textheight] \{ images/rose \} \} \% \quad no \ 1
   [Short caption A]%
   {A Caption A of a "fullpage" object, which follows on the left or
    right column. This can be an even or odd page. And some more text which has no
    real meaning because it fills only the space for a long caption.}%
   {multi:demo0}%
 +{table}{\begin{tabular}{lr}\hline
                                                        % no 2
            Linksbündig & Rechtsbündig\\
                         & R
                                       11
            left
                         & right
                                       11
            \multicolumn{2}{c}{Multicolumn}\\hline
```

```
\end{tabular}}%
[Short Caption B]%
{A Caption B of a ''fullpage'' object, which follows on the left or right column. This can be an even or odd page.}%
{}%
+{figure}{\includegraphics[height=0.4\textheight]{images/rose}}% no 3
{A Caption C of a ''fullpage'' object, which follows on the left or right column.}%
{multi:demo1}
```

The page with the objects has no additional informations it holds only the figures and/or tabulars. If you want it like subfigures or subtabulars then go to section 18 on page 42. The setting \captionsetup{singlelinecheck=false} is needed if you want the captions always left aligned.

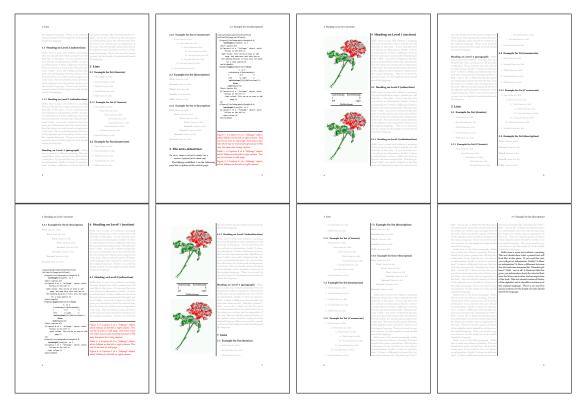


Figure 53: Output of multi-default2s2c (pages 2-9)

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.

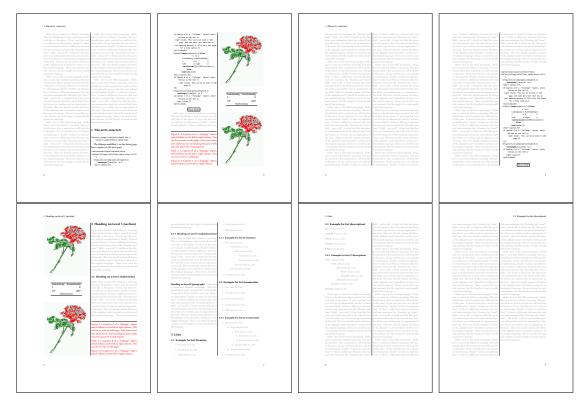


Figure 54: Output of multi-inner2s2c (pages 2-9)

```
\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}%
 + \{\} \{ \texttt{lincludegraphics[height=0.28} \texttt{textheight}] \{ \texttt{limages/rose} \} \%
  [Short caption B]%
  {A Caption B of a ''fullpage'' sub object.}% subcaption
  {}%
 +{}{\includegraphics[height=0.28\textheight]{images/rose}}%
  {A Caption C of a ''fullpage'' object, which follows on the left or right column.}%
  {sub:demo10}
 +{}{\includegraphics[height=0.28\textheight]{images/rose}}%
  {A Caption D of a ''fullpage'' object}%
  {sub:demo20}
```

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

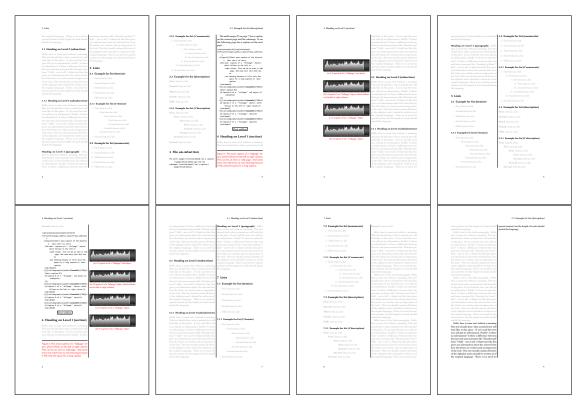


Figure 55: Output of sub-default2s2c (pages 2-9)

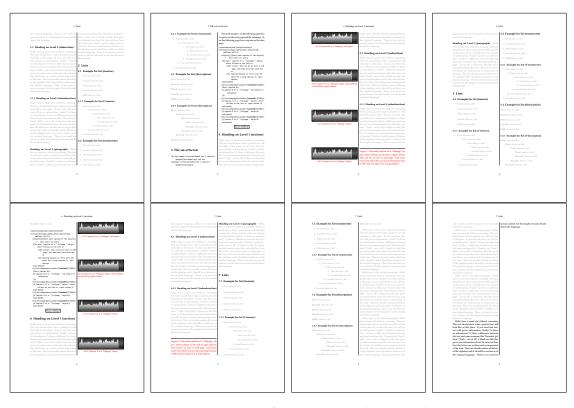


Figure 56: Output of sub-after2s2c (pages 2–9)

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}}%
   {fig:doubleFULLPAGE0}
```

Fig. 57 Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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

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

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

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

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





Figure 57: 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 double FULLPAGE

21 Doublepage objects - images and/or tabulars

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.

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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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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. 58





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\hvFloat[doubleFULLPAGE,capPos=right]%
{figure}%
{\includegraphics[height=\paperheight]{images/rheinsberg}}%
{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 \textt{doubleFULLPAGE}}%
{fig:doubleFULLPAGE1}
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Fig. 59





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

21 Doublepage objects - images and/or tabulars

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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 74, the left image part on page 72 and the right part on page 73. In the following example 61 the caption is on page 75, the left image part on page 76 and the right part on page 77. All three labels points to the same figure or table number:

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Fig. 60





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

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Figure 60: 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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\hvFloat[doubleFULLPAGE,capPos=before]%
{figure}%
{\includegraphics[height=\paperheight,width=2\paperwidth,
    keepaspectratio=false]{images/rheinsberg}}%
{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 \texttt{doubleFULLPAGE}}%
{bar}
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Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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Figure 61: 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

Fig. 61





21 Doublepage objects - images and/or tabulars

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

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.

Fig. 62





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

21 Doublepage objects - images and/or tabulars

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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[width=2\textwidth]{images/sonne-meer}}%
  [A doublepage image with a caption on the right side of the right part.]%
  {A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF.
  The parameter is \texttt{doublePage}}%
  {fig:doublePage0sH}
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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

Fig. 63



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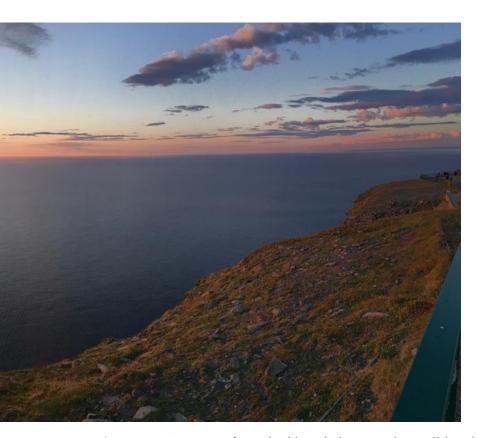


Figure 63: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

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21 Doublepage objects - images and/or tabulars

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\hvFloat[doublePage,capPos=right,capVPos=top]%
   {figure}%
   {\includegraphics[width=2\textwidth]{images/sonne-meer}}%
   [A doublepage image with a caption on the right side of the right part.]%
   {A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF.
   The parameter is \texttt{doublePage}}%
   {fig:doublePage0}
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Fig. 64



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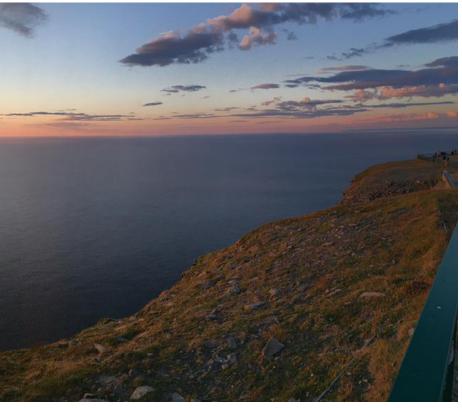


Figure 64: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

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

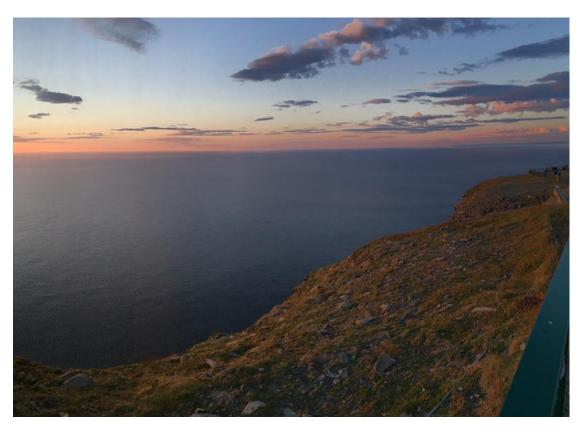


Figure 65: A caption for a double-sided image that will be placed on the right side of the right-hand part of the illustration. The illustration begins on the left edge of the paper. A short form is used for the LOF. The parameter is doublePage

split in the middle of a column. In such a case one can insert some additional horizontal space for this coloumn.

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

```
\begin{tabular}{l*{18}r} \toprule
& \textbf{1972} & \textbf{1973} & \textbf{1974} & \textbf{1975} & \textbf{1976}
& \textbf{1977} & \textbf{1978} & \textbf{1979} & \textbf{1980} & \textbf{1981} & \textbf{1982} & \textbf{1983} & \textbf{1984} & \textbf{1988} & \textbf{1989} & \textbf{19
```

```
Zeile 8 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 2 & 1 & 1 & 3 & 5 & 3 & 4\\addlinespace[3pt]
Zeile 9 & 0 & 0 & 0 & 0 & 0 & 1 & 2 & 1 & 0 & 0 & 0 & 4 & 2 & 1 & 4 & 5 & 2\\addlinespace[3pt]
Zeilel1 & 0 & 2 & 2 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 2 & 6 & 1 & 0 & 2 & 1 & 1 \\addlinespace[3pt]
Zeile13 & 0 & 1 & 0 & 0 & 1 & 0 & 3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 1 & 3 & 0 & 2\\addlinespace[3pt]
Artikel gesamt & 2 & 6 & 13 & 8 & 4 & 3 & 5 & 4 & 0 & 6 & 3 & 5 & 23 & 10 & 8 & 15 & 13 & 1 \\
\bottomrule
\end{tabular}}
\Blindtext
\hvFloat[doublePage,capPos=right,capVPos=top,floatCapSep=12pt]%
 {table}%
 [A doublepage tabular with a caption on the right side of the right part.]%
 {A caption for a double-sided tabular that will be placed on the right side of the
 right-hand part of the illustration. The illustration begins on the left edge of
 the paper. A short form is used for the LOF.
 The parameter is \texttt{doublePage}}%
 {tab:doublePage3}
```

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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Tab. 9

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	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Zeile 1	1	3	1	1	1	0	1	1	0	0	0	0
Zeile 2	1	1	3	1	0	0	0	0	0	0	2	1
Zeile 3	2	1	2	1	0	0	0	0	0	0	0	1
Zeile 4	1	0	5	1	2	0	0	0	0	2	1	0
Zeile 6	2	1	1	0	0	0	0	0	0	1	2	0
Zeile 5	0	0	4	2	1	2	2	1	0	0	0	1
Zeile 8	0	1	1	0	0	0	1	1	0	3	2	1
Zeile 9	0	0	0	0	0	1	2	1	0	0	0	0
Zeile10	0	1	3	0	1	0	1	0	0	1	1	0
Zeile11	0	2	2	1	1	0	1	0	0	0	0	2
Zeile12	2	0	2	4	1	0	4	0	0	0	0	0
Lärm	2	3	0	0	0	0	0	0	0	0	1	0
Zeile13	0	1	0	0	1	0	3	0	0	0	0	0
Zeile14	0	1	0	0	0	0	0	0	0	0	0	0
Zeile15	0	0	0	0	0	0	0	0	0	1	0	0
Zeile16	0	0	0	0	0	1	0	0	0	0	0	0
Artikel gesamt	2	6	13	8	4	3	5	4	0	6	3	5

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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

1984	1985	1986	1987	1988	1989
20	0	2	2	2	1
3	4	4	6	4	2
5	3	1	7	7	3
1	0	3	7	2	1
5	2	2	5	4	2
1	0	2	5	4	3
2	1	3	5	3	4
4	2	1	4	5	2
1	1	1	4	4	1
6	1	0	2	1	1
0	0	0	1	0	3
2	0	0	2	2	2
2	0	1	3	0	2
3	3	2	1	1	0
4	0	0	3	1	1
0	0	3	5	0	1
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

\hvFloat[fullpage,capPos=evenPage]{figure}%

```
{\IncludeGraphics{images/frose}}%
```

[A float which needs the complete paper width and height.]%

{A Caption of a ''fullpage'' object, which follows on the next page.

