The package `hvfloat` defines a macro to place objects and captions of floats in different positions with different rotating angles. All objects and captions are framed on the first pages, which is only for some demonstration here and has no additional sense!

To compare the place of the definition of the floating objects in the source and the output a marginnote `\marginnote{float}` is set into the margin. This is done also only for demonstration!
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<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Output of multi-inner2s2c (pages 2-9)</td>
<td>55</td>
</tr>
<tr>
<td>55</td>
<td>Output of sub-default2s2c (pages 2–9)</td>
<td>56</td>
</tr>
<tr>
<td>56</td>
<td>Output of sub-after2s2c (pages 2–9)</td>
<td>56</td>
</tr>
<tr>
<td>57</td>
<td>Caption at bottom right beside the float with a caption width of 0.5\columnwidth</td>
<td>58</td>
</tr>
<tr>
<td>58</td>
<td>A float which needs the complete paper width and height.</td>
<td>58</td>
</tr>
</tbody>
</table>
1 The package options

\fbox The objects and captions are put into a \fbox command, like in this documentation. This doesn’t make real sense and is only for some demonstration useful or for locating problems if images seems to have too much whitespace.

\hyperref Load package hyperref.

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

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

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

2 The Macros and optional arguments

The syntax for the macros and \setDefaults, \hvset, and \hvFloat is

\[\texttt{\fvset\{}\texttt{key=value list}\texttt{}}\]
\[\texttt{\setDefaults}\]
\[\texttt{\hvFloat\{}\texttt{[Options]}\texttt{*}\texttt{(float type)}\texttt{(floating object)}\texttt{[short caption]}\texttt{[long caption]}\texttt{[label]}\texttt{}}\]

The star version is explained in section 11 on page 24 and 19.2 on page 52 and the optional + is explained in section 17.3 on page 39.

\fvset allows the global setting of keywords and \setDefaults sets all keywords to its default value as shown in Table 2 on the next page.

If \hvFloat has an empty second parameter \texttt{<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.

\[\texttt{\figcaption\{}\texttt{short caption text}\texttt{\}}\texttt{\{caption text\}}\]
\[\texttt{\tabcaption\{}\texttt{short caption text}\texttt{\}}\texttt{\{caption text\}}\]

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.
With the macro \defhvstyle one can define a style which can be used instead of the individual setting:

\defhvstyle{name}{setting}

Internally the style is saved in a macro named \hv@<name>.

There are the following keywords:

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>floatPos</td>
<td>htb</td>
<td>This is not the same default placement setting like the one from the floats.</td>
</tr>
<tr>
<td>rotAngle</td>
<td>0</td>
<td>The value for the angle if both, the object and the caption should be rotated in the same way.</td>
</tr>
<tr>
<td>capWidth</td>
<td>n</td>
<td>The width of the caption. Can be »n« like a natural width, »w« for the width of the object, »h« for the height of the object, or a scale for \columnwidth.</td>
</tr>
<tr>
<td>capAngle</td>
<td>0</td>
<td>The value for the angle if the caption should be rotated. Counted anticlockwise.</td>
</tr>
<tr>
<td>capPos</td>
<td>before</td>
<td>The position of the caption relative to the object. Possible values are before: always before (left) from the object. \left: always before (left) from the object, but on the same page in twocolumn mode. \after: always after (right) from the object. \right: always after (right) from the object, but on the same page in twocolumn mode. \inner: in twoside mode always typeset at the inner margin. \outer: in twoside mode always typeset at the outer margin. \evenPage: in twoside mode with fullpage objects always on an even page. \oddPage: in twoside mode with fullpage objects always on an odd page.</td>
</tr>
<tr>
<td>capVPos</td>
<td>c</td>
<td>This is only important for capPos=left</td>
</tr>
<tr>
<td>objectPos</td>
<td>center</td>
<td>The horizontal placement of the object relative to the document. Possible values are (l)eft</td>
</tr>
<tr>
<td>objectAngle</td>
<td>0</td>
<td>The value for the angle if the object should be rotated. Counted anticlockwise.</td>
</tr>
</tbody>
</table>
### Keyword Default Description

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>floatCapSep</td>
<td>Spt</td>
<td>The additional width between the object and a left or right placed caption.</td>
</tr>
<tr>
<td>useOBox</td>
<td>false</td>
<td>Instead of passing the object as parameter to the \hvFloat, the contents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>maybe saved in the box \hvOBox With useOBox=true the contents of this</td>
</tr>
<tr>
<td></td>
<td></td>
<td>box will be used.</td>
</tr>
<tr>
<td>nonFloat</td>
<td>false</td>
<td>The object isn’t put in a floating environment. It is printed as standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>text with an additional caption. The float counters are increased as</td>
</tr>
<tr>
<td></td>
<td></td>
<td>usual and can be referenced.</td>
</tr>
<tr>
<td>wide</td>
<td>false</td>
<td>The float can use \textwidth+\marginparwidth as horizontal width.</td>
</tr>
<tr>
<td>objectFrame</td>
<td>false</td>
<td>put a frame with no separation around the float object.</td>
</tr>
<tr>
<td>style</td>
<td>–</td>
<td>Use a defined style</td>
</tr>
<tr>
<td>capFormat</td>
<td>–</td>
<td>Define formatting options for \caption (see documentation of package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>caption).</td>
</tr>
<tr>
<td>subcapFormat</td>
<td>–</td>
<td>Define formatting options for \subcaption.</td>
</tr>
</tbody>
</table>

### 3 The default use of floating environments

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

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

![Figure 2: Without any keywords (only the fbox package option)](images/rose)

Code for figure 2:

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

Code for table 3:
4 Caption width

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\hvFloat</td>
<td>command</td>
<td>places object and caption in different ways</td>
</tr>
<tr>
<td>hvFloatEnv</td>
<td>environment</td>
<td>places object and caption exactly Here</td>
</tr>
<tr>
<td>figcaption</td>
<td>command</td>
<td>writes a figure caption in a non floating environment</td>
</tr>
<tr>
<td>tabcaption</td>
<td>command</td>
<td>writes a table caption in a non floating environment</td>
</tr>
<tr>
<td>setDefaults</td>
<td>command</td>
<td>sets all options to the defaults</td>
</tr>
<tr>
<td>defhvstyle</td>
<td>command</td>
<td>define a user style</td>
</tr>
</tbody>
</table>

\begin{tabularx}{\textwidth}{|c|c|X|}
\hline
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{setDefaults} & command & sets all options to the defaults \\
\CMD{defhvstyle} & command & define a user style \\
\hline
\end{tabularx}

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[capPos=top]{table}{
\begin{tabularx}{\textwidth}{|c|c|X|}
\hline
\texttt{capPos=top} to place the caption on top of the table, which is often the default. \\
\end{tabularx}

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

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

\hvFloat[capPos=top]{htb,objectFrame}{figure}{\includegraphics[width=0.5\textwidth]{images/rose}}

\begin{figure}[ht]
\centering
\includegraphics[width=0.5\textwidth]{images/rose}
\caption{With the only Option \texttt{capPos=top} to place the caption on top of the table, which is often the default.}
\end{figure}
4.2 Relative linewidth

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

\texttt{\textbackslash hvFloat[\textbackslash floatPos=!htb,\textbackslash capWidth=0.9]{figure}{\includegraphics{images/rose}}}%

{Caption below with a width of 0.9 of the current line width (column width), which is in this special case \texttt{the\linewidth}. Divide it by 28.82 to get cm.}{fig:width2}
4 Caption width

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

If such a value like 0.9\textwidth 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:

\begin{figure}[htb]
  \centering
  \includegraphics[width=0.9\textwidth]{images/rose}
  \caption{Caption right beside with a width setting of 0.9\textwidth which is too big for this example and therefore corrected by the macro to the maximal width.}
  \label{fig:width3}
\end{figure}

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

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

\hfloat[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.

