Package `hvfloat`
Rotating objects and captions
ver 1.1

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Abstract

This `hvfloat.sty` defines a macro to place objects and captions of floats in different positions with different rotating angles.

All objects and captions are framed, which is only for demonstration here and has no additional sense.

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List of Figures

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.

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

2 The Macros

The syntax for the \hvFloat macro is

```
\hvFloat[<options>]%
        {<float type>}%
        {<floating object>}%
        [<short caption>]{<long caption>}%
        {<label>}
```

If the second parameter <float type> is empty, then hvfloat switches by default to a nonfloat (see table 2) object, which is not imprtant for the user. All other parameters may also be empty and the short caption as second optional parameter missing. This one is as usual the caption for the listoffigures.

There are some more macros defined, more or less for internally use in hvfloat, but they can be used for own purposes.

```
\figcaption[<short caption text>]{<caption text>}
\tabcaption[<short caption text>]{<caption text>}
```

They are used for the nonfloat option, 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 1 is no problem.

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

2.1 The Options

There are following options:

Table 2: The Options for the Macro `hvFloat`

Option	Default	Description
floatPos	htb	This is the same placement option like the one from the floats.
rotAngle	0	The value for the angle if both, the object and the caption should be rotated in the same way.
capWidth	0.8	The width of the caption. Can be "w" for the width of the object or "h" for the height of the object or a scale for `\columnwidth`.
capAngle	0	The value for the angle if the caption should be rotated. Counted anti clockwise.
capPos	b	The position of the caption relative to the object. Possible values are (**l**)eft|(**b**)ottom|(**t**)op|(**r**)ight.
capVPos	c	This is only important for `capPos=l|r`. Only in this case the caption can vertically placed at the (**b**)ottom|(**c**)enter|(**t**)op.
objectPos	c	The horizontalplacement of the object relative to the document. Possible values are (**l**)eft|(**c**)enter|(**r**)ight.
objectAngle	0	The value for the angle if the object should be rotated. Counted anti clockwise.
floatCapSep	5	The additional width between the object and a left or right placed caption. The default unit is `pt`.
useOBox	false	Instead of passing the object as parameter to the `hvFloat`, the contents maybe saved in the box `\hvOBox` With `useOBox=true` the contents of this box will be used.
nonFloat	false	The object isn't put in a floating environment. It is printed as standard text with an additional caption. The float counters are increased as usual and can be referenced.

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}
```
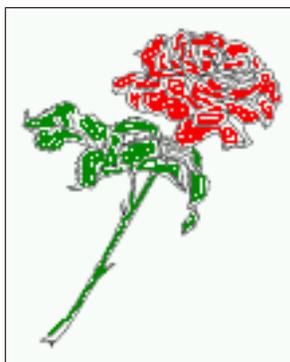

Figure 2: Without any Options (only the `fbox` package option)

Code for figure 2:

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

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

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

Code for table 3:

```
1  \hvFloat[capPos=t]{figure}{%
2      \begin{tabularx}{\textwidth}{l|l|X}
3          Name &    Type & Description\\\hline
4          \CMD{hvFloat} & command & places object and caption in different ways\\
5          \texttt{hvFloatEnv}  & environment & places object and caption exactly Here\\
6          \CMD{figcaption} & command & writes a figure caption in a non floating
               environment\\
7          \CMD{tabcaption} & command & writes a table caption in a non floating
               environment\\
```

```
  8            \CMD{setDefaults} & command & sets all options to the defaults
  9            \end{tabularx}%
 10  }{With the only Option \texttt{capPos=t} to place the caption on top of the table, which
        is often the default}{tab:0}
```

See section 9 for some more informations about tabulars as objects.

4 Caption Right or Left

Figure 4: Caption vertically centered right beside the float with a caption width of `0.5\columnwidth` and `floatcapsep=5pt` (the default)

Code for figure 4:

```
  1  \hvFloat[%
  2      floatPos=htb,%
  3      capWidth=0.5,% of \columnwidth
  4      capPos=r,%
  5      capVPos=c,%
  6      objectPos=c]{figure}{\includegraphics{rose}}%
  7      [Caption beside object and vertically centered]{%
  8      Caption vertically centered right beside the float with a caption
            width of \texttt{0.5\textbackslash columnwidth} and \texttt{
            floatcapsep=5pt} (the default)}{fig:1}
```

4.1 Caption Right and Rotated

Code for figure 5:

```
  1  \hvFloat[%
  2      floatPos=htb,%
  3      capWidth=h,% of \columnwidth
  4      capPos=r,%
  5      capAngle=90,%
  6      capVPos=c,%
  7      objectPos=c]{figure}{\includegraphics{rose}}%
  8      [Centered Caption beside Object]{%
  9      Caption vertically centered right beside the float with a caption
            width of \texttt{0.5\textbackslash columnwidth} and \texttt{
            floatcapsep=5pt} (the default)}{fig:2}
```
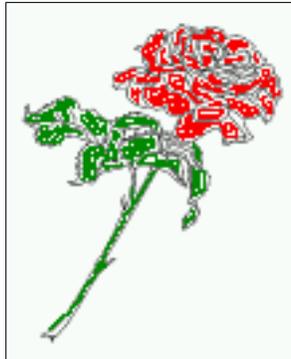
Figure 5: Caption vertically centered right beside the float with a caption width of 0.5\columnwidth and floatcapsep=5pt (the default)

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 rotatebox makro.
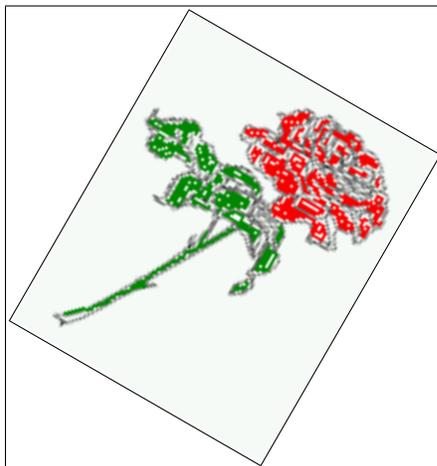
Figure 6: Caption vertically centered right beside the float with a caption width of the height of the image and floatcapsep=5pt (the default)

Code for figure 6:

```
1  \hvFloat[%
2      floatPos=htb,%
3      capWidth=h
4      capPos=r,%
5      capAngle=180,%
6      objectAngle=-30,%
7      capVPos=c,%
8      objectPos=c]{figure}{\fbox{\includegraphics{rose}}}%
9      [Centered Caption beside Object]{%
10     Caption vertically centered right beside the float with a caption
           width of the height of the image and \texttt{floatcapsep=5pt}
           (the default)}{fig:3}
```

5 Vertical Position of the Caption

The caption can be placed beside the object in the psoitions

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


Figure 7: Caption at bottom right beside the float
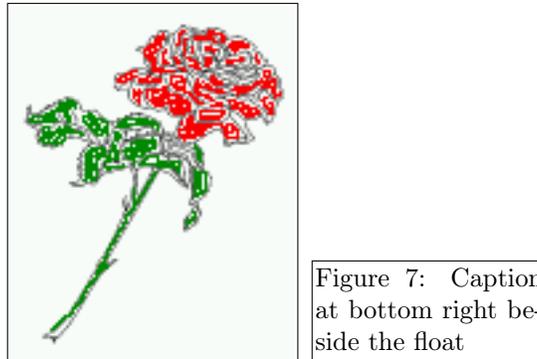
The code for figure 7:

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

Figure 8: Caption at top left beside the float
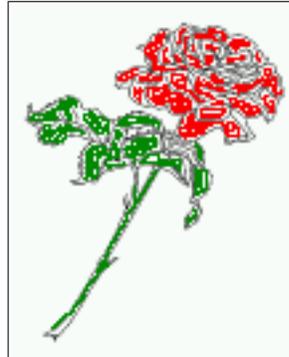
The code for figure 8:

```
1  \hvFloat[%
2      floatPos=htb,%
3      capWidth=0.25,%
4      capPos=r,%
5      capVPos=t,%
6  ]{figure}{\includegraphics{rose}}{Caption at top left beside the float
       }{fig:5}
```
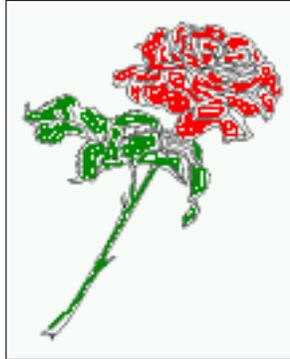
Figure 9: Caption centered right beside the float

The code for figure 9:

```
1  \hvFloat[%
2      capWidth=0.25,%
3      capPos=r,%
4      capVPos=c,% the default
5  ]{figure}{\includegraphics{rose}}{Caption centered right beside the
       float}{fig:6}
```

6 Horizontal Position of the Float
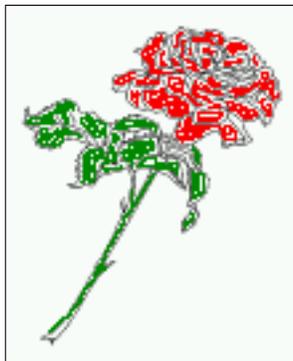
Figure 10: Caption at top right beside the float and object position left

The code for figure 10:

```
1  \hvFloat[%
2      capWidth=0.25,%
3      capPos=r,%
4      capVPos=t,%
5      objectPos=l,%
6  ]{figure}{\includegraphics{rose}}{%
7      Caption at top right beside the float and object position left}{
           fig:7}
```

The code for figure 11:

Figure 11: Caption at top left beside the float and object position right
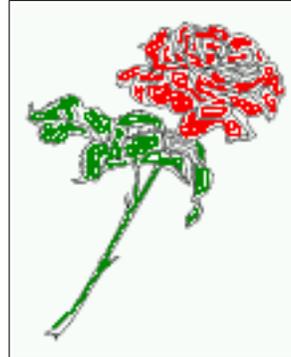
```
1  \hvFloat[%
2      capWidth=0.25,%
3      capPos=l,%
4      capVPos=t,%
5      objectPos=r,%
6  ]{figure}{\includegraphics{rose}}{%
7      Caption at top leftt beside the float and object position right}{
           fig:8}
```

7 Full Page Width in Landscape Mode

If you do not want to load the lscape package you can use the floatPos=p option to put the image on an own page and rotated by 90 degrees (figure 12).

Code for figure 12:

```
1  \hvFloat[%
2      floatPos=p,%
3      capWidth=1,%
4      capPos=b,%
5      rotAngle=90,%
6      objectPos=c%
7  ]{figure}{\includegraphics[width=0.9\textheight]{bateaux}}{%
8      Caption at top right beside the float and object position right}{
           fig:9}
```

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

The code for figure 13:

```
1  \hvFloat[%
2      floatPos=p,%
3      capWidth=h,%
4      capPos=r,%
5      objectAngle=90,%
6      capAngle=-90,%
7      objectPos=l%
8  ]{figure}{\includegraphics[width=\textheight]{bateaux}}%
9      [Rotated Caption]{%
```

Figure 12: Caption at top and together with the object rotated

11
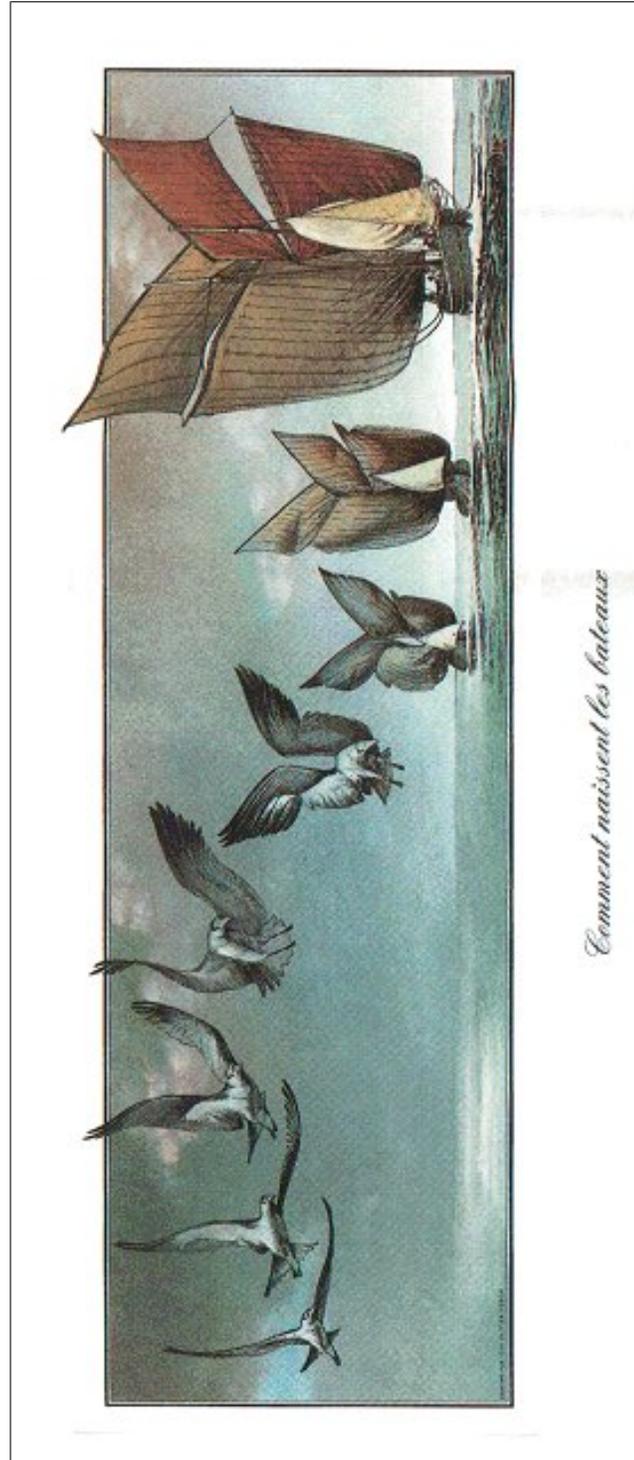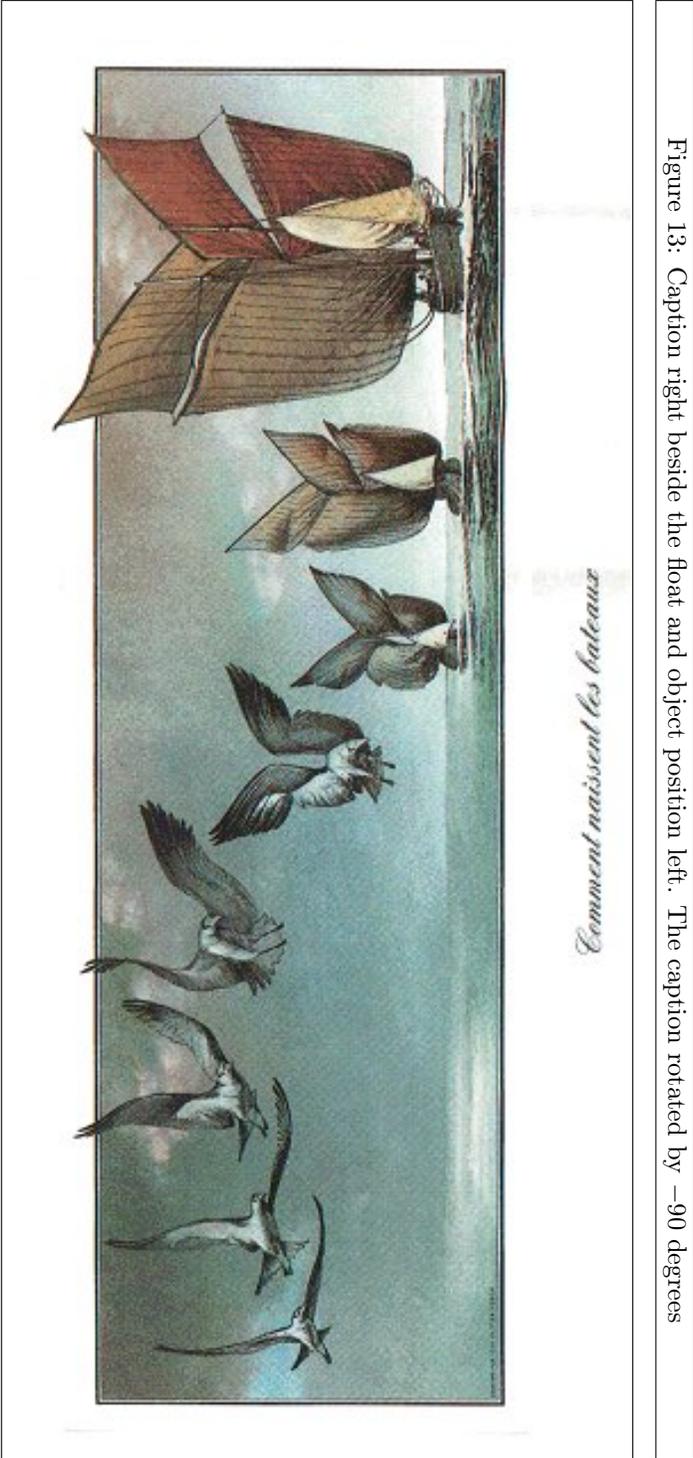
Figure 13: Caption right beside the float and object position left. The caption rotated by −90 degrees