This can be an even or odd page. The object uses the complete paper dimensions} ${\mbox{\tt demo:fullpage}}$

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 102, but the image itself is on page 103. 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 103, which uses a correct page number of the floating object and not the caption pagenumber which is on page 102. The figure 67 is on page 103 and the caption on page 102

23 Defining a style

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

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

For example:

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

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



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

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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24 Global float setting

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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}

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

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Figure 67: A Caption of a "fullpage" object, which follows on the next page. This can be an even or odd page. The object uses the complete paper dimensions



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```

25 The Package Source

\RequirePackage{xkeyval}

```
% $Id: hvfloat.sty 118 2021-06-19 19:31:50Z herbert $
   % IMPORTANT NOTICE:
   %% This is file 'hvfloat.sty',
   % 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
   %% in directory macros/latex/base/lppl.txt.
   % DESCRIPTION:
14
        'hvfloat' offers rotating of captions and objects for floats
15
16
   \NeedsTeXFormat{LaTeX2e}
17
   \def\fileversion{2.30}
   \def\filedate{2021/06/19}
19
   %\message{'hvfloat' v\fileversion, \filedate\space (Herbert Voss)}
   \ProvidesPackage{hvfloat}[\filedate\space v\fileversion\space special floating objects (hv)]
21
22
   \let\hvFloatFileVersion\fileversion
   \newif\ifhv@fbox \hv@fboxfalse
24
   \newif\ifhv@hyperref \hv@hyperreffalse
   \newif\ifhv@tugboat \hv@tugboatfalse
27
28
   \DeclareOption{fbox}{\hv@fboxtrue\setlength{\fboxsep}{1pt}}
   \DeclareOption{hyperref}{\hv@hyperreftrue}
   \DeclareOption{nostfloats}{\hv@nostfloatstrue}
   \DeclareOption{no-stfloats}{\hv@nostfloatstrue}
   \ProcessOptions
35
36
   \PassOptionsToPackage{hypcap}{caption}
37
   \RequirePackage{caption}
38
   \RequirePackage{varwidth}
   40
41
   \PassOptionsToPackage{hypcap}{subcaption}
42
   \RequirePackage{subcaption}
   \RequirePackage{atbegshi}
   \RequirePackage{picture,trimclip}
45
   \RequirePackage{expl3,multido}
   \RequirePackage{graphicx}
   \RequirePackage{varwidth}
```

```
\RequirePackage{ifoddpage}
    \RequirePackage{afterpage}
    \ifhv@hyperref
55
      \RequirePackage{hyperref}
56
    \fi
57
    \ifhv@nostfloats\else
58
      \RequirePackage{stfloats}% for bottom floats in a twocolumn mode
59
    \fi
60
61
62
63
    \providecommand*\LenToUnit[1]{\strip@pt\dimexpr#1*\p@/\unitlength}
64
    \newlength\hv0bjectWidth
    \newlength\hvCapWidth
67
    \mbox{\ensuremath}\hv\Wide\Width
    \newlength\hvMultiFloatSkip
69
    \newlength\hvMaxCapWidth
70
71
    %\AtBeginDocument{%
    % \setlength\hv@BottomSpace{\dimexpr\paperheight-lin-\topmargin-\headheight-\headsep-\textheight}}
72
73
    \newsavebox\hv0bjectBox
74
    \newsavebox\hvCaptionBox
    \newsavebox\hv0Box
77
    \newsavebox\@tempbox
    \newsavebox\hv@caption@box
    \newsavebox\hv@leftBox
    \newsavebox\hv@rightBox
81
    \newif\ifhv@capbeside \hv@capbesidefalse
82
83
    \newif\ifhv@switchType
84
85
    \def\hv@Top{top}
    \def\hv@Bottom{bottom}
    \def\hv@After{after}
    \def\hv@Before{before}
    \def\hv@Right{right}
89
    \def \hv@Left{left}
    \def\hv@Center{center}
    \def\hv@Outer{outer}
92
    \def\hv@Inner{inner}
    \def\hv@Even{evenPage}
    \def\hv@Odd{oddPage}
    \def\hv@Natural{n}
    \def\hv@Width\{w\}
    \def\hv@Height{h}
99
    \def\hv@Zero{0}
100
    \def\hv@figure{figure}
101
102
    \define@key{hvSet}{floatPos}[tbp]{%
                                            LaTeX's position parameters htbp
103
       \def\hvSet@floatPos{#1}%
104
```

```
105
           \define@key{hvSet}{rotAngle}[0]{%
                                                                                                    rotates caption AND image together
106
                  \def \hvSet@rotAngle{#1}%
107
108
          }
           (n)atural width|object (w)idth)|object (h)eight|<scale of \columnwidth
109
                  \def\hvSet@capWidth{#1}%
110
          }
111
           \define@key{hvSet}{capAngle}[0]{%
                                                                                                    -360..+360, only integers
112
                  \def\hvSet@capAngle{#1}%
113
114
115
           \define@choicekey*+{hvSet}{capPos}[\val\nr]{bottom,top,left,before,right,after,inner,outer,evenPage,oddPage}[
116
                       bottom]{%
                                                                                      it is relativ to the object, (e),(d) only valid for fullpage float
117
                \def \hvSet@capPos{#1}%
118
                \ifcase\nr\relax
119
                    \hv@capbesidefalse
120
                \or
                    \hv@capbesidefalse
121
                \else
122
                    \hv@capbesidetrue
123
124
           }{\PackageWarning{hvfloat}{erroneous input (#1) for capPos ignored. Using bottom.}%
125
                \def\hvSet@capPos{bottom}%
                                                                                            it is relativ to the object, (e),(d) only valid for fullpage float
126
127
               \hv@capbesidefalse
128
             }
129
           \define@choicekey*+{hvSet}{capVPos}[\val\nr]{bottom,center,top}[center]{%
130
                \def\hvSet@capVPos{#1}%
                                                                                    it is relativ to the object
131
                \ifcase\nr\relax
132
                    \def\hv@@capVPos{b}%
133
                \or
134
135
                    \def\hv@@capVPos{c}%
                \else
136
137
                    \def\hv@capVPos{t}% \def
138
                \fi
           {\colored} \label{thm:linear} $$ {\Perroneous input (\#1) for capVPos ignored. Using center.} $$
139
               \def\hvSet@capVPos{center}%
                                                                                            it is relativ to the object
140
             }
141
142
           \define@choicekey*+{hvSet}{allHPos}[\val\nr]{left,center,right}[center]{%
143
                \def\hvSet@allHPos{#1}%
144
                \ifcase\nr\relax
145
                    \gdef\hv@@allHPos{l}%
146
                \or
147
148
                    \gdef\hv@@allHPos{c}%
149
                \else
150
                    \gdef\hv@@allHPos\{r\}\%
                \fi
151
           }{\PackageWarning{hvfloat}{erroneous input (#1) for allHPos ignored. Using center.}%
152
               \def\hvSet@capVPos{center}%
                                                                                            it is relativ to the object
153
             }
154
```

```
\define@choicekey*+{hvSet}{objectPos}[\val\nr]{left,center,right,inner,outer}[center]{%
156
     \def\hvSet@objectPos{#1}%
                              it is relativ to the object
157
   {\c objectPos ignored. Using center.}%
158
    \def\hvSet@capVPos{center}%
                             it is relativ to the object
159
160
   -360..+360
161
     \def\hvSet@objectAngle{#1}%
162
163
                                  a width with the unit pt
   \define@key{hvSet}{floatCapSep}[5pt]{%
164
     \def\hvSet@floatCapSep{#1}%
165
166
   \define@key{hvSet}{multiFloatSkip}[\normalbaselineskip]{% a width with the unit pt
167
     \setlength\hvMultiFloatSkip{#1}%
168
169
   \define@boolkey{hvSet}[hv@]{useOBox}[true]{}%
                                         use of the hvOBox contents
170
                                         Do not use float environment
171
   \define@boolkey{hvSet}[hv@]{nonFloat}[true]{}%
   172
                                         Write the caption only as text
                                       Write the caption only as text
   \define@boolkey{hvSet}[hv@]{wide}[true]{}%
173
   174
       caption only as text
175
   \define@boolkey{hvSet}[hv@]{sameHeight}[true]{\@nameuse{hv@sameHeight#1}}% Write the caption only as text
176
   \define@boolkey{hvSet}[hv@]{Debug}[true]{}%
                                       give more infos in the terminal
177
178
   \newif\ifhv@fullpage
179
   \newif\ifhv@FULLPAGE
   \newif\ifhv@doubleFULLPAGE
181
   \newif\ifhv@doublePAGE
182
   \newif\ifhv@doublePage
183
   \newif\ifhv@setObjectLabel
184
   \newif\ifhv@global@sameHeight
185
186
187
   \newlength\hvSet@bindCorrection
   \newlength\hvSet@sepLineskip
188
   \newlength\hv@leftPageObjectWidth% for doublepage images
   \newlength\hv@tempWidthA
191
   \newlength\hv@tempWidthB
   \newlength\hv@minTextlines
192
   \newlength\hv@floatCapSep
193
   \newlength\hvSet@bindCorr
194
195
   196
   197
   198
       hv@doublePAGEfalse}
   199
       hv@doubleFULLPAGEfalse}
   200
       hv@doubleFULLPAGEfalse}
   \define@key{hvSet}{bindCorr}[0]{%
201
     \def \hv@temp{#1}%
202
     \ifx\hv@temp\hv@Inner
203
      \setlength\hvSet@bindCorr{\dimexprlin+\oddsidemargin}%
204
```

```
\else
205
                \setlength\hvSet@bindCorr{#1}%
206
             \fi
207
208
        }
         %\setlength\hvSet@bindCorrection{#1}}% for doublepage objects
209
210
         \define@boolkey{hvSet}[hv@]{subFloat}[true]{%
                                                                                                       typeset values as subfloats
211
              \ifhv@subFloat\setkeys{hvSet}{multiFloat=false}\fi%
212
213
         \define@boolkey{hvSet}[hv@]{multiFloat}[true]{%
                                                                                                      typeset values as continous floats
214
              \ifhv@multiFloat\setkeys{hvSet}{subFloat=false}\fi
215
216
         \define@boolkey{hvSet}[hv@]{vFill}[true]{}%
                                                                                                 \vfill between multifloat objects
217
218
         \define@boolkey{hvSet}[hv@]{separatorLine}[true]{}% separator line for caption of a full page float
219
         \define@key{hvSet}{sepLineskip}{\def\hv@sepLineskip{#1}}%
220
         \define@key{hvSet}{minTextlines}{\setlength\hv@minTextlines{#1\baselineskip}}%
221
         222
         \define@kev{hvSet}{stvle}{%
223
             \@ifundefined{hv@#1}%
224
                 {\errmessage{Custom style '#1' undefined}}%
225
                 {\begingroup
226
                  \end{weight} \x {\end{weight}} \x {\end{weight}} \xspace a defined style a defined style in the style in th
227
228
         229
         230
231
         232
         \let\hvFloatSet\hv@set
233
234
         \def\def\hvstyle#1#2{\dnamedef{hv@#1}{#2}}
235
         \let\hvDefFloatStyle\defhvstyle % better name
236
237
         \newcommand\setDefaults{%
238
239
             \hv@set{%
              floatPos=, rotAngle=0, capWidth=n, capAngle=0, objectAngle=0,
              capPos=bottom, capVPos=center, objectPos=center, allHPos=center,
241
              floatCapSep=5pt. useOBox=false. nonFloat=false.
242
              onlyText=false, wide=false, fullpage=false, FULLPAGE=false,
243
              doubleFULLPAGE=false, doublePage=false, doublePAGE=false,
244
                       multiFloat=false,subFloat=false,
245
              separatorLine,objectFrame=false,multiFloatSkip=\normalbaselineskip,
246
              capFormat={}, subcapFormat={}, twoColumnCaption=false,
247
              sameHeight=false,
248
              bindCorr=\z@,sepLineskip=0pt,
249
              vFill=false, minTextlines=2,
250
251
        }%
252
        }
253
         \let\hvFloatSetDefaults\setDefaults
254
255
         \newcommand\hv@typeout[1]{\ifhv@Debug\typeout{>>>> #1}\fi}
256
```

```
\providecommand\@tugclass{\@empty}
258
              \ifx\ensuremath{\mbox{\tt dempty}}
                   \hv@tugboattrue % special page handling
 261
                    \hv@typeout{>>> we are using a TUGboat class}%
 262
 263
 264
              \newcommand\reset@special@float{%
 265
                    \hv@set{subFloat=false,%fullpage=false,
 266
                                          multiFloat=false,%FULLPAGE=false
 267
             }}
 268
              \def\hv@vskip{\vspace{\hvMultiFloatSkip}}
 270
 271
 272
              \mbox{\ensuremath}\hvAboveCaptionSkip
 273
              \newlength\hvBelowCaptionSkip
 274
              \newcount\hv@@capPos
275
276
              \newlength\fboxlinewidth
277
278
              \AtBeginDocument{%
                   \label{linewidth-2} $$\left(\frac{1}{2} - \frac{1}{2} \right)^{2} = \frac{1}{2} \left(\frac{1}{2} - \frac{1}{2} - \frac{1}{2} \right)^{2} = \frac{1}{2} \left(\frac{1}{2} - \frac{1}{2} - \frac{1}
279
 280
             \ensuremath{\ensuremath{\mbox{belowcaptionskip}}\% it is in latex.ltx = 0pt}
 281
 282
             \newcommand\saveCaptionSkip{%
                      \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}%
 283
                      \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}%
 284
                      \setlength{\abovecaptionskip}{0pt}%
 285
                      \setlength{\belowcaptionskip}{0pt}%
 286
             }
 287
              \newcommand\restoreCaptionSkip{%
 288
                    \setlength\abovecaptionskip{\hvAboveCaptionSkip}%
 289
 290
                    \setlength\belowcaptionskip{\hvBelowCaptionSkip}%
 291
 292
              \providecommand\figcaption[2][]{}%
              \verb|\providecommand\tabcaption[2][]{}|
              \providecommand\tabcaptionbelow[2][]{}%
 295
 296
              \verb|\renewcommand| figcaption[2][]{%}
 297
                    \begingroup
298
                    \def\@captype{figure}%
 299
                    \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
 300
                    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
 301
                    \endgroup}
 302
 303
              \renewcommand\tabcaption[2][]{%
 304
                    \begingroup
 305
                    \def\@captype{table}%
                    \edef\hv@caption@format{position=top,\hv@caption@format}%
 306
                    \expandafter\captionsetup\expandafter{\hv@caption@format}%
 307
                    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
 308
                    \endaroup}
 309
              \renewcommand\tabcaptionbelow[2][]{%
```

```
\begingroup
311
       \def\@captype{table}%
312
       \edef\hv@caption@format{position=below,\hv@caption@format}%
313
       \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