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

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

5 Caption left or right of the object

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

13
5 Caption left or right of the object

5.1 Caption right with specific length

Code for figure 9:

\texttt{hvFloat}\% 
(floatPos=htb,  
capPos=right,  
objectFrame,  
objectPos=c)(figure){\includegraphics[scale=0.9]{images/rose}}\% 
(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:

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

It is no problem to rotate the object, too. But with a different angle value than for the caption. Do not ask for the sense, it is only a demonstration of what is possible. The object (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"? Kjft – 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}
```

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
Caption inner or outer

the code for the first image with the setting capPos=inner, whereas the second one chooses only capPos=outer.

Code for figure 12:
\texttt{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}

float
capPos=inner

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

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

Now the same image with capPos=outer. The current pagename 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.

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

float
float
capPos=outer

We have an even 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:
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\textbackslash columnwidth and and capPos=outer.

\begin{figure}
\centering
\includegraphics{images/rose}
\caption{Centered Caption beside Object}{fig:22}
\end{figure}

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

We have an odd page, the reason why figure 12 has the caption for \textit{inner} on the right side and figure 14 for \textit{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:

\begin{figure}[htb]
\begin{center}
\includegraphics[width=0.25\textwidth]{images/rose}
\end{center}
\caption{Caption at bottom right beside the float}
\end{figure}

Figure 16: Caption at bottom right beside the float

The code for figure 17:

\begin{figure}[htb]
\begin{center}
\includegraphics[width=0.25\textwidth]{images/rose}
\end{center}
\caption{Caption at top left beside the float}
\end{figure}

Figure 17: Caption at top left beside the float

The code for figure 18:
8 Caption format

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

\begin{figure}[h]
\centering
\caption{Caption centered right beside the float}
\end{figure}

\begin{figure}[h]
\centering
\caption{Caption centered right beside the float}
\end{figure}

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 \( \text{floatCapSep} \) which can be set by the keyword of the same name \( \text{floatCapSep} \). It accepts only a value with any allowed unit. The keyword \( \text{objectPos} \) refers always to the complete floating object: caption and object. The meaning of \( \text{objectPos}=\text{left} \) is: Put the object as far as possible to the left margin. If \( \text{capPos}=\text{left} \) 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:

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

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

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

The same with \( \text{capPos}=\text{left} \):

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.
Figure 21: Caption at top right beside the float and object position left

![Figure 21](image)

The code for figure 22:

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

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

![Figure 22](image)

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

10 Wide floats

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

The code for figure 23:
\hvFloat[wide,  
capPos=right,  
capVPos=top,  
objectPos=left,  
]{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{  
%  
Caption at top right beside the float and object position left and the option \texttt{wide}.}{fig:70}

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

The code for figure 24:
\hvFloat[wide,  
capPos=left,  
capVPos=top,  
objectPos=right,  
]{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{  
%  
Caption at top left beside the object and object position left and the option \texttt{wide}.}{fig:80}

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

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

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

\hvFloat[wide,  
capPos=inner,  
capVPos=top,  
]{figure}{\includegraphics[width=0.75\linewidth]{images/CTAN}}{  
%  
Caption at top and inner beside the float and object position right and  
}
Now we set the same image with the same setting on the next page. The caption will change its side due to the setting \texttt{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:

\begin{figure}[h]
\centering
\includegraphics[width=\linewidth,\textwidth]{images/CTAN}
\caption{Caption at top inner beside the float and object position right and the option \texttt{wide}.}
\end{figure}

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

The option \texttt{wide}.}{fig:81}
11 The star version \texttt{hvFloat*}

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

\begin{verbatim}
\texttt{hvFloat*[capPos=right]{figure}}%
{% A default caption of a ''left'' object \& the default setting}%
{% A default caption of a ''left'' 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}
\end{verbatim}

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 \texttt{lscape} (or \texttt{pdflscape}) you can use the \texttt{floatPos=p} option to put the image on an own page and rotated by 90 degrees (Figure 29).

Code for figure 29:
The float can also be put to the left or to the right (above/below in landscape) with the objectPos=l parameter.

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

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.
Figure 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.
Figure 30: The length of words should match the language. There is no need for special content, but should contain all letters of the alphabet and be written in the original language. There should be no need for special content, but a blank text like this gives you information about the selected font. How the letters are written and an impression of the look. This text should show what a printed text will look like at this place. If you read this text, you will get no information. 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 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!
13 The nonFloat Option

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

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

\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.

The image 13 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 \texttt{xxxcaption} commands to support other with the float package defined new floats.

Some nonsense text after the preceding non floating object.
14 Tabulars as Objects

The object has to be passed as a parameter to the \texttt{hvFloat} macro. This is no problem with images but maybe with tables, so it is easier to use the box \texttt{hv0Box} to save the table in this box and pass it then to \texttt{hvFloat} with the \texttt{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.

\begin{tabular}{|l|l|l|}
\hline
Name & Type & Description \\
\hline
\texttt{hvFloat} & command & places object and caption in different ways \\
\texttt{hvFloatEnv} & environment & places object and caption exactly Here \\
\texttt{figcaption} & command & writes a figure caption in a non-floating environment \\
\texttt{tabcaption} & command & writes a table caption in a non-floating environment \\
\texttt{setDefaults} & command & sets all options to the defaults \\
\hline
\end{tabular}

The code for table 4 and 5 is:

\begin{verbatim}
\begin{tabular}{|l|l|l|}
\hline
Name & Type & Description \\
\hline
\texttt{hvFloat} & command & places object and caption in different ways \\
\texttt{hvFloatEnv} & environment & places object and caption exactly Here \\
\texttt{figcaption} & command & writes a figure caption in a non-floating environment \\
\texttt{tabcaption} & command & writes a table caption in a non-floating environment \\
\texttt{setDefaults} & command & sets all options to the defaults \\
\hline
\end{tabular}
\end{verbatim}

The code for table 4 and 5 is:

\begin{verbatim}
\begin{tabular}{|l|l|l|}
\hline
Name & Type & Description \\
\hline
\texttt{hvFloat} & command & places object and caption in different ways \\
\texttt{hvFloatEnv} & environment & places object and caption exactly Here \\
\texttt{figcaption} & command & writes a figure caption in a non-floating environment \\
\texttt{tabcaption} & command & writes a table caption in a non-floating environment \\
\texttt{setDefaults} & command & sets all options to the defaults \\
\hline
\end{tabular}
\end{verbatim}

In this case leave the third parameter empty.

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 \texttt{nonfloat} keyword is used.

The code for figure 15:
### 15 Text and objects

**Table 4: Demonstration of the use0box Parameter**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{\hvFloat}</td>
<td>command</td>
<td>places object and caption in different ways</td>
</tr>
<tr>
<td>\texttt{hvFloatEnv}</td>
<td>environment</td>
<td>places object and caption exactly Here</td>
</tr>
<tr>
<td>\texttt{\figcaption}</td>
<td>command</td>
<td>writes a figure caption in a non floating environment</td>
</tr>
<tr>
<td>\texttt{\tabcaption}</td>
<td>command</td>
<td>writes a table caption in a non floating environment</td>
</tr>
<tr>
<td>\texttt{\setDefaults}</td>
<td>command</td>
<td>sets all options to the defaults</td>
</tr>
</tbody>
</table>

**Table 5: Demonstration of the use0box Parameter**

\texttt{\hvFloat}\%  
onlyText=true,  
capAngle=90,  
capPos=right,  
capVPos=top,
Demonstration of the \texttt{onlyText} Parameter, which makes it possible to put some text beside a floating object without getting a starting Figure or Table:

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{images/rose}
\caption{Demonstration of the \texttt{onlyText} Parameter, which makes it possible to put some text beside a floating object without getting a starting Figure or Table:}
\end{figure}

16 Environment \texttt{hvFloatEnv}

With the environment \texttt{hvFloatEnv} one can place an object exactly on that position where the environment is defined. For captions the use of \texttt{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}
\captionof{table}{A caption for a nice table}
\end{hvFloatEnv}

Table 6: A caption for a nice table

<table>
<thead>
<tr>
<th>left</th>
<th>center</th>
<th>right</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>C</td>
<td>R</td>
</tr>
</tbody>
</table>

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}
\captionof{table}{A caption for a nice table}
\end{hvFloatEnv}
Table 7: A caption for a nice table

<table>
<thead>
<tr>
<th>left</th>
<th>center</th>
<th>right</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>C</td>
<td>R</td>
</tr>
</tbody>
</table>

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. \texttt{hvfloat} defines three additional optional arguments for placing images in a complete column, page or paper:

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

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

17.1 Using the textarea

The setting \texttt{capPos=evenPage} (even) or \texttt{capPos=oddPage} (odd) page for a document in twocolumn mode makes no real sense. For a twosided document a setting like \texttt{capPos=inner} for inner or \texttt{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 following page:

17.1.1 Using the default or \texttt{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 \texttt{capPos=left} for a onecolumn document. For the \texttt{twocolumn} option it makes more sense to use the setting \texttt{capPos=before} if the caption and object can appear on different pages.

\begin{verbatim}
\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

32
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.} 

With this setting the caption is always placed before the following object. This maybe sufficient for a oneside document but not the best solution if this document is printed on a duplex machine. In such a case it may make sense to have the captions always on an even (left) page, even though the document is typeset in a oneside mode. Figure 32 on the following page shows the output for a oneside document with a setting capPos=before.

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fullpage</td>
<td>true/false</td>
<td>Put the caption on the bottom of the preceding or following page and the object alone a page.</td>
</tr>
<tr>
<td>FULLPAGE</td>
<td>true/false</td>
<td>The same for full papersize objects over one or two columns. The pagemode is set to empty</td>
</tr>
<tr>
<td>multiFloat</td>
<td>true/false</td>
<td>For multiple objects with captions for every object. See section 17.3 on page 39.</td>
</tr>
<tr>
<td>subFloat</td>
<td>true/false</td>
<td>For multiple objects with one main and more subcaptions. See section 18 on page 41.</td>
</tr>
<tr>
<td>separatorLine</td>
<td>true</td>
<td>Put a line with a predefined width of 0.4pt between the text and the caption. Only valid for the keyword fullpage.</td>
</tr>
<tr>
<td>capPos</td>
<td>value</td>
<td></td>
</tr>
</tbody>
</table>

Figure 33: Output of default1s1c (pages 2–9)
17.1 Using the textarea

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.

\hfloat[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 Full page objects in onecolumn mode

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}}%
\caption{A float with a caption on an even page (left)}%
\caption{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 \texttt{capPos=oddPage} — caption on an odd page

With \texttt{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.

\hrulefloat[fullpage, capPos=oddPage]
{figure}%
{%includegraphics[fullpage]{images/frose}}%
[A fullpage float with the default caption setting]
{figure}

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 \texttt{capPos=inner} or \texttt{capPos=outer} — caption on the inner or outer side

These settings make no sense in one-column mode.
17 Full page objects 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 valid for \hfloat 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!

\hfloat\%  
\{figure\}%  
\{\includegraphics\%{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)
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

\[\text{hvFloat} \{\text{Options}\} +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}
  +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}
  +\ldots
  +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}\]

The + symbol defines an additional Object which will be part of the same floating environment. It’s up to 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:

\text{\captionsetup{singlelinecheck=false}}
\text{\hvFloat[\text{Options}]} +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}
  +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}
  +\ldots
  +\{\text{float type}\}{\text{floating object}}\{\text{short caption}\}{\text{long caption}}\{\text{label}\}\]

(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...
17 Full page objects in onecolumn mode

real meaning because it fills only the space for a long caption.}

\begin{tabular}{lrcp{3cm}}
Linksbrief & Rechtsbrief & Zentriert & Parbox\
L & R & C & P\%
left & right & center & Text with possible linebreaks\%
\end{tabular}

\caption{A Caption B of a ''fullpage'' object, which follows on the left or right column.}
Figure 3: A Caption D of a "fullpage" object, which follows on the left or right column.

5 Lists
4.1 Heading on Level 2 (subsection)
Hello, here is some text without a meaning. This text should show what a... in a list
• Fifth item in a list
5.1.1 Example for list (4*itemize)
• First item in a list
– First item in a list

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. 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 similar to the one for a multifloat page:

```
\hvFloat[Options] +{float type}{<empty>}{short caption}{long caption}{label} +{<empty>}{floating object}{short caption}{long caption}{label} +... +{<empty>}{floating object}{short caption}{long caption}{label}
```

Some arguments are ignored for a subfloat, one can leave them empty. The first line defines only the type and the main caption, the object entry is ignored! All additional lines will have the same float type, the reason why the float type entry is ignored.

```
\hvFloat[fullpage,capPos=before,objectFrame,subFloat]
 +{figure}{Short main caption of the objects}{main short lsi entry
  {The main caption of a ‘‘fullpage’’ object, which follows on the left or

Figure 40: Output of multi-after1slc (pages 4–11)
right column. This can be an even or odd page. And some more text which has no real meaning because it fills only the space for a long caption.\% main caption
{sub:demo0}\%
+{}\{\includegraphics[width=\linewidth]{images/CTAN}\%
{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].
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 "Huardestgefburn"? 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 the original language. There is no need for special content, but the length of words should match the language.

Figure 3: The main caption of a "fullpage" object, which follows on the left or right column.

4. Fourth item in a list
3. Third item in a list
2. Second item in a list
1. First item in a list
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 on 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).

\begin{figure}
\centering
\includegraphics[width=\columnwidth, height=0.9\textheight]{images/frose}
\caption{Output of default2s2c (pages 2–9)}
\end{figure}
19.1 Default setting

{(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:fullpage@-2)

The example 43 on the preceding page shows that the caption and the object can be on different pages. If you do not like this behaviour, then use the setting capPos=left, which puts the caption before the object, but always on the same page (see Figure 44).

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure44}
\caption{Output of \texttt{left2s2c} (pages 2–9)}
\end{figure}

\textbf{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 47).

\begin{verbatim}
\hsFloat[fullpage, capPos=after]{figure}%
\{\includegraphics[fullpage]{images/rose}}%
\end{verbatim}

(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). 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.
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 "burn" and "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about 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 the original language. There is no need for special content, but the length of words should match the language.