314
315
       \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi
316
       \endgroup}
317
    \newlength\hv@maxImageWidth
318
    \AtBeginDocument{\hv@maxImageWidth=\columnwidth}
319
320
    \define@key{Gin}{columnWidth}[true]{%
321
      \def\Gin@ewidth{\columnwidth}%
322
    % \def\Gin@eheight{1ex}%
323
      \Gin@boolkey{true}{iso}%
324
325
    \define@key{Gin}{fullpage}[true]{%
326
       \def\Gin@ewidth{\columnwidth}\%
327
       328
       \Gin@boolkey{false}{iso}%
329
    }
330
     \define@key{Gin}{FullPage}[true]{%
331
       \def\Gin@ewidth{\textwidth}%
332
       \def\Gin@eheight{\textheight}%
333
       \Gin@boolkey{false}{iso}%
334
335
    \define@key{Gin}{FULLPAGE}[true]{%
336
337
       \def\Gin@ewidth{\paperwidth}%
       \def\Gin@eheight{\paperheight}%
338
       \Gin@boolkey{false}{iso}%
339
    }
340
    \define@key{Gin}{doubleFULLPAGE}[true]{%
341
       \def\Gin@ewidth{2\paperwidth}%
342
       \def\Gin@eheight{\paperheight}%
343
       \Gin@boolkey{false}{iso}%
344
345
    \define@key{Gin}{doubleFULLPAGEbindCorr}[true]{%
       347
       \def\Gin@eheight{\paperheight}%
348
       \Gin@boolkey{false}{iso}%
349
    }
350
351
     \newcommand\IncludeGraphics[2][]{%
352
       \vspace*{\the\dimexpr-lin-\voffset+\topskip-\headheight-0.5\baselineskip}%
353
       \leavevmode\checkoddpage
354
       \ifoddpage
355
356
        \hspace*{\dimexpr-\oddsidemargin-\parindent-lin}%
357
       \else
358
        \hspace*{\dimexpr-\evensidemargin-\parindent-lin}%
359
       \fi\noindent
       \includegraphics[#1,width=\paperwidth,height=\paperheight,keepaspectratio=false]{#2}%
360
361
    }
362
    \newcommand\put@CaptionBox[1][0]{%
```

```
\ightharpoonup1
364
     \ifhv@fbox
365
      366
367
368
      \fi
369
370
    \or
     \ifhv@fbox
371
      372
373
      \raisebox{-\height}{\usebox{\hvCaptionBox}}%
374
375
376
     378
    \fi
  }
379
380
   \newcommand\put@ObjectBox[1][0]{%
381
    \ifcase#1
382
     \ifhv@fbox
383
      384
385
      386
387
     \fi
388
389
     \ifhv@fbox
      \fbox{\raisebox{-\height}{\usebox{\hv0bjectBox}}}%
390
391
      392
     \fi
393
    \or
394
     \ifhv@fbox
395
      \fbox{\usebox{\hv0bjectBox}}%
      % rotated object with a depth need to raise up the \depth
      \fi
400
    \fi
401
  }
402
403
404
   \def\drawSepLine{%
405
    \par\noindent
406
    \if@twocolumn
407
     \ifhv@twoColumnCaption
408
409
      \mathbf{0.4pt} \le \mathbf{0.4pt} \le -2.5ex
410
     \else
411
      \mathbf{0.4pt} \leq \mathbf{0.4pt} 
412
     \fi
    \else
413
     \mathbf{0.4pt} \le {\linewidth} \{0.4pt\} \le {\linewidth} 
414
415
    \vspace{\hv@sepLineskip}%
416
```

```
}
417
418
          \newcounter{hv@tempCNTfigA}%
419
          \newcounter{hv@tempCNTfigB}%
420
421
          \newcounter{hv@tempCNTtabA}%
          \verb|\newcounter| \{ hv@tempCNTtabB \} \%
422
          \newcounter{hv@pfigure}%
423
          \newcounter{hv@ptable}%
424
           \newcounter{subhv@pfigure}%
425
           \newcounter{subhv@ptable}%
426
427
           \newif\ifhv@star
428
           \newif\if@hvsubstar
429
          \setDefaults
430
431
432
          \newcommand*{\hvFloat}[5][]+{\normalcommand*}
433
          % [#1}: keyvalues
434
          % #2: type figure | table | ...
435
          % #3: float contents
436
         % [#4]: short caption
437
          % #5: caption
438
          % #6: label
439
440
441
          \def\hvFloat{\@ifnextchar*%
442
                                                                               Main macro
               {\c {\tt \c lobal \hv@startrue \hv@maxImageWidth=\tt \c textwidth \hvFloat@i}\%}
443
                \label{local_hv@starfalse_hv@maxImageWidth=\columnwidth_hvFloat@i*} \\ \$
444
445
446
          \def\hvFloat@i*{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
447
           \def \do@hvFloat[#1]{%}
448
               \begingroup
449
               \setlength\hvWideWidth{\dimexpr\columnwidth+\marginparwidth+\marginparsep}%
450
451
          452
               \setlength\hvWideWidth{\dimexpr\linewidth+\marginparwidth}%
               \hv@maxImageWidth=\textwidth
453
               \reset@special@float
454
               \verb|\global\setcounter| \{hv@pfigure\} \{ \value \{ figure \} \} \%
455
               \global\setcounter{hv@ptable}{\value{table}}%
456
               \setcounter{hv@tempCNTfigA}{\value{figure}}%
457
               \setcounter{hv@tempCNTfigB}{\value{figure}}%
458
               \setcounter{hv@tempCNTtabA}{\value{table}}%
459
               \setcounter{hv@tempCNTtabB}{\value{table}}%
460
               \gdef\hv@save@setting{#1}% for later use after \endgroup inside figure/table env
461
462
               \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
463
               \label{linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_
464
               \ifx\hv@subcaption@format\@empty\else
465
                       \expandafter
                       \captionsetup\expandafter[\expandafter s\expandafter u\expandafter b\expandafter]\expandafter
466
                                                                         {\hv@subcaption@format}%
467
468
               \gdef\hv@floatType{figure}% presetting
469
```

```
\@ifnextchar+{\do@multiFloat}{\hvFloat@ii[#1]}%
470
471
472
            \ExplSyntax0n
473
474
            \def\do@multiFloat+#1#2{%}
475
                 \verb|\clist_set:Nn\l_clist_Type{{#1}}%|
476
                  \verb|\clist_set:Nn\\l_clist_Object{{#2}}%
477
                  \@ifnextchar[\do@multiFloat@i{\do@multiFloat@i[]}%
478
479
           }
             \label{lem:loss_def} $$ \def\do@multiFloat@i[\#1]\#2\#3{\%} $$ lof-caption, caption, label $$ \def\doms{\def}$$ $$ \def\doms{\def}$$$ $$ \def\doms{\def}$$ $$ \def\doms{\def}$$$ $$ \def\doms{\def}$$ $$ \def\doms{\def}$$$ $\def\doms{\def}$$$ $\def\doms{\def}$$$$ $\def\doms{\def}$$$ \def\doms{\def}$$$ \def\doms{\def}$$$ \def\doms{\def}$$$ \def\doms{\def}$$$$\def\doms{\def}$$$$ \def\doms{\def}$$$$\def\doms{\def}$$$$\doms{\def}$$$\def\doms{\def}$$$\doms{\def}$$\doms{\def}$$$\doms{\def}$$$\doms{\def}$$$\doms{\def}$$$\doms{\def}$$$\doms{\def}$$\doms{
480
                 \ifx\relax#1\relax
481
                      \clist_set:Nn\l_clist_LofCaption{{}}%
482
484
                      \verb|\clist_set:Nn\l_clist_LofCaption{{#1}}%
                  \fi
485
                  \verb|\clist_set:Nn\l_clist_Caption{{#2}}%
486
                 \ifx\relax#3\relax
487
                      \verb|\clist_set:Nn| \mathbf{l}_{clist\_Label} {\{\}\}} %
488
489
                      \clist_set:Nn\l_clist_Label{{#3}}%
490
491
                  \@ifnextchar+{\do@multiFloat@ii}{}%
492
493
            \def\do@multiFloat@ii+#1#2{%
494
                 \verb|\clist_put_right:Nn\l_clist_Type{{#1}}%|
495
                  \verb|\clist_put_right:Nn\\| \textbf{l}_clist_Object{\{\#2\}}\\| %
496
                  \@ifnextchar[\do@multiFloat@iii{\do@multiFloat@iii[]}%
497
498
499
            \def\do@multiFloat@iii[#1]#2#3{% lof-caption, caption, label
500
                  \ifx\relax#1\relax
501
502
                      \clist_put_right:Nn\l_clist_LofCaption{{}}%
503
                      \clist_put_right:Nn\l_clist_LofCaption{{#1}}%
505
                  \fi
                  \verb|\clist_put_right:Nn\\ l_clist_Caption{{#2}}%
506
                 \ifx\relax#3\relax
507
                      \verb|\clist_put_right:Nn| \textbf{l}_clist_Label{{}} %
508
                  \else
509
                      \verb|\clist_put_right:Nn\\| \textbf{l}_clist_Label{{#3}}\\| %
510
511
                  \@ifnextchar+\do@multiFloat@ii%
512
                       {\def}\hvSet@CapWidth{n}%
513
514
                          \do@@@dhvFloat}%
515
516
            \ExplSyntaxOff
517
518
             \newcount\hv@cnta
519
            \newcount\hv@cntb
520
521
           \def\hvFloat@ii[#1]#2#3{%
                                                                                           #1: key/value, #2: floattype, #3: object
```

```
\hv@maxImageWidth=\textwidth
523
    % \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi
524
      \gdef\hv@floatType{#2}%
525
526
       \ifx\relax#2\relax
527
         \setkeys{hvSet}{nonFloat,onlyText}%
        \label{thm:continuous} $$ \mathbf x def \mapsto (hv@save@setting, nonFloat, onlyText) $$ for later use after \endgroup inside figure/$$ $$ for later use after \endgroup inside figure/$$ $$
528
      \fi
529
    % \xdef\hv@floatListOfExt{\@nameuse{ext@\hv@floatType}}%
530
       \gdef\hv@float0bject{#3}%
531
       \@ifnextchar[{\do@dhvFloat}{\do@dhvFloat[]}%
532
    }
533
534
     \def\do@hvFloat[#1]#2#3{%}
                                    #1: listof caption, #2. long caption #3: label
535
       \gdef\hv@shortCap{#1}%
536
       \gdef\hv@longCap{#2}%
537
       \gdef\hv@label{#3}%
538
       539
       540
       \global\setlength\hvSet@bindCorrection{\hvSet@bindCorr}% for doublepage objects
541
       \global\setlength\hv@floatCapSep{\hvSet@floatCapSep}%
542
543
       \ifhv@fullpage
544
        \def\hvSet@CapWidth{n}% relative value
545
546
        \do@@@hvFloat% fullpage with caption on other page
547
       \else
        \ifhv@FULLPAGE
548
          \def\hvSet@CapWidth{n}% relative value
549
          \do@@@hvFloat% fullpage with caption on other page
550
         \else
551
          \ifhv@doubleFULLPAGE
552
             \setlength\hvCapWidth{\textheight}%
553
             \expandafter\do@hvFloat@doubleFULLPAGE\@@temp% fullpage with caption rotated or under on an odd page
554
555
             \ifhv@doublePAGE
556
               \expandafter\do@hvFloat@doublePAGE\@@temp% fullpage with caption rotated or under on an odd page
557
558
             \else
               \ifhv@doublePage
559
                 \expandafter\do@hvFloat@doublePage\@@temp% fullpage with caption rotated or under on an odd page
560
               \else
561
                 \do@@dhvFloat
562
               \fi
563
            \fi
564
          \fi
565
        \fi
566
567
       \fi
    }
568
569
    \def\do@@hvFloat{% no special float page, caption and image on top of each other or side by side
570
       \def\@tempa{90}\%
571
       \ifx\hvSet@rotAngle\@tempa
572
        \setlength\hvMaxCapWidth{\textheight}%
573
       \else
574
```

```
\setlength\hvMaxCapWidth{\hvWideWidth}%
575
              \fi
576
577
         %
578
         % First we save the object in \hvObjectBox
579
             \ifnum\hvSet@objectAngle=0 % rotate the object?
580
                  \ifhv@useOBox
581
                      \let\hv0bjectBox\hv0Box
582
                  \else
583
                      \savebox\hv0bjectBox{\hv@float0bject}%
584
585
              \else
586
                  \savebox\hv0bjectBox{%
                      \rotatebox{\hvSet@objectAngle}{%
                           \verb|\if| hv@use0Box\\ \textbf{\hv}0Box\\ \textbf{\else}\\ hv@float0bject\\ \textbf{fi}
590
                      }%
591
                  }%
              \fi
592
              \step {\wd\hv0bjectWidth{\wd\hv0bjectBox}}
593
594
          % Now we save the caption with its defined \hvCapWidth
595
596
              \ifx\hvSet@capWidth\hv@Width%
                                                                                                           captionwidth=objectwidth
597
                  \setlength\hvCapWidth{\hvObjectWidth}%
599
600
                  \ifx\hvSet@capWidth\hv@Height%
                                                                                                            captionwidth=objectheight
                      \\ \
601
602
                      \ifx\hvSet@capWidth\hv@Natural%
                                                                                                           captionwidth=\linewidth-\objectwidth-separation
603
                          \ifhv@capbeside
604
                              \ifhv@wide
605
                                  606
607
                                   \ifhv@star
                                       \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
                                   \fi
612
                              \fi
613
                          \else
614
                              \setlength\hvCapWidth{\columnwidth}%
615
                          \fi
616
                      \else
617
                          \ifhv@capbeside
618
                              \ifhv@wide
619
                                  622
                                   \setlength\hvCapWidth{\hvSet@capWidth\columnwidth}%
623
                                   624
                               \fi
625
                               \ifdim\hvCapWidth>\@tempdima
626
                                   \setlength\hvCapWidth{\@tempdima}%
627
```

```
\fi
628
                                                                                         \else
 629
                                                                                                       \ifhv@wide
 630
                                                                                                                    \setlength\hvCapWidth{\hvSet@capWidth\hvWideWidth}%
 631
  632
                                                                                                       \else
                                                                                                                    \verb|\columnwidth| \verb|\columnwidth| \verb|\columnwidth|| \\
 633
                                                                                                       \fi
 634
                                                                                        \fi
 635
                                                                          \fi
 636
                                                             \fi
 637
 638
                                                  \saveCaptionSkip% we put this space ourselve
  639
                                                  \ifnum\hvSet@capAngle=0 % need rotation?
  640
                                                              \savebox\hvCaptionBox{% NO rotation
  641
                                                                          \mbox{\mbox{minipage}[b]{\hvCapWidth}}\% \mbox{\mbox{\mbox{minipage}, to get hyphenation}}
  642
  643
                                                                                         \ifhv@nonFloat
                                                                     \ifhv@onlyText
 644
                                                                                 \hv@longCap
 645
                                                                     \else
 646
                                                                                  \ifx\hv@floatType\hv@figure
647
                                                                                                \ifx\relax\hv@shortCap\relax
648
                                                                                                              \label{$\ \$ ifig caption $$ \left( \ hv@long Cap \ ifx \ hv@label \ empty \ else \ label \ hv@label \ ifi \ empty \ else \ label \ hv@label \ hv@label \ hv@label \ empty \ else \ label \ hv@label \ hv@label \ empty \ else \ label \ empty \ else \ e
 649
  650
                                                                                                              \label{$$ \figcaption[\hv@shortCap]{\hv@longCap\ifx\hv@label\end{\hv@label}\fi}% $$ \end{\hv@label} $$ \en
  651
  652
                                                                                               \fi
  653
                                                                                  \else
                                                                                                \ifx\relax\hv@shortCap\relax
  654
                                                                                                              \label{$$ \tilde{\hv@label}$ if $x \mapsto \tilde{\hv@label} fi} % $$ $$ \tilde{\hv@label} fi} % $$ \tilde{\hv@label} fi} % $$ \tilde{\hv@label} fi} % $$ \tilde{\hv@label} fi} % $$ $$ \tilde{\hv@label} fi} % $$ $\tilde{\hv@label} fi} % $$ $\tilde{\hv@label} fi} % $$ \tilde{\hv@label} fi} % $$ \tilde{\hv@
  655
  656
                                                                                                              \label{thm:cap-ifx-hv@label-Qempty-else-label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-hv@label-
  657
                                                                                                \fi
 658
                                                                                  \fi
 659
                                                                    \fi
  660
  661
  662
                                                                     \ifhv@onlyText
                                                                                 \hv@longCap
                                                                     \else
                                                                                                                      665
                                                                                                                    666
                                                                                                                    \label{$\vec{fi}$} if x \hv@label\\ else \label{hv@label} fi
 667
                                                                                                       \fi
 668
                                                       \fi
 669
                                                                            \endminipage
 670
                                                             }%
 671
                                                \else
 672
 673
                                                              674
                                                                          \rotatebox{\hvSet@capAngle}{%
                                                                                         \verb|\minipage| b] {\hvCapWidth} \% \textit{ minipage, to get hyphenation}
 675
                                                                     676
                                                                     \ifhv@nonFloat
 677
                                                                                  \ifhv@onlyText
 678
                                                                                                \hv@longCap
679
                                                                                                                      \else
680
```

```
\ifx\hv@floatType\hv@figure
681
             682
             685
           \fi
          \fi
686
        \else
687
          \ifhv@onlyText
688
           \hv@longCap
689
              \else
690
                \let\@captype\hv@floatType
691
                692
693
              \fi
            \fi
            \ifx\hv@label\ensuremath{\fi}
697
          \endminipage
         }% rotatebox
698
       }% \sbox
699
      \fi
700
701
    % now we have the object and the caption with the right
702
    % rotated angles saved in different boxes
703
704
705
     \restoreCaptionSkip% save old values
706
    % \def\fps@figure{\hvSet@floatPos}%
     \ifx\hvSet@floatPos\@empty
707
                                % use type default
708
       \@namedef{fps@\hv@floatType}{\hvSet@floatPos}%
709
     \fi
710
     \ifhv@nonFloat
711
       \noindent
712
713
       \begingroup%
                        Start the nonfloat part
714
715
       \ifhv@star
         \fint {\bf ifx}\hvSet@floatPos\hv@floatBottom}
                                       Start the floating environment *******************
          \@nameuse{\hv@floatType*}[b]%
717
         \else
718
          \@nameuse{\hv@floatType*}%
719
         \fi
720
       \else
721
         \begin{\hv@floatType}%
                               Start the floating environment
722
       \fi
723
724
725
     \checkoddpage
726
      \verb|\ifx| hvSet@objectPos| hv@Right| raggedleft| fi
727
     \fint {\bf ifx} \
728
       \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
729
      \fi
     \ifx\hvSet@objectPos\hv@Outer
730
       \ifoddpage\raggedleft\fi
731
732
     \ifx\hvSet@objectPos\hv@Inner
733
```

```
\ifoddpage\else\raggedleft\fi
734
       \fi
735
736
    %
    \% to rotate object and caption together, we save all in another box
737
    % the caption comes first, if its on the left or the top
738
     % O caption left, inner and odd page, oneside inner
739
     % 1 caption top
740
     % 2 caption right, inner and even page, oneside outer
741
     % 3 caption bottom
742
743
       \ifx\hvSet@capPos\hv@Left
744
         \hv@@capPos=0
745
746
747
         \fint \mathbf{x}\ hvSet@capPos\hv@Top
748
           \hv@@capPos=1
         \else
749
           \int fx\hvSet@capPos\hv@Right
750
             \hv@@capPos=2
751
           \else
752
             \ifx\hvSet@capPos\hv@Bottom
753
               \hv@capPos=3
754
755
             \else
               \ifx\hvSet@capPos\hv@Inner
756
757
                 \label{lem:condition} $$ \ifoddpageoroneside \hv@capPos=0\else\hv@capPos=2\fi
758
                 \ifx\hvSet@capPos\hv@Outer
759
                    760
                 \else
761
                    \ifx\hvSet@capPos\hv@Before
762
                      \hv@@capPos=0% same as cappos=right
763
                    \else
764
                      \ifx\hvSet@capPos\hv@After
765
                        \hv@@capPos=2% same as capPos=right
766
                      \fi
767
768
                    \fi
                 \fi
769
               \fi
770
             \fi
771
           \fi
772
         \fi
773
       \fi
774
775
       \savebox{\@tempboxa}{%
                                                    ***** @tempbox start
776
         \expandafter\ifcase\the\hv@@capPos% 0 is LEFT
                                                              START \ifcase
777
778
           \fint {\bf ifx}\hvSet@capVPos\hv@Center}
779
             \put@CaptionBox
780
             \hspace{\hv@floatCapSep}% capfloatsep
781
             \put@ObjectBox
782
           \else
             \ifx\hvSet@capVPos\hv@Top% caption and object at top aligned
783
               \put@CaptionBox[1]%
784
               \hspace{\hv@floatCapSep}% capfloatsep
785
               \put@ObjectBox[1]%
786
```

```
\else% caption on bottom
787
                                                            \put@CaptionBox[2]%
788
789
                                                            \hspace{\hv@floatCapSep}% capfloatsep
                                                            \put@ObjectBox[2]%
                                                   \fi
791
                                           \fint \mathbf{fi}\% end caption left
792
                                    \or%1 is top
793
                                           \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
794
                                \begin{minipage}{\wd\hvCaptionBox}%
795
                                           \else
796
                                \begin{minipage}{\wd\hv0bjectBox}%
797
                                           \centering
                                           \ifhv@fbox
                               \footnote{Months of the Normal Norm
                               804
                               \usebox{\hv0bjectBox}%
805
                                           \fi
806
                                           \end{minipage}%
807
                                    \or%2 is right
808
                                           \ifx\hvSet@capVPos\hv@Center
809
                                                   \put@ObjectBox
810
811
                               \hspace{\hv@floatCapSep}%
812
                               \put@CaptionBox
813
                                           \else
                               \ifx\hvSet@capVPos\hv@Top
814
                                                           \put@ObjectBox[1]%
815
                                                            \hspace{\hv@floatCapSep}% capfloatsep
816
                                                            \put@CaptionBox[1]%
817
                               \else
818
                                                            \put@ObjectBox[2]%
                                                            \hspace{\hv@floatCapSep}% capfloatsep
820
                                                            \put@CaptionBox[2]%
                               \fi
822
                                           \fi
823
                                   \or%3 bottom
824
                                           825
                                                   \begin{minipage}{\wd\hvCaptionBox}\%
826
                                           \else
827
                                                   \begin{minipage}{\wd\hv0bjectBox}%
828
                                           \fi
829
                                           \centering
830
                                           \ifhv@fbox
831
832
                                                   833
                                                            \footnote{\hvCaptionBox}}%
834
                                                   \else
                                                            \label{lem:linear_linear} $$ \left( \frac{\mathbf{sebox}}{else} \right) $$ (0.5) $$ (ifhv@objectBox) $$
835
                                                                                 hvAboveCaptionSkip]%
                                                            \usebox{\hvCaptionBox}%
836
                                                   \fi
837
                                           \end{minipage}%
838
```

```
\fi% \ifcase\the\hv@@capPos
839
      }% End savebox Object and caption
                                                    840
841
    %
    % now we rotate the object and caption, if needed
842
843
      \ifhv@wide
844
        \ifoddpageoroneside
845
          \if@twocolumn
846
            \if@firstcolumn
847
               \noindent
848
               \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
849
850
          \fi
851
852
         \else
853
          \ifoddpage
            \if@twocolumn
854
               \if@firstcolumn
855
                 \noindent
856
                 \hspace*{\dimexpr-\marginparwidth-\marginparsep}% oddpage first column
857
              \fi
858
            \fi
859
           \else% evenpage
860
             \if@firstcolumn
861
862
               \noindent
               \hspace*{\dimexpr-\marginparwidth-\marginparsep}% <- for wide and left page
863
864
            \fi
          \fi
865
        \fi
866
       \fi
867
       \ifx\hvSet@rotAngle\hv@Zero
868
        \usebox{\@tempboxa}%
869
       \else
870
871
        872
       \ifhv@nonFloat
        \fint \mathbf{x}\ hvSet@objectPos\hv@Center
           \ifhv@nonFloat
875
         876
           \fi
877
        \fi
878
        \endgroup% End the nonfloat part
879
       \else
880
881
          \@nameuse{end\hv@floatType*}% End the floating environment
882
883
884
          \verb|\end{hv@floatType}| % \ \textit{End the floating environment}|
885
        \fi
886
      \fi
       \endgroup% startet at main \hvFloat
887
888
    }
889
    \newenvironment{hvFloatEnv}[1][\textwidth]
890
       {\minipage{#1}}
891
```

```
{\endminipage}
892
893
          \ExplSyntax0n
895
          \let\clist@item@Nn\clist_item:Nn
896
           897
           \verb|\label{lem:lem:l}| \textbf{let} \\ \textbf{lectist@LofCaption} \\ \textbf{l_clist\_LofCaption} \\
898
           \label $$ \end{area} $$ \end{area} Label $$ \end{area} $
899
           \let\clist@count@N\clist_count:N
900
           \ExplSyntaxOff
901
902
           \def\do@@@hvFloat{% special float page: caption <-> fullpage images
903
                \ifx\hvSet@capPos\hv@After \global\hv@@capPos=1
904
905
906
                    907
                     \else
                          908
                          \else
909
                              \ifx\hvSet@capPos\hv@Inner
                                                                                                    \global\hv@@capPos=4
910
911
                                                                                                          \global\hv@@capPos=5
912
                                   \ifx\hvSet@capPos\hv@Outer
913
                                        \ifx\hvSet@capPos\hv@Right
                                                                                                               \global\hv@@capPos=6% only for twocolumn mode
914
                                                                                                                 \global\hv@@capPos=7% only for twocolumn mode
                                             \ifx\hvSet@capPos\hv@Left
917
                                                  \global\hv@@capPos=0
918
                                             \fi
919
                                        \fi
920
                                   \fi
921
                              \fi
922
923
924
                     \fi
925
926
                \checkoddpage
                \set@caption@object{\hv@floatType}% set caption and object into a box
927
                \ifcase\hv@@capPos% caption before object 0-> _always_ left
928
                    \setBottomCaption\setPageObject
929
                \or%
                                                                     caption after object 1-> _always_ right
930
                    \verb|\setPageObject\setBottomCaption| \\