2 Lists

2.1 Example for list (itemize)

- First item in a list
  - First item in a list
  - Second item in a list

2.2 Example for list (enumerate)

1. First item in a list
2. Second item in a list
3. Third item in a list

2.2.1 Example for list (4*enumerate)

- First item in a list
  - First item in a list
  - Second item in a list
  - Third item in a list

- Second item in a list
  - First item in a list
  - Second item in a list
  - Third item in a list

- Third item in a list
  - First item in a list
  - Second item in a list
  - Third item in a list

- Fourth item in a list
  - First item in a list
  - Second item in a list
  - Third item in a list

4. Fourth item in a list

2.3.1 Example for list (4*description)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list

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 "burn" and "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about 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 the original language. There is no need for special content, but the length of words should match the language.

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19 Full page objects in twocolumn mode

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 hvf\texttt{loat}.

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

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.
19 Full page objects in twocolumn mode

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 Default setting

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 Full page objects in twocolumn mode

19.2 Using full page in twocolumn mode

With the star version of \texttt{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.\
\texttt{hvfloat*{fullpage, capPos=inner}{figure}}\
\{\includegraphics[fullPage]{images/rose}}\
[A float which needs the complete page width and height with \texttt{hvfloat}.
\texttt{hvfloat*{fullpage, capPos=inner}{figure}}\
\{\includegraphics[fullPage]{images/rose}}\
\}\
{A caption of a ‘fullpage’ object in twocolumn mode: It uses the star version\
of \textbackslash hvfloat. The object goes over both columns.}\(\texttt{hvfloat*{fullpage, capPos=inner}{figure}}\
\{\includegraphics[fullPage]{images/rose}}\)

Figure 51: Output of paper-default2s2c (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 to 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:

```latex
\captionsetup{singlelinecheck=false}
\hfloat[fullpage,multiFloat,capPos=inner]
\begin{figure}[h]
\includegraphics[height=0.4\textheight]{images/rose}
\caption{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.}
\end{figure}
\begin{table}[h]
\begin{tabular}{ll}
\hline
Linksbündig & Rechtsbündig  \\
L & R  \\
left & right  \\
\end{tabular}
\caption{A Caption B of a tabular object which is aligned to the left and 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.}
\end{table}
```

Figure 52: Output of paper-inner2s2c (pages 2–9)
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 41. The setting \captionsetup{singlelinecheck=false} is needed if you want the captions always left aligned.

![Image]

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

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).
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 gef-burn"? 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 3: The main caption of a "fullpage" object, which follows on the left or right column.

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

Figure 56: Output of sub-after2s2c (pages 2–9)
21 References to the page

With the command \pageref one can have a reference to the page number of a caption. For the fullpage option this can be the wrong page if someone wants a reference to the page where the object is set. Let’s assume that we use something like

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

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

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

The caption of figure 58 is on page 58, but the image itself is on page 59. 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 floating object and not the caption page number which is-\vpageref{demo:fullpage-cap}.

The figure-\vref{demo:fullpage} is on page-\vpageref{demo:fullpage} and the caption on page-\vpageref{demo:fullpage-cap}.

Whith the package varioref (\url{https://ctan.org/pkg/varioref}) one can get something like: see figure 58 on page 59, which uses a correct page number of the floating object and not the caption pagenumber which is on the next page. The figure 58 is on page 59 and the caption on page 58.

22 Defining a style

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

\defhvstyle{name}{setting}

For example:

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

\hvFloat[style=RightCaption]{figure}{\includegraphics{images/rose}}%
{Caption vertically centered right beside the float with a caption width of \texttt{0.5\textbackslash columnwidth}.}{fig:style}
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 \texttt{hvfloat-fps}. It allows optional package options to set the global placement:

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

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

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

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

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

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

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

%% $Id: hvfloat.sty 1054 2019-05-13 08:20:11Z herbert $
%%
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{hvfloat}[2019/05/13 rotating of floating objects]
%% IMPORTANT NOTICE:
%% This is file 'hvfloat.sty',
%% Herbert Voss <hvoss@tug.org>
%% This program can be redistributed and/or modified under the terms
%% of the LaTeX Project Public License Distributed from CTAN archives
%% in directory macros/latex/base/lppl.txt.
%%
%% DESCRIPTION:
%% 'hvfloat' offers rotating of captions and objects for floats
%%
\def\fileversion{2.15}
\def\filedate{2019/05/13}
\message{'hvfloat' \fileversion, \filedate \space (Herbert Voss)}
\let\hvFileVersion\fileversion
% \newif\ifhv@fbox \hv@fboxfalse
\newif\ifhv@hyperref \hv@hyperreffalse
\DeclareOption{fbox}{\hv@fboxtrue\setlength{\fboxsep}{1pt}}
\DeclareOption{hyperref}{\hv@hyperrefftrue}
\ProcessOptions
\PassOptionsToPackage{hypcap}{caption}
\RequirePackage{caption}
\PassOptionsToPackage{hypcap}{subcaption}
\RequirePackage{subcaption}
\RequirePackage{atbegshi}
\RequirePackage{expl3,multido}
\RequirePackage{graphicx}
\RequirePackage{xkeyval}
\RequirePackage{ifoddpage}
\RequirePackage{afterpage}
%\RequirePackage{zref-abspos}
\ifhv@hyperref
\RequirePackage{hyperref}
% \RequirePackage{hypcap}
\fi
% \unitlength=1cm
\providecommand\\LenToUnit[1]{\strip@pt\dimexpr#1\p@/\unitlength}
\newlength{hvObjectWidth}
\newlength{hvCapWidth}
\newlength{hvWideWidth}
\newlength{hvMultiFloatSkip}
\newlength{hvMaxCapWidth}
\setlength{hv@BottomSpace}{\dimexpr\paperheight-\topmargin-\headheight-\headsep-\textheight}
\newsavebox{hvObjectBox}
\newsavebox{hvCaptionBox}
\newsavebox{hvOBox}
\newsavebox{@tempbox}
\newsavebox{hv@caption@box}
\newif{hv@capbeside}
hv@capbesidefalse
\def{hv@Top}{top}
\def{hv@Bottom}{bottom}
\def{hv@After}{after}
\def{hv@Right}{right}
\def{hv@Left}{left}
\def{hv@Center}{center}
\def{hv@Outer}{outer}
\def{hv@Inner}{inner}
\def{hv@Even}{evenPage}
\def{hv@Odd}{oddPage}
\def{hv@Height}{h}
\def{hv@Width}{w}
\def{hv@Zero}{0}
\def{hv@figure}{figure}
\define@key{hvSet}{floatPos}[htbp]{% LaTeX's position parameters htpb
\hvSet@floatPos{#1}}
\define@key{hvSet}{rotAngle}[0]{% rotates caption AND image together
\hvSet@rotAngle{#1}}
\define@key{hvSet}{capWidth}[n]{% (n)atural width|object (w)idth)|object (h)eight|<scale of \columnwidth>
\hvSet@capWidth{#1}}
\define@key{hvSet}{capAngle}[0]{% -360..+360
\hvSet@capAngle{#1}}
\define@key{hvSet}{capPos}[bottom]{% (l)eft|(b)ottom|(t)op|(r)ight|(i)inner|(o)uter|(e)ven|(o)dd
\def{hvSet@capPos}{#1} \ifx{hv@Bottom}{#1}}
\h@capbesidefalse
\else
  \ifx\h@Top\tempa
    \h@capbesidefalse
 \else
  \h@capbesidetrue
\fi
\fi
\def\h@Set@capVPos{#1}
% bottom|center|top
\def\h@Set@objectPos{#1}
% (l)eft|(c)enter|(r)ight|(i)nner|(o)uter
\def\h@Set@objectAngle{#1}
% -360...+360
\def\h@Set@floatCapSep{#1}
% a width with the unit pt
\setlength\h@MultiFloatSkip{#1}
% a width with the unit pt
\newif\ifh@fullpage
\newif\ifh@FULLPAGE
%\define@boolkey{hvSet}{fullpage}[true]{}% fullpage float with caption on other page
%\define@boolkey{hvSet}{FULLPAGE}[true]{}% fullpage float with caption on other page
\define@key{hvSet}{fullpage}[true]{global\@nameuse{hv@fullpage#1}}% wegen \afterpage problem
\define@key{hvSet}{FULLPAGE}[true]{global\@nameuse{hv@FULLPAGE#1}}
\define@boolkey{hvSet}{subFloat}[true]{}% typeset values as subfloats
\ifh@subFloat\setkeys{hvSet}{multiFloat=false}\fi
\define@boolkey{hvSet}{multiFloat}[true]{}% typeset values as continuous floats
\ifh@multiFloat\setkeys{hvSet}{subFloat=false}\fi
\define@boolkey{hvSet}{separatorLine}[true]{}% separator line for caption of a full page float
\define@boolkey{hvSet}{objectFrame}[true]{}% a frame around the object with no separation
\ifdefined[hv@#1]{\@ifundefined{Custom style '#1' undefined}}%
  \begin{figure}%
  \edef\@{\endgroup\noexpand\setkeys{hvSet}{\@nameuse{hv@#1}}}\@% use a defined style