931
                \or%
                                                                     caption on even page 2-> left page
932
                    \ifoddpage
933
                          \afterpage{\setBottomCaption\setPageObject}%
934
                     \else% we are on an even page
935
                          \setBottomCaption\setPageObject
936
937
                    \fi
938
                \or%
                                                                 caption on odd page 3->right page
                     \if@twoside
939
                         \if@twocolumn
940
                              \ifoddpage
941
                                   \if@firstcolumn% on right side
942
                                        \setBottomCaption\setPageObject
943
                                    \else
944
```

```
\afterpage{\setPageObject\setBottomCaption}% start next column
945
               \fi
946
947
             \else% left (even) page
948
               \if@firstcolumn
                 \verb|\afterpage{\setPageObject\setBottomCaption}| % \textit{ start next column} |
949
950
               \else
                 \setPageObject\setBottomCaption
951
               \fi
952
             \fi
953
           \else% onecolumn
954
             \ifoddpage
955
               \setPageObject\setBottomCaption
956
             \else% even page
957
               \afterpage{\setPageObject\setBottomCaption}%
958
             \fi
959
           \fi
960
         \else% oneside
961
           \if@twocolumn
962
             \ifoddpage
963
               \if@firstcolumn% on right side
964
                 \setBottomCaption\setPageObject
965
               \else
966
                 \setPageObject\setBottomCaption
967
               \fi
968
             \else
               \if@firstcolumn% on left side
970
                 \afterpage{\setPageObject\setBottomCaption}%
971
               \else
972
                 \setPageObject\setBottomCaption
973
               \fi
974
             \fi
975
           \else % onecolumn
976
             \ifoddpage
977
               \setBottomCaption\setPageObject
978
979
             \else
               \verb|\afterpage{\setBottomCaption\setPageObject}| % \\
             \fi
981
           \fi
982
         \fi
983
       \or%
                           caption on the inner column 4->inner
984
          \set@caption@object
985
         \if@twocolumn
986
           \ifoddpage
987
             \if@firstcolumn% on right side
988
          \setBottomCaption\setPageObject
989
990
             \else
                            % right column on right side
991
               \verb|\setPageObject\setBottomCaption|| \textit{start next firstcolumn next page}|
             \fi
992
993
           \else
             \if@firstcolumn% on left side
994
               995
             \else% left page/column
996
               \setBottomCaption\setPageObject% start on same page/column
997
```

```
\fi
998
           \fi
         \else% onecolumn
1000
           \verb|\setBottomCaption\setPageObject| \\
1001
1002
         \fi
                           caption on the outer column 5->outer
1003
       \or%
          \set@caption@object
1004
         \if@twocolumn
1005
           \ifoddpage
1006
             \if@firstcolumn
1007
               \afterpage{\afterpage{\setBottomCaption\setPageObject}}%
1008
1009
               \afterpage{\setBottomCaption\setPageObject}%
1010
             \fi
1011
1012
           \else% even page (left)
             \if@firstcolumn
1013
               \setBottomCaption\setPageObject
1014
             \else
1015
     %%%
                       !!!! to-do: !!!!
1016
             \fi
1017
           \fi
1018
         \else% onecolumn
1019
           \setBottomCaption\setPageObject
1020
         \fi
1021
                           caption after object on same page 6->right for twocolumn
1022
         \if@twocolumn
1023
           \if@firstcolumn
1024
             1025
1026
             \setPageObject\setBottomCaption
1027
           \fi
1028
         \else% always caption _after_ object for onecolumn
1029
1030
           \setPageObject\setBottomCaption
1031
1032
                           caption before object on same page 7->left for twocolumn
1033
         \if@twocolumn
1034
           \if@firstcolumn
             \verb|\setBottomCaption\setPageObject| \\
1035
           \else
1036
             \afterpage{\setBottomCaption\setPageObject}%
1037
           \fi
1038
                       onecolumn -> same as before
1039
           \setBottomCaption\setPageObject
1040
1041
       \fi
1042
1043
       \endgroup% startet at main \hvFloat
1044
1045
1046
1047
        ----- the doublepage obejcts
1048
     % ||1in+evenside --- |1in+oddside --- ||
1049
1050
```

```
\def\do@hvFloat@doublePage#1{% image on left and right page with caption on the right page
1051
      % #1-> 0/1 caption under/right
1052
       1053
1054
       \global\setlength\hv@tempWidthA{\the\dimexprlin+\oddsidemargin-\hvSet@bindCorrection}%
1055
       \xdef\hv@caption@format@temp{\hv@caption@format}% it gets lost otherwise for next afterpage
       \global\hv@switchTypefalse
1056
     % \endgroup% started at main macro \hvFloat
1057
       \setcounter{hv@tempCNTfigA}{\value{figure}}%
1058
       \setcounter{hv@tempCNTfigB}{\value{figure}}%
1059
       \setcounter{hv@tempCNTtabA}{\value{table}}%
1060
       \setcounter{hv@tempCNTtabB}{\value{table}}%
1061
       \savebox\hvCaptionBox{% NO rotation
1062
        \minipage{\textwidth}%% minipage, to get hyphenation
1063
          \let\@captype\hv@floatType
1064
          \caption*{\hv@longCap}%
        \endminipage}%
       1067
       \ifnum#1=0\relax
                        % no rotation, caption below
1068
        \hv@typeout{Texthöhe: \the\textheight}%
1069
        \hv@typeout{Objekthöhe: \the\ht\hvObjectBox}%
1070
        \hv@typeout{Captionhöhe: \the\ht\hvCaptionBox}%
1071
        \@tempdima=\dimexpr\ht\hvObjectBox+\ht\hvCaptionBox+\abovecaptionskip+\belowcaptionskip +\textfloatsep\
1072
             relax%+\floatsep\relax
        1073
        \ifdim\@tempdima > \dimexpr\textheight-\hv@minTextlines\relax
1074
1075
          \hv@typeout{hvfloat: switched to floattype p}%
1076
          \hv@switchTypetrue
        \fi
1077
       \fi
1078
       \hv@typeout{do@hvFloat@doublePage:hv@tempWidthA=\the\hv@tempWidthA}%
1079
       \checkoddpage
1080
       \ifoddpage
1081
1082
        \if@twocolumn
1083
          \if@firstcolumn
            \ifhv@switchType
              \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1085
1086
            \else
              \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}%
1087
            \fi
1088
          \else
1089
            \ifhv@tugboat
1090
              \do@hvFloat@doublePageCaptionRight{#1}%
1091
            \else
1092
              \ifhv@switchType
1093
                \verb|\do@hvFloat@doublePAGECaptionRight{#1}%|
1094
              \else
1095
                1096
1097
              \fi
1098
            \fi
          \fi
1099
         \else
1100
          \ifhv@switchType
1101
            \do@hvFloat@doublePAGECaptionRight{#1}%
1102
```

```
\else
1103
            \afterpage{\do@hvFloat@doublePageCaptionRight{#1}}%
1104
          \fi
1105
1106
        \fi
1107
       \else% we have an even page
1108
        \if@twocolumn
          \if@firstcolumn
1109
            \ifhv@switchType
1110
              \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}%
1111
            \else
1112
              \afterpage{\afterpage{\do@hvFloat@doublePageCaptionRight{#1}}}}%
1113
1114
          \else% second column
1115
            \ifhv@switchType
1116
              \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1117
1118
              1119
            \fi
1120
          \fi
1121
        \else% onecolumn
1122
          \ifhv@switchType
1123
            \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1124
1125
            1126
1127
          \fi
1128
        \fi
1129
      \fi
      \let\c@fptop\hv@fptop
1130
      \endgroup% started at main macro \hvFloat
1131
    }
1132
1133
     \def\do@hvFloat@doublePageCaptionRight#1{% image on left and right page with caption on the right page
1134
1135
       \do@hvFloat@doublePageCaptionRightObjectLeft{Opt}%
1136
       \afterpage{\do@hvFloat@doublePageCaptionRightObjectRight{#1}}%
1137
1138
     \def\do@hvFloat@doublePageCaptionRightObjectLeft#1{% left part of the object
1139
       \begin{\hv@floatType*}[!t]
1140
        \let\c@hv@tempCNTfigA\c@figure
1141
        \let\c@hv@tempCNTtabA\c@table
1142
        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1143
        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1144
        \hv@typeout{Floatpositionsparameter: !t}%
1145
        1146
1147
        \verb|\clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \height}{\usebox}\hvObjectBox{} % $$
1148
        \ifx\hv@label\@empty
1149
        \else
          \ifx\hv@floatType\hv@figure
1150
            \global\refstepcounter{hv@tempCNTfigA}%
1151
1152
          \else
            \global\refstepcounter{hv@tempCNTtabA}% before caption
1153
1154
```

```
\label{\hv@label}%
1155
                              \fi
1156
                               \ifhv@global@sameHeight
1157
                                     \hv@typeout{text should be of same height of both pages}%
1158
1159
                                     \par\phantom{\parbox{\textwidth}{\caption*{\hv@longCap}}}%
1160
                                        \vspace{\textfloatsep}%
1161
                        \end{\hv@floatType*}%
1162
1163
                }
                 \def\do@hvFloat@doublePageCaptionRightObjectRight#1{% right part of the object
1164
                         \begin{\hv@floatType*}[!t]
1165
                               \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1166
                               1167
                               \hspace*{-\hv@tempWidthA}%
1168
                               hv0bjectBox}}%
                                        1170
                                                         {\bf oddsidemargin} \hbox{-} \verb|hv@floatCapSep\\| \verb|relax| \$
                                        \hv@typeout{Height of right box: \the\ht\hv@rightBox}%
1171
                                        1172
                                        \int \int d\mathbf{p} \cdot d\mathbf{p}
1173
                                                     \raisebox{\depth}{\usebox\hv@rightBox}%
1174
1175
                                        \else
                                               \usebox\hv@rightBox
1176
1177
                                        \fi
1178
                                        \c@hv@tempCNTfigB=\numexpr\c@figure-1\relax
                                        \verb|\c@hv@tempCNTtabB=\numexpr\c@table-1| \textbf{relax}|
1179
                                        \ifx\hv@label\ensuremath{\mbox{dempty}}else
1180
                                              \ifx\hv@floatType\hv@figure
1181
                                                     \refstepcounter{hv@tempCNTfigB}%
1182
1183
                                                     \refstepcounter{hv@tempCNTtabB}%
                                                                                                                                                                    before caption
1184
1185
                                               \label{\hv@label-2}%
1186
1187
                                        \fi
1188
                                        \ifx\hv@caption@format@temp\@empty\else
                                               \expandafter\captionsetup\expandafter{\hv@caption@format@temp}%
1189
                                        \fi
1190
                                        \verb|\c@figure=\numexpr\c@hv@tempCNTfigB-1| relax|
1191
                                        \c@table=\numexpr\c@hv@tempCNTtabB-1\relax
1192
                                        \int 1 > \ 20
                                                                                              % caption on the right
1193
                                               \hv@typeout{doublePage: capAngle=\hvSet@capAngle}%
1194
                                               \ifnum\hvSet@capAngle > \z@
1195
                                                      \hspace{\hv@floatCapSep}%
1196
                                                     1197
                                                            \abovecaptionskip=0pt% local inside parbox
1198
                                                           \belowcaptionskip=0pt% local inside parbox
1199
1200
                                                            \ifx\relax\hv@shortCap\relax
1201
                                                                  \caption{\hv@longCap}%
1202
                                                            \else
                                                                  \caption[\hv@shortCap]{\hv@longCap}%
1203
                                                           \fi
1204
                                                    }}}%
1205
```

```
1206
                         \else
1207
                             1208
                                      oddsidemargin-\hv@floatCapSep\relax}%
                             \hspace{\hv@floatCapSep}%
1209
                             1210
                                \abovecaptionskip=0pt% local inside parbox
1211
                                \belowcaptionskip=0pt% local inside parbox
1212
                                \ifx\hv@shortCap\@empty
1213
                                    \caption{\hv@longCap}%
1214
                                \else
1215
                                    \caption[\hv@shortCap]{\hv@longCap}%
1216
1217
1218
                             \fi
                      \else % #1 = 0 caption below
1221
                         \ifx\relax\hv@shortCap\relax
1222
                             \caption{\hv@longCap}%
1223
                         \else
1224
                             \caption[\hv@shortCap]{\hv@longCap}%
1225
1226
                         \ifx\hv@label\ensuremath{\hv@label-cap}\fi
1227
                      \fi
1228
                 \vspace{0pt}%
1229
1230
             \end{\hv@floatType*}
1231
         }
1232
         \newsavebox\hv@boxLeftPage
1233
         \newsavebox\hv@boxRightPage
1234
1235
         % || 1in+evenside --- | 1in+oddside --- ||
1236
1237
1238
1239
         \def\do@hvFloat@doublePAGE#1{% image on left and right page with caption on the right
1240
             % #1-> 0/1 caption under/right
             \verb|\global| setlength| hv@tempWidthA{\the} imexprlin+ oddsidemargin- \hvSet@bindCorrection{|} % in the interpretation of the context of the 
1241
             1242