\define@key{hvSet}{capFormat}[\{}\{\def\hv@caption@format{#1}}\%
\define@key{hvSet}{subcapFormat}[\{}\{\def\hv@subcaption@format{#1}}\%
\def\hv@set#1{\begingroup\edef\x{endgroup\noexpand\setkeys{hvSet}{#1}}\x}
\let\hvFloatSet=\hv@set
\def\defhvstyle#1#2{\@namedef{hv@#1}{#2}}
\newcommand{\setDefaults}{\hv@set{\setkeys{hvSet}{floatPos=htbp, rotAngle=0, capWidth=n, capAngle=0, floatCapSep=5pt, useOBox=false, nonFloat=false, onlyText=false, wide=false, fullpage=false, FULLPAGE=false, multiFloat=false, subFloat=false, separatorLine,objectFrame=false, multiFloatSkip=normalbaselineskip, capFormat={}, subcapFormat={},}}
\newcommand{\reset@special@float}{\hv@set{subFloat=false, multiFloat=false}}
\def\hv@vskip{\vspace{\hvMultiFloatSkip}}
\newlength{hvAboveCaptionSkip}
\newlength{hvBelowCaptionSkip}
\newcount{hv@@capPos}
\newlength{fboxlinewidth}
\AtBeginDocument{
\setlength{fboxlinewidth}{\dimexpr\linewidth-2\fboxrule-2\fboxsep\}}
\setlength{belowcaptionskip}{\ifinlatexitext=0pt}
\newcommand{\saveCaptionSkip}{\setlength{hvAboveCaptionSkip}{\abovecaptionskip} \setlength{hvBelowCaptionSkip}{\belowcaptionskip} \setlength{abovecaptionskip}{0pt} \setlength{belowcaptionskip}{0pt}}
\newcommand{\restoreCaptionSkip}{\setlength{hvAboveCaptionSkip}{\abovecaptionskip} \setlength{hvBelowCaptionSkip}{\belowcaptionskip}}
\newcommand{\figcaption}{\def@captype{figure} \begingroup\ifxrelax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi \ifxrelax\relax \caption[#2]\else\caption[#2]\fi \endgroup}
\newcommand{\tabcaption}[2][\def@captype{table}]{
  \begingroup
  \ifx\relax\@captype\relax
    \@captype{table}
  \else
    \captionsetup{\@captype=\relax}
  \fi
  \ifx\relax#1\relax
    \caption{#2}
  \else
    \caption[#1]{#2}
  \fi
  \endgroup
}

\newlength{\@maxImageWidth}
\AtBeginDocument{\@maxImageWidth=\columnwidth}

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

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

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

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

\newcommand{\put@CaptionBox}[1][0]{
  \ifcase#1
    \if\@maxImageWidth
      \fbox{\parbox{\wd\@maxImageWidth}{\usebox{\@maxImageWidth}}}
    \else
      \parbox{\wd\@maxImageWidth}{\usebox{\@maxImageWidth}}
    \fi
    \or
      \fbox\@maxImageWidth
    \else
      \fbox\@maxImageWidth
    \fi
  \Or
    \fbox\@maxImageWidth
  \else
    \fbox\@maxImageWidth
  \fi
}
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...
\setcounter{hv@ptable}{value{table}}
\gdef\g@save@setting{#1}
\ifx\relax\relax\relax\setkeys{hvSet}{#1}\fi
\gdef\hv@floatType{figure}
@ifnextchar+{\do@multiFloat}{\hvFloat@ii[\#1]}
\ExplSyntaxOn
\def\do@multiFloat+#1#2{\clist_set:Nn\lclist_Type{\#1} \clist_set:Nn\lclist_Object{\#2} \ifnextchar\[
\do@multiFloat@i\else\do@multiFloat@i\[
}\fi}
\def\do@multiFloat@i[#1]{\ifx\relax\relax\fi \clist_set:Nn\lclist_LofCaption{{}} \if\relax\relax\relax\fi \clist_set:Nn\lclist_Caption{\#2} \ifx\relax\relax\fi \clist_set:Nn\lclist_Label{{}} \if\relax\relax\relax\fi \@ifnextchar+{\do@multiFloat@ii}{}}
\def\do@multiFloat@ii+#1#2#3{\clist_put_right:Nn\lclist_Type{\#1} \clist_put_right:Nn\lclist_Object{\#2} \ifnextchar\[
\do@multiFloat@iii\else\do@multiFloat@iii\[
}\fi}
\def\do@multiFloat@iii[#1]{\ifx\relax\relax\fi \clist_put_right:Nn\lclist_LofCaption{\#1} \if\relax\relax\relax\fi \clist_put_right:Nn\lclist_Caption{\#2} \ifx\relax\relax\fi \clist_put_right:Nn\lclist_Label{\#3} \if\relax\relax\relax\fi \@ifnextchar+{\do@multiFloat@ii} \def\hvSet@CapWidth{n}\do@@@@hvFloat}}
\ExplSyntaxOff
\newcounter{hv@pfigure}
\newcounter{hv@ptable}
\newcounter{subhv@pfigure}
\newcounter{subhv@ptable}
\def\drawSepLine{\par\noindent
  \if@twocolumn\rule{\columnwidth}{0.4pt}\else\rule{\linewidth}{0.4pt}\fi
  \vspace{0pt}\}
\newcount{hv@cnta}
\newcount{hv@cntb}
\def\hvFloat@ii[#1]#2#3{
  \hv@maxImageWidth=\textwidth
  \ifx#1\relax\setkeys{hvSet}{#2}\else\setkeys{hvSet}{#1}\fi
  \gdef\hv@floatType{#2}\ifx#2\relax\setkeys{hvSet}{nonFloat=true}\else\setkeys{hvSet}{#2}\fi
  \gdef\hv@floatObject{#3}\ifnextchar[\do@@hvFloat{\do@@hvFloat[\]}
\def\do@@hvFloat[#1]#2#3{
  \gdef\hv@shortCap{#1}\gdef\hv@longCap{#2}\gdef\hv@label{#3}\ifhv@fullpage
    \def\hvSet@CapWidth{n} % relative value
    \do@@@hvFloat\else\fi
\def\do@@@hvFloat{
  \def\@tempa{90}\ifx\hvSet@rotAngle\@tempa\setlength\hvMaxCapWidth{\textheight}\else\setlength\hvMaxCapWidth{\hvWideWidth}\fi
  \ifx\hvSet@objectAngle\hv@Zero % rotate the object?
    \savebox{\hvObjectBox}{\if\hv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}\else\fi
  \if\hv@fullFloat\fullpage with caption on other page\else\fi
  \if\hv@FULLPAGE
    \def\hvSet@CapWidth{n} % relative value
    \do@@@hvFloat\fullpage with caption on other page\else\fi
  \do@\hvFloat\fi
\def\do@{\if\hvFloat\no special float page\else\fi\atempa(90)\if\hvSet@rotAngle\atempa\setlength\hvMaxCapWidth{\textheight}\else\setlength\hvMaxCapWidth{\hvWideWidth}\fi
  % First we save the object in \hvObjectBox\if\hvSet@objectAngle\hv@Zero % rotate the object?
    \savebox{\hvObjectBox}{\if\hv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}\else\fi
  \else\fi