             1243
                      else\hv@floatObject\fi}%
             \expandafter\global\expandafter\savebox\expandafter\hv@boxLeftPage\expandafter{\clipbox*{0 -\depth{} \
1244
                      hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}}%
             \expandafter\global\expandafter\savebox\expandafter\hv@boxRightPage\expandafter{\clipbox*{\
1245
                      % \endgroup% started at main macro \hvFloat
1246
1247
          \checkoddpage
1248
            \ifoddpage
1249
                \if@twocolumn
                    \if@firstcolumn
1250
                       \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}%
1251
                    \else
1252
```

```
\do@hvFloat@doublePAGECaptionRight{#1}%
1253
                                                                  \fi
1254
                                                        \else
1255
                                                                  \do@hvFloat@doublePAGECaptionRight{#1}%
1256
1257
                                                      \fi
1258
                                            \else
                                                        \if@twocolumn
1259
                                                                  \if@firstcolumn
1260
                                                                               \afterpage{\afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}}%
1261
                                                                   \else
1262
                                                                               \afterpage{\do@hvFloat@doublePAGECaptionRight{#1}}}%
1263
                                                                  \fi
1264
1265
                                                                   1266
                                                      \fi
                                            \fi
 1268
1269
                                            \endgroup% startet at main macro
                             }
1270
1271
                                \def\do@hvFloat@doublePAGECaptionRight#1{% image on left and right page with caption on the right
1272
                                           % #1-> 0/1 caption under/right
1273
1274
                                                                   \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1275
1276
                                                                   \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1277
                                                                   \noindent
                                                                   \verb|\clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \height}{\usebox}\hvObjectBox}|% | \clipbox*{0 -\depth{} \hv@leftPageObjectWidth{} \hoight}| \clipbox*{0 -\depth{} \hoight}|% | \clipbox*{0
1278
                                                                   \null\newpage\if@twocolumn\null\newpage\fi
1279
                                                                   \verb|\expandafter\parts| when the properties of t
1280
                                                                                                 hv0Box}\else\hv@float0bject\fi}%
                                                                   \noindent
1281
                                                                    \hspace*{\dimexpr-\hv@tempWidthA}%
1282
                                                                               1283
                                                                    \begingroup
1284
1285
                                                                                          \int 1>0
                                                                                                     \medskip
                                                                                                     \int \int d\mathbf{p} \cdot d\mathbf{p}
 1287
                                                                                                                  1288
                                                                                                                            \ifx\relax\hv@shortCap\relax
1289
                                                                                                                                        \captionof{\hv@floatType}{\hv@longCap}%
1290
                                                                                                                            \else
1291
                                                                                                                                         \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1292
                                                                                                                            \fi
1293
                                                                                                                }}%
1294
                                                                                                                  \ifx\hv@label\ensuremath{\hv@label}\fi
1295
 1296
1297
                                                                                                                 1298
                                                                                                                            \ifx\relax\hv@shortCap\relax
                                                                                                                                         \verb|\captionof{\hv@floatType}{\hv@longCap}| % \\
1299
1300
                                                                                                                            \else
                                                                                                                                         \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1301
                                                                                                                            \fi
1302
                                                                                                                }}%
1303
```

```
\ifx\hv@label\@empty\else\label{\hv@label}\fi
1304
                                  \fi
1305
                          \else% caption not rotated
1306
                              \par\noindent
                              \parbox{\textwidth}{%
1309
                                      \ifx\relax\hv@shortCap\relax
                                          \captionof{\hv@floatType}{\hv@longCap}%
1310
                                      \else
1311
                                          \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1312
1313
                                      \ifx\hv@label\@empty\else\label{\hv@label}\fi
1314
1315
                          \fi
1316
                          \endgroup
1317
                          \newpage\if@twocolumn\null\newpage\fi
1318
1319
               }%
1320
          }
1321
          %% ||1in+evenside --- |1in+oddside ---||
1322
1323
          \def\do@hvFloat@doubleFULLPAGE#1{% image on left and right page with caption before/below/right/after
1324
              % #1-> 0/1 caption under/right
1325
               \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1326
               \fint {\bf x} \
1327
1328
1329
                   \ifx\hvSet@capPos\hv@Before \global\hv@@capPos=0
1330
                      \global\hv@@capPos=2 % other caption type
1331
               \fi\fi
1332
               \checkoddpage
1333
               \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1334
               \global\setlength\hv@tempWidthA{\dimexpr-\oddsidemargin-lin-\parindent+\hvSet@bindCorrection}% the width
1335
                         of the right side offset
               \global\setlength\hv@tempWidthB{\dimexpr\ht\hvCaptionBox+\wd\hvObjectBox+2\hvSet@bindCorrection}%
1336
1337
               \global\setlength\hv@leftPageObjectWidth{\dimexpr\paperwidth-\hvSet@bindCorrection}%
               \label{linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_linear_
                     hv0biectBox}}%
          % \expandafter\captionsetup\expandafter{\hv@caption@format}%
1340
              \ifoddpage
1341
                   \ifcase\hv@@capPos % =0 Caption before
1342
                      \if@twocolumn
1343
                          \if@firstcolumn
1344
                              \ifhv@twoColumnCaption
1345
                                  \set@Normal@Bottom@Caption*
1346
                                  \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionBefore}%
                              \else
1349
                                  1350
                              \fi
                          \else% \if@firstcolumn
1351
                              \set@Normal@Bottom@Caption
1352
                              \do@hvFloat@doubleFULLPAGE@CaptionBefore
1353
1354
```

```
\else% \if@twocolumn
1355
            \set@Normal@Bottom@Caption
1356
1357
            \verb|\do@hvFloat@doubleFULLPAGE@CaptionBefore||
1358
          \fi
         \or % =1 Caption after
1359
          \ifhv@twoColumnCaption
1360
            \if@firstcolumn
1361
              \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol}%
1362
            \else
1363
              \do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol
1364
            \fi
1365
           \else
1366
            \if@twocolumn
1367
              \if@firstcolumn
1368
                \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
              \else
1370
                \do@hvFloat@doubleFULLPAGE@CaptionAfter
1371
              \fi
1372
            \else
1373
              \do@hvFloat@doubleFULLPAGE@CaptionAfter
1374
            \fi
1375
          \fi
1376
         \else% \ifcase >1 all other Captions
1377
          \if@twocolumn
1378
1379
            \if@firstcolumn
              1380
1381
            \else
              \verb|\do@hvFloat@doubleFULLPAGE@CaptionOther{#1}%|
1382
            \fi
1383
          \else % \if@twocolumn
1384
            \label{lem:condition} $$\do_{\theta} = \mathbb{C}_{\theta} = 0.01 + \mathbb{C}_{\theta} 
1385
          \fi
1386
         \fi% \ifcase
1387
       \else% we have an even page
1388
1389
         \ifcase\hv@@capPos%
          \if@twocolumn
            \if@firstcolumn
1391
              \ifhv@twoColumnCaption
1392
                \afterpage{\afterpage\set@Normal@Bottom@Caption*\afterpage{\
1393
                     do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}%
              \else
1394
                \afterpage{\afterpage{\set@Normal@Bottom@Caption\
1395
                     do@hvFloat@doubleFULLPAGE@CaptionBefore{#1}}}}%
              \fi
1396
            \else
1397
1398
              1399
            \fi
1400
           \else% \if@twocolumn
            1401
1402
          \fi
         \or % capPos after
1403
          \if@twocolumn
1404
            \if@firstcolumn
```

```
\ifhv@twoColumnCaption
1406
             \afterpage{\afterpage\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{#1}}}%
1407
            \else
1408
             1409
            \fi
1411
          \else
            \ifhv@twoColumnCaption
1412
             \afterpage{\afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{#1}}}%
1413
            \else
1414
             1415
1416
          \fi
1417
         \else% \if@twocolumn
1418
          \afterpage{\do@hvFloat@doubleFULLPAGE@CaptionAfter}%
1419
        \fi
1420
1421
       \else % \ifcase Any other caption
1422
        \if@twocolumn
          \if@firstcolumn
1423
            1424
1425
            1426
          \fi
1427
         \else
1428
          1429
1430
        \fi
1431
       \fi% \ifcase
1432
      \fi% main ifoddpage
      \endgroup% started at main macro \hvFloat
1433
1434
1435
    1436
    \def\set@Normal@Bottom@Caption@{%
1437
       \begin{\hv@floatType}[!b]
1438
         \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1439
        \ifhv@separatorLine\drawSepLine\fi
1440
1441
         \expandafter\captionsetup\expandafter{\hv@caption@format}%
1442
        \ifx\hv@shortCap\@empty
          \captionof{\hv@floatType}{\hv@longCap}%
1443
        \else
1444
          \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1445
        \fi
1446
        \ifx\hv@label\ensuremath{\hv@label-cap}\fi
1447
       \end{\hv@floatType}%
1448
    }
1449
    \label{lem:condition} $$\def\set@Normal@Bottom@CaptionStar*{$$}
1450
1451
       \begin{\hv@floatType*}[!b]
1452
        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1453
        \ifhv@separatorLine\drawSepLine\fi
1454
         \ifx\hv@shortCap\@empty
1455
          \captionof{\hv@floatType}{\hv@longCap}%
1456
1457
          \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1458
```

```
1459
                                       1460
                                 \end{\hv@floatType*}%
1461
                  }
1462
1463
                  \def\do@hvFloat@doubleFULLPAGE@CaptionBefore{%
1464
1465
                         \afterpage{%
                                 1466
                                \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
1467
                                                 interlineskip
                                 \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
1468
                                \thispagestyle{empty}%
1469
                                 \ifx\hv@floatType\hv@figure
1470
                                       \global\refstepcounter{hv@tempCNTfigB}%
1471
                                 \else
1472
                                       \global\refstepcounter{hv@tempCNTtabB}%
                                                                                                                                                                                  before caption
1473
                               \fi
1474
                                \expandafter\label\expandafter{\hv@label}%
1475
                               \clipbox*{0 0 \the\hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
1476
                               \afterpage{%
1477
                                      \if@twocolumn\newpage\null\newpage\fi
1478
                                       1479
1480
                                       \thispagestyle{empty}%
                                       \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                                                                                                                                                                                                                                                                                                                                                                             -0.51
1481
                                                        paperheight+0.5\ht\hv0bjectBox
1482
                                       \hspace*{\hv@tempWidthA}%
                                       1483
                                       \label{linear_continuous} $$ \left( \frac{\theta}{\theta} \right) \left( \frac{\theta}{\theta} \right)
1484
                                                        hv0biectBox}%
                                       \ifx\hv@floatType\hv@figure
1485
                                             \global\refstepcounter{hv@tempCNTfigA}%
1486
                                       \else
1487
                                             \global\refstepcounter{hv@tempCNTtabA}%
                                                                                                                                                                                         before caption
1488
1489
                                       \expandafter\label\expandafter{\hv@label-2}%
1490
1491
                                       \newpage\if@twocolumn\null\newpage\fi
1492
                        }}%
                  }
1493
1494
                  \newif\ifhv@temp
1495
1496
                   \def\do@hvFloat@doubleFULLPAGE@CaptionAfter{%
1497
                         \afterpage{%
1498
                                 1499
                                \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
1500
                                                 interlineskip
1501
                               \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
1502
                               \thispagestyle{empty}%
                               1503
                                \ifx\hv@floatType\hv@figure
1504
                                      \refstepcounter{hv@tempCNTfigA}%
1505
                                 \else
```

```
\refstepcounter{hv@tempCNTtabA}%
                                                                                before caption
1507
                \fi
1508
                \ifx\hv@label\end{whv@label}\fi
1509
                  \afterpage{%
1510
                    \newpage\if@twocolumn\null\newpage\fi
1511
                    1512
                    \thispagestyle{empty}%
1513
                    \verb|\vspace*{\the \dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\\lineskip}% where $$ \dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\\lineskip, $$ \dimexpr-lin-\voffset-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimexpr-\dimex
                                                                                                                                                                                              -0.51
1514
                             paperheight+0.5\ht\hv0bjectBox
                    \hspace*{\hv@tempWidthA}%
1515
                    1516
                    \clipbox*{\the\hv@leftPageObjectWidth{} \dp\hvObjectBox{} \wd\hvObjectBox{} \ht\hvObjectBox}{\usebox\
1517
                             hv0bjectBox}%
                    \ifx\hv@floatType\hv@figure
1518
                       \refstepcounter{hv@tempCNTfigB}%
1519
                    \else
1520
                       \refstepcounter{hv@tempCNTtabB}% before caption
1521
                    \fi
1522
                    \expandafter\label\expandafter{\hv@label-2}%
1523
                    \newpage\if@twocolumn\null\newpage\fi
1524
                    \begin{\hv@floatType}[!b]
1525
                       \ifhv@separatorLine\drawSepLine\fi
1526
                         \expandafter\captionsetup\expandafter{\hv@caption@format}%
1527
                       \ifx\hv@shortCap\@empty
1528
                           \captionof{\hv@floatType}{\hv@longCap}%
1529
                       \else
1530
                           \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1531
1532
                       1533
                    \end{\hv@floatType}%
1534
            }%}%
1535
1536
1537
          \def\do@hvFloat@doubleFULLPAGE@CaptionAfterTwoCol{%
1538
1539
                \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1541
                \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}% no
                         interlineskip
                1542
                \thispagestyle{empty}%
1543
                \ifx\hv@floatTvpe\hv@figure
1544
                    \refstepcounter{hv@tempCNTfigA}%
1545
                \else
1546
                    \refstepcounter{hv@tempCNTtabA}%
1547
                \fi
1548
                \ifx\hv@label\@empty\else\label{\hv@label}\fi
1549
                1550
1551
                    \newpage\if@twocolumn\null\newpage\fi
                    1552
1553
                    \thispagestyle{empty}%
                    \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                                                                                                                                                                                              -0.51
1554
                             paperheight+0.5\ht\hv0bjectBox
                    \hspace*{\hv@tempWidthA}%
1555
```

```
1556
                                        \label{linear_continuous} $$ \left( \frac{\theta}{\theta} \right) \left( \frac{\theta}{\theta} \right)
1557
                                                         hv0bjectBox}%
1558
                                        \ifx\hv@floatType\hv@figure
1559
                                              \refstepcounter{hv@tempCNTfigB}%
1560
                                        \else
                                              \refstepcounter{hv@tempCNTtabB}% before caption
1561
                                        \fi
1562
                                        \ifx\hv@label\ellower=1.2
1563
                                        \newpage
1564
                                        \begin{\hv@floatType*}[!b]
1565
                                              \hv@twoColumnCaptiontrue
1566
                                              \ifhv@separatorLine\drawSepLine\fi
1567
                                                  1568
                                              \ifx\hv@shortCap\@empty
                                                     \captionof{\hv@floatType}{\hv@longCap}%
1570
1571
                                              \else
                                                     \verb|\captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%| $$
1572
                                              \fi
1573
                                              1574
                                        \end{\hv@floatType*}%
1575
                         }%
1576
1577
                 }
1578
                  \def\do@hvFloat@doubleFULLPAGE@CaptionOther#1{%
1579
                          \afterpage{%
1580
                                 1581
                                 \thispagestyle{empty}%
1582
                                 \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                                                                                                                                                                                                                                                                                                                                                                              -0.51
1583
                                                  paperheight+0.5\ht\hv0bjectBox
                                 \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
1584
                                 \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1585
                                 \clipbox*{0 \depth{} \hv@leftPageObjectWidth{} \height}{\usebox\hvObjectBox}%
1586
                                 \ifx\hv@floatType\hv@figure
1587
1588
                                       \refstepcounter{hv@tempCNTfigA}%
                                 \else
                                       \refstepcounter{hv@tempCNTtabA}%
                                                                                                                                                              before caption
                                 \fi
1591
                                \label{\hv@label}%
1592
                                 \afterpage{%
1593
                                        \if@twocolumn\newpage\if@firstcolumn\else\null\newpage\fi\fi
1594
                                        \global\savebox{\hv0bjectBox}{\ifhv@use0Box\usebox{\hv0Box}\else\hv@float0bject\fi}%
1595
                                        \thispagestyle{empty}%
1596
                                        \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep-\baselineskip+2\lineskip}%
                                                                                                                                                                                                                                                                                                                                                                                     -0.51
1597
                                                         paperheight+0.5\ht\hv0bjectBox
1598
                                       \hspace*{\hv@tempWidthA}%
                                        $$ \clipbox*{\hv@leftPage0bjectWidth{} \dp\hv0bjectBox{} \wd\hv0bjectBox{} \ht\hv0bjectBox}{\hd\hv0bjectBox}.
1599
                                                         hv0bjectBox}%
1600
                                        \ifx\hv@floatType\hv@figure
                                              \refstepcounter{hv@tempCNTfigB}%
1601
1602
                                        \else
                                              \refstepcounter{hv@tempCNTtabB}% before caption
1603
1604
```

```
\expandafter\label\expandafter{\hv@label-2}%
1605
                                        \label{local-parameter} $$\ \end{0.9} $$ \operatorname{local-parameter} {\ \end{0.9} } $$ \operatorname{local-parameter} $$ \operatorname{local-parameter} $$
1606
                                        \ifnum#1 > 0\relax
                                                                                                                 % rotation with 90°
1607
                                                  1608
                                              \ifdim\hv@tempWidthB < 2\paperwidth
1609
                                                    \label{lem:local_condition} $$\operatorname{conigin=lb}_{90}_{\mathbf{0.8}}(paperheight)[c]_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.8}}^{0.8}_{\mathbf{0.
1610
                                                                \expandafter\captionsetup\expandafter{\hv@caption@format}%
1611
                                                             \ifx\hv@shortCap\@empty
1612
                                                                   \captionof{\hv@floatType}{\hv@longCap}%
1613
                                                             \else
1614
                                                                   \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1615
1616
1617
                                                      \ifx\hv@label\ensuremath{\hv@label-cap}\fi
1618
                                              \else% ifdim: no space left on page
                                                     \parbox{0.8\textwidth}{%
1621
                                                                   \ifx\hv@shortCap\@emptv
1622
                                                                         \captionof{\hv@floatType}{\hv@longCap}%
1623
1624
                                                                         \captionof{\hv@floatType}[\hv@shortCap]{\hv@longCap}%
1625
1626
                                                                   \fi
                                                            }%
1627
                                                             \ifx\hv@label\ensuremath{\hv@label-cap}\fi
                                                     \endminipage}}}%
1629
1630
                                        \else% ifnum, caption not rotated, under or over the right page
1631
                                              1632
                                              1633
                                              \else
1634
                                                     \parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\parbox{$\
1635
                                                                       +\abovecaptionskip+\belowcaptionskip){\makebox[0pt][c]{\parbox{\textwidth}}{%
                                                                \expandafter\captionsetup\expandafter{\hv@caption@format}%
1636
1637
                                                             \ifx\hv@shortCap\@empty
                                                                   \captionof{\hv@floatType}{\hv@longCap}%
1639
                                                            \else
                                                                   \caption of {\hv@floatType}[\hv@shortCap]{\hv@longCap}\% \label{logCap} $$
1640
                                                            \fi
1641
                                                    }}}%
1642
                                                     \ifx\hv@label\ensuremath{\hv@label-cap}\fi
1643
1644
                                        \fi% end \ifnum#1>0
1645
                                        \newpage\if@twocolumn\null\newpage\fi
1646
1647
1648
1649
1650
1651
                  \def\setBottomCaption{%
1652
                          \begin{\hv@floatType}[!b]%
1653
                          \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1654
                          \ifhv@separatorLine\drawSepLine\fi
1655
```

```
1656
       \usebox\hvCaptionBox
1657
       \end{\hv@floatType}%
1658
1659
     }
1660
     \def\setPageObject{%
1661
       \ifhv@star
1662
          \begin{\hv@floatType*}[p]%
1663
       \else
1664
         \begin{\hv@floatType}[p]%
1665
1666
        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1667
1668
         \vspace*{\the\dimexpr-lin-\voffset-\topmargin-\headheight-\headsep}%-0.5\baselineskip%
1669
1670
         \checkoddpage
         \if@twoside
1671
           \ifoddpage
1672
             \hspace*{\the\dimexpr-\oddsidemargin-\parindent-lin}%
1673
           \else
1674
             \hspace*{\the\dimexpr-\evensidemargin-\parindent-lin}%
1675
           \fi
1676
         \else
1677
           \hspace*{\the\dimexpr-\oddsidemargin-\parindent-lin}%
1678
         \fi
1679
         \AtBeginShipoutNext{\thispagestyle{empty}}%
1680
1681
         \usebox\hv0bjectBox
       \else
1682
         \usebox\hv0bjectBox
1683