\section{The Package Source}
\ifx\hvSet@capAngle\hv@Zero % need rotation?
  \sbox{\hvCaptionBox}{% NO rotation
  \begin{minipage}[b]{\hv\CapWidth} % minipage, to get hyphenation
    \ifx\relax\hv@caption@format\relax %
      \else
        \captionsetup{\hv@caption@format} %
      \fi
  \ifhv@nonFloat
  \ifhv@onlyText\hv@longCap %
    \else
      \ifx\hv@floatType\hv@figure
        \ifx\relax\hv@shortCap\relax %
          \figcaption{\hv@longCap} %
        \else
          \figcaption[\hv@shortCap]{\hv@longCap} %
        \fi
      \else
        \ifx\relax\hv@shortCap\relax %
          \tabcaption{\hv@longCap} %
        \else
          \tabcaption[\hv@shortCap]{\hv@longCap} %
        \fi
      \fi
  \fi
  \else
    \let\@captype\hv@floatType
    \expandafter\ifx\expandafter\relax\hv@shortCap\relax %
      \caption{\hv@longCap} %
    \else
      \caption[\hv@shortCap]{\hv@longCap} %
    \fi
  \fi
  \label{\hv@label} %
  \end{minipage} %
  \else
    \sbox{\hvCaptionBox}{% Rotation
      \rotatebox{\hvSet@capAngle}{%
        \begin{minipage}[b]{\hv\CapWidth} %
          \ifx\relax\hv@caption@format\relax %
            \else
              \captionsetup{\hv@caption@format} %
            \fi
          \ifhv@nonFloat
          \ifhv@onlyText\hv@longCap %
            \else
              \ifx\hv@floatType\hv@figure
                \ifx\relax\hv@shortCap\relax %
                  \figcaption{\hv@longCap} %
                \else
                  \figcaption[\hv@shortCap]{\hv@longCap} %
                \fi
              \else
                \ifx\relax\hv@shortCap\relax %
                  \tabcaption{\hv@longCap} %
                \else
                  \tabcaption[\hv@shortCap]{\hv@longCap} %
                \fi
              \fi
            \else
            \fi
          \fi
        \else
          \let\@captype\hv@floatType
          \begin{minipage}[b]{\hv\CapWidth} %
            \ifx\relax\hv@caption@format\relax %
              \else
                \captionsetup{\hv@caption@format} %
              \fi
            \ifhv@nonFloat
            \ifhv@onlyText\hv@longCap %
              \else
                \ifx\hv@floatType\hv@figure
                  \ifx\relax\hv@shortCap\relax %
                    \figcaption{\hv@longCap} %
                  \else
                    \figcaption[\hv@shortCap]{\hv@longCap} %
                  \fi
                \else
                \fi
              \else
              \fi
            \fi
            \else
            \fi
          \fi
        \fi
      \end{minipage} %
  \fi
\restoreCaptionSkip % save old values
\def\fps@figure{\hv\Set@floatPos}
\ifhv@nonFloat
  \begingroup % Start the nonfloat part
\fi