       \fi
1684
       \ifhv@star
1685
         \end{\hv@floatType*}%
1686
1687
         \end{\hv@floatType}%
1688
       \fi
1689
1690
1691
     \ExplSyntax0n
1692
1693
     \def\getMultiCaptionAndLabel{%
1694
       \global\sbox\hvCaptionBox{\minipage[b]{\linewidth}%
1695
         \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1696
          1697
         \setlength\belowcaptionskip{5pt}%
1698
         \setlength\abovecaptionskip{0pt}%
1699
         \hv@cntb=\clist_count:N\l_clist_Type
1700
1701
         \advance\hv@cntb by \@ne
1702
         \hv@cnta=1
1703
         \loop
            \edef\@captype{\clist_item:Nn\l_clist_Type{\hv@cnta}}%
1704
           \label{lem:nnl_clist_LofCaption} $$\ed{chist_item:Nnl_clist_LofCaption} \
1705
           \ifx\@tempa\@empty
1706
             \caption{\clist_item:Nn\l_clist_Caption{\hv@cnta}}%
1707
            \else
1708
```

```
\expandafter\caption\expandafter[\@tempa]{\clist item:Nn\l clist Caption{\hv@cnta}}%
1709
                                                \fi
1710
                                                \label{$\ \endown} $$\endown= Nn\l_clist_Label{\nv@cnta}} $$
1711
1712
                                                \ifx\@tempa\@empty
1713
                                                \else
                                                         \label \expandafter \clist_item: Nn \l_clist_Label \hv@cnta} - cap \fi
1714
                                                 \advance\hv@cnta bv \@ne
1715
                                         \ifnum\hv@cnta<\hv@cntb
1716
                                        \repeat
1717
                                \endminipage}%
1718
1719
1720
                        \def\getMultiObjectAndLabel{%
1721
                                \global\sbox\hv0bjectBox{%
1722
                                        \ifhv@vFill
1723
                                                 \minipage[b][\textheight][s]{\columnwidth}%
1724
1725
                                        \else
                                                \verb|\minipage{\columnwidth}| \%
1726
                                        \fi
1727
                                        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1728
                                            1729
                                        \ifx\hvSet@objectPos\hv@Right\raggedleft\else
1730
                                                 \ifx\hvSet@objectPos\hv@Left\raggedleft\else
1731
                                                        \ifx\hvSet@objectPos\hv@Center\centering
1732
1733
                                        \fi\fi\fi
                                        \hv@cntb=\clist_count:N\l_clist_Type
1734
1735
                                        \advance\hv@cntb by \@ne
                                        \hv@cnta=1
1736
                                        \loop
1737
                                                 \def\@temp{\clist item:Nn\l clist Object{\hv@cnta}}%
1738
                                                \fint {\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\colored{\co
1739
                                                 \edef\@tempa{\clist item:Nn\l clist Label{\hv@cnta}}%
1740
                                                \ensuremath{\ensuremath{\text{edef}}\ensuremath{\ensuremath{\text{o}}\ensuremath{\ensuremath{\text{clist}}\ensuremath{\text{Type}}\ensuremath{\ensuremath{\text{hv@cnta}}}}\%
1741
                                                \ensuremath{\mbox{\sf edef}\@captype{hv@p\@tempb}}\%
1742
1743
                                                \ifx\@tempa\@empty
                                                \else
                                                        \refstepcounter{\@captype}%
1745
                                                        \label{$\operatorname{\operatorname{label}}$ \expandafter(\clist_item:Nn\l_clist_Label{\hv@cnta})} % \label{\hv@cnta} $$\clist_Label(\hv@cnta)$ 
1746
                                                \fi
1747
                                                \int Type \par \n Clist\_count: N\l_clist\_Type \par \n Count \n C
1748
                                                \advance\hv@cnta by \@ne
1749
                                        \ifnum\hv@cnta<\hv@cntb
1750
                                                 \ifhv@vFill\vfill\fi
1751
1752
                                        \repeat
                                \endminipage}%
1753
1754
                      \def\getMultiSubCaptionAndLabel{%
1755
1756
                                \label{linewidth} $$ \global\sbox\hvCaptionBox{\minipage{\linewidth}} $$
1757
                                        \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
                                           1758
                                        \setlength\belowcaptionskip{5pt}%
1759
                                        \setlength\abovecaptionskip{0pt}%
1760
                                        \xdef\@captype{\clist_item:Nn\l_clist_Type{1}}\%$$ the same for all subfloats
1761
```

```
\label{lem:nnl_clist_lofCaption} $$ \ef{$\mathbb{N}_{clist\_LofCaption\{1\}}$} $$
1762
                                            \ifx\@tempa\@empty
1763
                                                     \color{caption{\clist_item:Nn\l_clist_Caption{1}}%}
1764
1765
                                            \else
                                                     \label{lem:nnl_clist_caption} $$ \operatorname{caption}\exp{\operatorname{andafter}[\ensuremath{\mbox{\mbox{$\sim$}}} {\rm Clist\_item:Nn}_clist_Caption{1}} $$ $$ \operatorname{caption}_{1}$$ $$
1766
1767
                                            \fi
                                            \ensuremath{\ensuremath{\text{def}}\ensuremath{\ensuremath{\text{l_clist\_Label}}}\
1768
                                            \ifx\@tempa\@empty\else\expandafter\label\expandafter{\clist_item:Nn\l_clist_Label{1}-cap}\fi
1769
                                   \endminipage}%
1770
                        }
1771
1772
                          \def\getMultiSubObjectAndLabel{%
1773
                                   \global\sbox\hv0bjectBox{%
1774
                                            \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1775
                                            \ifhv@vFill
1776
                                                     \minipage[b][\textheight][s]{\columnwidth}%
1777
1778
                                            \else
                                                     \minipage{\columnwidth}%
1779
                                            \fi
1780
                                                \ifx\hv@subcaption@format\@empty\else
1781
                                                         \expandafter
1782
                                                         \colone{tem} \co
1783
                                                                                                                                                                 {\hv@subcaption@format}%
1784
1785
                                            \ifx\hvSet@objectPos\hv@Right\raggedleft\else
1786
1787
                                                    \ifx\hvSet@objectPos\hv@Left\raggedleft\else
                                                              \ifx\hvSet@objectPos\hv@Center\centering
1788
                                            \fi\fi\fi
1789
                                            \hv@cntb = \clist\_count: N\l\_clist\_Caption
1790
                                            \advance\hv@cntb by \@ne
1791
                                            \hv@cnta=2
1792
                                            \ensuremath{\mbox{\sf edef}}\ensuremath{\mbox{\sf @captype}}\clist item:Nn\l clist Type{1}}\% the same for all subfloats
1793
                                            \ifx\@tempa\@empty
1794
1795
1796
                                                         \refstepcounter{\@captype}%
1797
                        %
                                                         \expandafter\label\expandafter{\@tempa}%
                                           \fi
1798
1799
                                            \loop
                                                     \def\@temp{\clist_item:Nn\l_clist_Object{\hv@cnta}}%
1800
                                                    \frame_{\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{else}}\ensuremath{\mbox{dtemp}}\frame_{\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\frame_{\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\ensuremath}\ensuremath{\mbox{dtemp}}\ensuremath}\
1801
                                                    \begingroup
1802
                                                     \label{lem:nnl_clist_LofCaption} $$\ed{chist_item:Nn\l_clist_LofCaption}_{\norm{logcnta}} $$
1803
                                                     \ifx\@tempa\@empty
1804
                                                              \subcaption{\clist_item:Nn\\\lambda_clist_Caption{\hv@cnta}}%
1805
                                                     \else
1806
1807
                                                              \label{lem:nnl_clist_caption} $$ \operatorname{clist_item:Nnl_clist_Caption_{\normal}} $$ \operatorname{clist_item:Nnl_clist_Caption_{\normal}} $$
                                                     \fi
1808
1809
                                                     \label{$\ \endown} $$\endown= Nn\l_clist_Label{\nv@cnta}} $$
1810
                                                     \ifx\@tempa\@empty
                                                     \else
1811
                                                              \label{$\expandafter(\clist_item:Nn\l_clist_Label{\hv@cnta})} % \label{$\expandafter(\clist_item:Nn\l_clist_Label{\hv@cnta})} % \label{$\expandafter(\clist_item:Nn\l_clist_Label(\hv@cnta))} % \label{$\expandafter(\clist_item:Nn\l_clist_Label(\hv@cnta)))} % \label{{\expandafter(\clist_item:Nn\l_clist_Label(\hv@cnta)))} % \label{{\expandafter(\clist_item:Nn\l_clist_Label(\clist_item)))} % \label{{\expandafter(\clist_item))} % \label{{\expandafter(\clist_item
1812
                                                     \fi
1813
                                                     \endgroup
1814
```

```
\label{lem:lem:norm} $$  \lim hv \cdot (x) = (x) + (x
1815
                             \advance\hv@cnta by \@ne
1816
                            \ifnum\hv@cnta<\hv@cntb
1817
                            \ifhv@vFill\vfill\fi
1818
1819
                        \repeat
                        \label{locality} $$ \edf_{\mathrm{clist\_item:Nn}_{\mathrm{clist\_Label}_{1}}} $$
                                                                                                                                                  the main label at the end
1820
                        \ifx\@tempa\@empty
1821
                        \else
1822
                                                                                                                       to get the same <object>-ref as "label"-cap
                               \addtocounter{\@captype}{-1}%
1823
                             \edef\@temp{hv@p\@captype}%
1824
                             \refstepcounter{\@temp}%
1825
                             \expandafter\label\expandafter{\@tempa}%
1826
1827
                   \endminipage}%
1828
1829
              \ExplSyntaxOff
1830
1831
              \def\getSingleCaptionAndLabel{%
1832
                   \global\sbox\hvCaptionBox{\minipage{\linewidth}%
1833
                       \expandafter\hvFloatSet\expandafter{\hv@save@setting}%
1834
                       \setlength\belowcaptionskip{5pt}%
1835
                       \setlength\abovecaptionskip{0pt}%
1836
                        \edef\@captype{\hv@floatType}%
1837
                        \expandafter\ifx\expandafter\relax\hv@shortCap\relax
1838
1839
                                 \caption{\hv@longCap}%
1840
                        \else
                                 \label{lem:caption} $$ \caption[\hv@shortCap]{\hv@longCap}% $$
1841
                       \fi
1842
                   1843
                   \endminipage}%
1844
1845
1846
1847
              \def\set@caption@object#1{%
                                                                                          first caption, then object #1=\hv@floatType
1848
                  \ifhv@multiFloat
1849
                        \setcounter{hv@pfigure}{\value{figure}}%
1850
                       \setcounter{hv@ptable}{\value{table}}%
                       \verb|\getMultiCaptionAndLabel| \\
1851
                   \else
1852
                       \ifhv@subFloat
1853
                            \setcounter{hv@pfigure}{\value{figure}}%
1854
                            \setcounter{hv@ptable}{\value{table}}%
1855
                            \getMultiSubCaptionAndLabel
1856
                        \else
1857
                             \getSingleCaptionAndLabel
1858
                        \fi
1859
1860
                   \fi
1861
                   \ensuremath{\mbox{\sf edef}}\ensuremath{\mbox{\it @captype}{hv@p#1}}\%
1862
                   \ifhv@multiFloat
                        \getMultiObjectAndLabel
1863
1864
                       \ifhv@subFloat
1865
                             \getMultiSubObjectAndLabel
1866
                        \else
1867
```

```
\global\sbox\hv0bjectBox{%
1868
                                                                                                           \verb|\refstepcounter{@captype}|%
1869
                                                                                                           \verb|\frame| frame{\hv@float0bject}| else \verb|\hv@float0bject| fi | line for the context of the con
1870
                                                                                                           \verb|\expandafter| if x | expandafter| relax \\ | hv@label| relax \\
1871
                                                                                                           \verb|\else|
1872
                                                                                                                            \verb|\expandafter\\label\\expandafter\\\{\end{ter}\}
1873
                                                                                                           \fi
1874
                                                                                            }%
1875
                                                                            \fi
1876
                                                           \fi
1877
                                          }
1878
1879
                                          \endinput
1880
```