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\else
  \ifhv@star
    \@nameuse{\hv@floatType}\% Start the floating environment
  \else
    \begin{\hv@floatType}\% Start the floating environment
  \fi
\fi
\checkoddpage
\ifx\hvSet@objectPos\hv@Right\raggedleft\fi
\ifx\hvSet@objectPos\hv@Center
  \ifhv@nonFloat\hspace*{\fill}\else\centering\fi
\fi
\ifx\hvSet@objectPos\hv@Outer
\fi
\ifx\hvSet@objectPos\hv@Inner
\ifoddpage\else\raggedleft\fi
\fi
% to rotate object and caption together, we save all in another box
% the caption comes first, if its on the left or the top
% 0 caption left, inner and odd page, oneside inner
% 1 caption top
% 2 caption right, inner and even page, oneside outer
% 3 caption bottom
% 4
\ifx\hvSet@capPos\hv@Left
  \hv@@capPos=0
\else
  \ifx\hvSet@capPos\hv@Top
    \hv@@capPos=1
  \else
    \ifx\hvSet@capPos\hv@Right
      \hv@@capPos=2
    \else
      \ifx\hvSet@capPos\hv@Bottom
        \hv@@capPos=3
      \else
        \ifx\hvSet@capPos\hv@Inner
          \ifoddpageoroneside\hv@@capPos=0\else\hv@@capPos=2\fi
        \else
          \ifx\hvSet@capPos\hv@Outer
            \ifoddpageoroneside\hv@@capPos=2\else\hv@@capPos=0\fi
          \else
            \ifx\hvSet@capPos\hv@Before
              \hv@@capPos=0 % same as cappos=right
            \else
              \ifx\hvSet@capPos\hv@After
                \hv@@capPos=2 % same as cappos=right
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
\fi
\fi
\fi
\fi
\fi
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\savebox{\@tempboxa}{% ***** @tempbox start
\expandafter\ifcase\the@capPos 0 is LEFT START \ifcase
\vspace{\@capVPos\capsep} % capfloatsep
\put\captionbox
\else
\ifx\@capVPos\@centercaptionobject % caption and object at top aligned
\put\captionbox[1]%
\vspace{\@capVPos\capsep} % capfloatsep
\put\objectbox[1]%
\else% caption on bottom
\put\captionbox[2]%
\vspace{\@capVPos\capsep} % capfloatsep
\put\objectbox[2]%
\fi
\fi% end caption left
\or%1 is top
\ifdim\wd\captionbox>\wd\objectbox
\begin{minipage}{\wd\captionbox}%
\else
\begin{minipage}{\wd\objectbox}%
\fi
\centering
\if@fbox
\fbox{\usebox{\captionbox}}\vspace{\belowcaptionskip}\
\fbox{\usebox{\objectbox}}\vspace{\belowcaptionskip}\
\else
\usebox{\captionbox}\vspace{\belowcaptionskip}\
\usebox{\objectbox}\vspace{\belowcaptionskip}\
\fi
\end{minipage}%
\or%2 is right
\ifx\@capVPos\@centercaptionobject
\put\captionbox
\else
\ifx\@capVPos\@topcaptionobject % caption and object at top aligned
\put\captionbox[1]%
\vspace{\@capVPos\capsep} % capfloatsep
\put\objectbox[1]%
\else% caption on bottom
\put\captionbox[2]%
\vspace{\@capVPos\capsep} % capfloatsep
\put\objectbox[2]%
\fi
\fi
or bottom
\ifdim wd \hvCaptionBox \w dh \hvObjectBox
  \begin{minipage}{} \wd \hvCaptionBox \%
  \else
  \begin{minipage}{} \wd \hvObjectBox \%
  \fi
  \centering
  \ifhv@fbox
    \fbox{\usebox{\hvObjectBox}}\\\[\hvAboveCaptionSkip]\%
    \fbox{\usebox{\hvCaptionBox}}\%
  \else
    \ifhv@objectFrame\frame{\usebox{\hvObjectBox}}\else\usebox{\hvObjectBox}\fi\\\[\hvAboveCaptionSkip]\%
    \usebox{\hvCaptionBox}\%
  \fi
\end{minipage}%
\else
  \centering
  \ifcase\the\hv@@capPos
    \% End savebox Object and caption %%%%%%%%%%%%%%%%% @tempboxa
  \fi
  \% now we rotate the object and caption, if needed
  \% \ifhv@wide
    \ifoddpageoroneside\else\ifoddpage\else hspace{-\marginparwidth}\fi\fi\% <- for wide and left page
  \fi
  \ifx \hvSet@rotAngle \hv@Zero\%
  \else
    \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}\%
  \fi
  \ifhv@nonFloat
    \ifx \hvSet@objectPos \hv@Center\%
      \hspace{\fill}\%
    \fi
  \else
    \endgroup% End the nonfloat part
  \else
    \ifx \hv@star
      \@nameuse{end\hv@floatType*}\%
      \else\%
        \end{\hv@floatType}\%
        \end the floating environment
    \else
      \% End the floating environment
    \fi
  \fi
  \% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}
\% "newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\ExplSyntaxOn
\let \clist@item@Nn \clist_item:Nn
\let \l@clist@Type \clist_Type
\% newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\@nameuse{end\hv@floatType*}% End the floating environment
\else
  \% End the floating environment
\fi
\% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}
\% "newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\ExplSyntaxOn
\let \clist@item@Nn \clist_item:Nn
\let \l@clist@Type \clist_Type
\% newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\@nameuse{end\hv@floatType*}% End the floating environment
\else
  \% End the floating environment
\fi
\% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}
\% "newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\ExplSyntaxOn
\let \clist@item@Nn \clist_item:Nn
\let \l@clist@Type \clist_Type
\% newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\@nameuse{end\hv@floatType*}% End the floating environment
\else
  \% End the floating environment
\fi
\% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}
\% "newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\ExplSyntaxOn
\let \clist@item@Nn \clist_item:Nn
\let \l@clist@Type \clist_Type
\% newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\@nameuse{end\hv@floatType*}% End the floating environment
\else
  \% End the floating environment
\fi
\% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}
\% "newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\ExplSyntaxOn
\let \clist@item@Nn \clist_item:Nn
\let \l@clist@Type \clist_Type
\% newenvironment{\hvFloatEnv}[1][\textwidth]\{
  \minipage{#1}\center}
\endminipage\endcenter\%
\@nameuse{end\hv@floatType*}% End the floating environment
\else
  \% End the floating environment
\fi
\% Endgroup\% Start at main \hvFloat
\endgroup% startet at main \hvFloat
\}%
\def\do@hvFloat{ % special float page: caption <-> fullpage image
  \ifx\hvSet@capPos\hv@After \hv@@capPos=1
  \else
    \ifx\hvSet@capPos\hv@Even \hv@@capPos=2
    \else
      \ifx\hvSet@capPos\hv@Odd \hv@@capPos=3
      \else
        \ifx\hvSet@capPos\hv@Inner \hv@@capPos=4
        \else
          \ifx\hvSet@capPos\hv@Outer \hv@@capPos=5
          \else
            \ifx\hvSet@capPos\hv@Right \hv@@capPos=6 % only for twocolumn mode
            \else
              \ifx\hvSet@capPos\hv@Left \hv@@capPos=7 % only for twocolumn mode
              \else
                \hv@@capPos=0
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
  \checkoddpage
  \set@caption@object % set caption and object into a box
  \ifcase\hv@@capPos
    \or % caption before object 0-> _always_ left
      \setBottomCaption\setPageObject
    \or % caption after object 1-> _always_ right
      \setPageObject\setBottomCaption
    \or % caption on even page 2-> left page
      \afterpage{\setBottomCaption\setPageObject}\% 
    \else % we are on an even page
      \ifdim\the\dimexpr\zposy{hv@currentPos}sp-\hv@BottomSpace-1cm>\ht\TBox % enough space*
        \setBottomCaption\setPageObject
      \else
        \afterpage{\afterpage{\setBottomCaption\setPageObject}}\%
      \fi
    \fi
  \or % caption on odd page 3->right page
    \if@twoside
      \if@twocolumn
        \checkoddpage
      \else % on right side
        \setBottomCaption\setPageObject
      \else
        \afterpage{\setPageObject\setBottomCaption}\% start next column
    \fi
  \fi
\fi
else % left (even) page
  \if@firstcolumn
  \afterpage{\setPageObject\setBottomCaption}% start next column
  \else
  \setPageObject\setBottomCaption
  \fi
\fi
\else % onecolumn
  \ifoddpage
    \setPageObject\setBottomCaption
  \else % even page
    \afterpage{\setPageObject\setBottomCaption}%
  \fi
\fi
\else % oneside
  \if@twocolumn
    \ifoddpage
      \if@firstcolumn % on right side
        \setBottomCaption\setPageObject
      \else
        \setPageObject\setBottomCaption % start next firstcolumn next page
      \fi
    \else % on left side
      \afterpage{\setPageObject\setBottomCaption}%
      \else
        \setPageObject\setBottomCaption
      \fi
    \fi
  \else % onecolumn
    \ifoddpage
      \setBottomCaption\setPageObject
    \else
      \afterpage{\setBottomCaption\setPageObject}%
    \fi
  \fi
\else % onecolumn
  \ifoddpage
    \setCaption\setPageObject
  \else
    \if@firstcolumn % on left side
      \afterpage{\afterpage{\setCaption\setPageObject}}% start next page/first column
    \else
      \setCaption\setPageObject % start on same page/column
    \fi
  \fi
\fi
\or%
  caption on the inner column 4->inner
  \if@twocolumn
    \ifoddpage
      \if@firstcolumn % on right side
        \setCaption\setPageObject
      \else % right column on right side
        \setPageObject\setCaption% start next firstcolumn next page
      \fi
    \else % on left side
      \afterpage{\afterpage{\setCaption\setPageObject}}% start next page/first column
    \else % left page/column
      \setCaption\setPageObject% start on same page/column
    \fi
  \fi
\fi
\fi
\fi
\fi
\fi
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\fi
\else % onecolumn
\setBottomCaption\setPageObject
\fi
or%         caption on the outer column 5->outer
\set@caption@object
\if@twocolumn
\ifoddpage
\if@firstcolumn
\afterpage{\afterpage{\setBottomCaption\setPageObject}}%
\else
\afterpage{\setBottomCaption\setPageObject}%
\fi
\else even page (left)
\if@firstcolumn
\setBottomCaption\setPageObject
\else
\fi
\fi
\else onecolumn
\setBottomCaption\setPageObject
\fi
or%         caption after object on same page 6->right for twocolumn
\if@twocolumn
\if@firstcolumn
\afterpage{\setPageObject\setBottomCaption}%
\else
\setPageObject\setBottomCaption
\fi
\else always caption _after_ object for onecolumn
\setBottomCaption
\fi
or%         caption before object on same page 7->left for twocolumn
\if@twocolumn
\if@firstcolumn
\setBottomCaption\setPageObject
\else
\afterpage{\setBottomCaption\setPageObject}%
\fi
\else onecolumn --> same as before
\setBottomCaption\setPageObject
\fi
\fi
\endgroup% startet at main \hvFloat
\%
\def\setBottomCaption{%
\begin{hv@floatType}![b]
\ifhv@separatorLine\drawSepLine\fi
\par
\usebox\hvCaptionBox
\end{hv@floatType} %#
\def\setPageObject{
  \ifhv@star
    \begin{hv@floatType*}[p]}
  \else
    \begin{hv@floatType}[p]}
  \fi
  \ifhv@FULLPAGE
    \vspace*{\the\dimexpr-1in-\voffset-\topmargin-\headheight-\headsep\%-0.5\baselineskip}%%
  \checkoddpage
  \if@twoside
    \ifoddpage
      \hspace*{\the\dimexpr-\oddsidemargin-\parindent-1in}%%
    \else
      \hspace*{\the\dimexpr-\evensidemargin-\parindent-1in}%%
    \fi
  \else
    \hspace*{\the\dimexpr-\oddsidemargin-\parindent-1in}%%
  \fi
  \ifhv@star
    \end{hv@floatType*}%%
  \else
    \end{hv@floatType}%%
  \fi
}%%
\ExplSyntaxOn
\def\getMultiCaptionAndLabel{
  \global\sbox{hvCaptionBox}{\minipage[b]{\linewidth}}%%
  \ifx\relax\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
  \setlength{\belowcaptionskip}{5pt}%%
  \setlength{\abovecaptionskip}{0pt}%%
  \hv@cntb=\clist_count:N\clist_Type
  \advance\hv@cntb by @ne
  \scanbox
  \loop
    \edef@captype{\clist_item:Nn\clist_Type{\@cnta}}%%
    \edef@tempa{\clist_item:Nn\clist_LofCaption{\@cnta}}%%
    \ifx\@tempa\@empty
      \caption{\clist_item:Nn\clist_Caption{\@cnta}}%%
    \else
      \caption{\@tempa}{\clist_item:Nn\clist_Caption{\@cnta}}%%
    \fi
  \loop
  \edef@captype{\clist_item:Nn\clist_Type{\@cnta}}%%
  \edef@tempa{\clist_item:Nn\clist_LofCaption{\@cnta}}%%
  \ifx\@tempa\@empty
    \caption{\@captype}{\clist_item:Nn\clist_Label{\@cnta}}%%
  \else
    \caption{\@captype}{\@tempa}{\clist_item:Nn\clist_Label{\@cnta}}%%
  \fi
}%%
\ifx\hsv@objectPos\hsv@Right\raggedleft\else
\fi\ifx\hsv@objectPos\hsv@Left\raggedleft\else
\fi\ifx\hsv@objectPos\hsv@Center\centering
\fi
\if\hsv@cntb=\clist_count:N\_clist_Caption
\advance\hsv@cntb by \@ne
\hsv@cnta=2
\xdef\@captype{\clist_item:Nn\_clist_Type{1}}% the same for all subfloats
\loop
\edef\@temp{\clist_item:Nn\_clist_Object{\hsv@cnta}}%
\if\hsv@objectFrame
frame{\@temp}\else\@temp\fi
\begingroup
\edef\@tempa{\clist_item:Nn\_clist_LofCaption{\hsv@cnta}}%
\if\@tempa\@empty
\subcaption{\clist_item:Nn\_clist_Caption{\hsv@cnta}}%
\else
\expandafter\subcaption\expandafter[\@tempa]{\clist_item:Nn\_clist_Caption{\hsv@cnta}}%
\fi
\edef\@tempa{\clist_item:Nn\_clist_Label{\hsv@cnta}}%
\if\@tempa\@empty
\else
\expandafter\label\expandafter{\@tempa}
\fi
\endgroup
\ifnum\hsv@cnta<\clist_count:N\_clist_Type\par\hsv@vskip\fi
\advance\hsv@cnta by \@ne
\ifnum\hsv@cnta<\hsv@cntb
\repeat
\edef\@tempa{\clist_item:Nn\_clist_Label{1}}% the main label at the end
\if\@tempa\@empty
\else
\refstepcounter{\@captype}
\expandafter\label\expandafter{\@tempa}
\fi
\endminipage%
\ExplSyntaxOff
\def\getSingleCaptionAndLabel{%
\global\sbox\hvCaptionBox\minipage{\linewidth}\
\if\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
\setlength\belowcaptionskip{\ht\hvCaptionBox}\fi
\setlength\abovedcaptionskip{\ht\hvCaptionBox}\fi
\edef\@captype{\hv@floatType}\fi
\expandafter\label\expandafter[\@captype]{\sbox\@tempa\label}{\sbox\@tempb\label-cap}\
\endminipage%
\ExplSyntaxOff
\def\getSingleCaptionAndLabel{%
\global\sbox\hvCaptionBox\minipage{\linewidth}\
\if\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
\setlength\belowcaptionskip{\ht\hvCaptionBox}\fi
\setlength\abovedcaptionskip{\ht\hvCaptionBox}\fi
\edef\@captype{\hv@floatType}\fi
\expandafter\label\expandafter[\@captype]{\sbox\@tempa\label}{\sbox\@tempb\label-cap}\
\endminipage%
\ExplSyntaxOff
\def\getSingleCaptionAndLabel{%
\global\sbox\hvCaptionBox\minipage{\linewidth}\
\if\hv@caption@format\relax\else\expandafter\captionsetup\expandafter{\hv@caption@format}\fi
\setlength\belowcaptionskip{\ht\hvCaptionBox}\fi
\setlength\abovedcaptionskip{\ht\hvCaptionBox}\fi
\edef\@captype{\hv@floatType}\fi
\expandafter\label\expandafter[\@captype]{\sbox\@tempa\label}{\sbox\@tempb\label-cap}\
\endminipage%
\def\set@caption@object{ \ifhv@multiFloat \getMultiCaptionAndLabel \else \ifhv@subFloat \getMultiSubCaptionAndLabel \else \getSingleCaptionAndLabel \fi \fi \edef\@captype{hv@p\hv@floatType} \ifhv@multiFloat \getMultiObjectAndLabel \else \ifhv@subFloat \getMultiSubObjectAndLabel \else \global\sbox\hvObjectBox{} \refstepcounter{\@captype} \ifhv@objectFrame \frame{\hv@floatObject} \else \hv@floatObject \fi \expandafter\ifx\expandafter\relax\hv@label\relax \else \expandafter\label\expandafter{\hv@label} \fi \fi \fi\fi \fi\fi
}