```
10      Caption right beside the float and object position left. The
            caption rotated by $-90$ degrees}{fig:10}
```

8   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 option `nonFloat=true`.

```
1  \hvFloat[%
2      nonFloat=true,%
3      capWidth=0.25,%
4      capPos=r,%
5      capVPos=b,%
6      objectPos=c,%
7  ]{figure}{\includegraphics{rose}}%
8      [Nonfloat Captions]{%
9      Caption of a "nonfloat" Object, using the \texttt{nonfloat}
            Package}{fig:11}
```
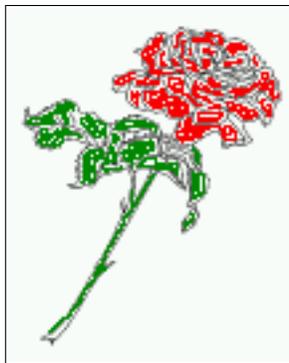

Figure 14: Caption of a "nonfloat" Object, using the `nonfloat` Package

The image 14 is exactly placed where the `hvFloat` command appears. There are only commands for `figure` and `table` environments:

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

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

9   Tables as Objects

The object has to be passed as an parameter to the `hvFloat` macro. This is no problem with images but maybe with tables, so it is easier to use the box `\hvOBox` to save the table in this box and pass it then to `hvFloat` with the `useOBox` option. For example see table 3 and 4:

```
1  \begin{tabular}{l|l|l}
2      Name &    Type & Description\\\hline
```

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

Table 3: Demonstration of the `useOBox` Parameter

```
3      \texttt{hvFloat}  & command      & places object and caption in different ways\\
4      \texttt{hvFloatEnv}  & environment & places object and caption exactly Here\\
5      \texttt{figcaption} & command    & writes a figure caption in a non floating
            environment\\
6      \texttt{tabcaption} & command    & writes a table caption in a non floating
            environment\\
7      \texttt{setDefaults} & command  & sets all options to the defaults
8  \end{tabular}
9  }
```

The code for table 3 and 4 is:

```
1  \hvFloat[%
2      floatPos=!hb,%
3      useOBox=true]{table}{}{Demonstration of the \texttt{useOBox} Parameter}{table:1}
4
5  \hvFloat[%
6      floatPos=hb,%
7      useOBox=true,%
8      objectAngle=90,%
9      capPos=r,%
10     capVPos=t,%
11     capWidth=0.3]{table}{}{Demonstration of the \texttt{useOBox} Parameter}{table:2}
```

In this case leave the third parameter empty.

10   Text and Objects

With the `onlyText` option it is no problem to put some text beside an image without getting the caption titels figue/table. The object still can be a floating one or a nonfloating if the `nonfloat` is used.

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

Table 4: Demonstration of the useOBox Parameter
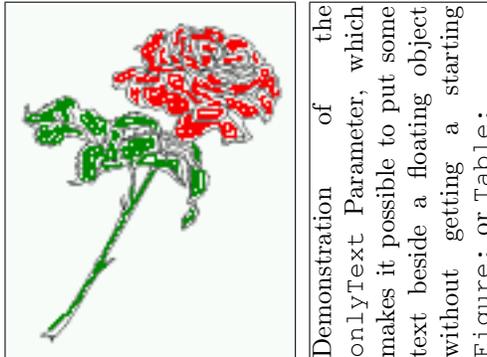
The code for figure 10:

```
1  \hvFloat[%
2      onlyText=true,%
3      capAngle=90,%
4      capPos=r,%
5      capVPos=t,%
6      capWidth=h]{}{\includegraphics{rose}}%
7      ["\texttt{onlyText}" Caption]{%
8      Demonstration of the \texttt{onlyText} Parameter, which makes it
9      possible to put some text beside a floating object without getting
10     a starting \texttt{Figure:} or \texttt{Table:}}{fig:text}
```

11   Environment **hvFloatEnv**

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

Table 5: A caption for a nice table

left	center	right
L	C	R

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

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

Table 6: A caption for a nice table

left	center	right
L	C	R

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

A   Problems

With the `nonfloat` option all objects are left aligned, \centering doesn't work here. Only God knows why ...   **solved!**

B   The Package Source

```
1   \NeedsTeXFormat{LaTeX2e}
2   \ProvidesPackage{hvfloat}[2012/03/04 rotating of floating objects]
3   %%
4   %% IMPORTANT NOTICE:
5   %%
6   %% This is file 'hvfloat.sty',
7   %%
8   %% Herbert Voss <voss@perce.de>
9   %% march 04, 2012
10  %%
11  %% This program can be redistributed and/or modified under the terms
12  %% of the LaTeX Project Public License Distributed from CTAN archives
13  %% in directory macros/latex/base/lppl.txt.
14  %%
15  %% DESCRIPTION:
16  %%    'hvfloat' offers rotating of captions and objects for floats
17  %%
18  \def\fileversion{1.1}
19  \def\filedate{2012/03/04}
20  \message{'hvfloat' v\fileversion, \filedate\space (Herbert Voss)}
21  %
22  \newif\ifhv@fbox \hv@fboxfalse
23  \DeclareOption{fbox}{\hv@fboxtrue\setlength{\fboxsep}{1pt}}
24  \ProcessOptions
25  %
26  \RequirePackage{graphicx}
27  \RequirePackage{keyval}
28  %\RequirePackage{ifthen}
29  \RequirePackage{caption}
30  %
31  \newlength\hvObjectWidth
32  \newlength\hvCapWidth
33  \newlength\hvMaxCapWidth
34  \newsavebox\hvObjectBox
35  \newsavebox\hvCaptionBox
36  \newsavebox\hvOBox
37  %
38  \newif\ifhv@useOBox
```

```
39   \newif\ifhv@nonFloat
40   \newif\ifhv@onlyText
41
42   \def\hv@figure{figure}
43   %
44   \def\hvSet@boolkey#1#2{\csname hv@#2\ifx\relax#1\relax true\else#1\fi\
         endcsname}
45   %
46   \define@key{hvSet}{floatPos}[htbp]{ %     LaTeX's position parameters
         htbp
47       \def\hvSet@floatPos{#1}%
48   }
49   \define@key{hvSet}{rotAngle}[0]{ %     rotates caption AND image
         together
50       \def\hvSet@rotAngle{#1}%
51   }
52   \define@key{hvSet}{capWidth}[.8]{  %     object (w)idth)|object (h)
         eight|<scale of \columnwidth>
53       \def\hvSet@capWidth{#1}%
54   }
55   \define@key{hvSet}{capAngle}[0]{ %     -360..+360
56       \def\hvSet@capAngle{#1}%
57   }
58   \define@key{hvSet}{capPos}[b]{       %     (l)eft|(b)ottom|(t)op|(r)ight
59       \def\hvSet@capPos{#1}%                it is relativ to the object
60   }
61   \define@key{hvSet}{capVPos}[c]{      %     (b)ottom|(c)enter|(t)op
62       \def\hvSet@capVPos{#1}%               it is relativ to the object
63   }
64   \define@key{hvSet}{objectPos}[c]{   %     (l)eft|(c)enter|(r)ight
65       \def\hvSet@objectPos{#1}%             it is relativ to the document
66   }
67   \define@key{hvSet}{objectAngle}[0]{ %     -360..+360
68       \def\hvSet@objectAngle{#1}%
69   }
70   \define@key{hvSet}{floatCapSep}[5]{ %     a width with the unit pt
71       \def\hvSet@floatCapSep{#1}%
72   }
73   \define@key{hvSet}{useOBox}[false]{ %     use of the hvOBox contents
74       \lowercase{\hvSet@boolkey{#1}}{useOBox}%
75   }
76   \define@key{hvSet}{nonFloat}[false]{%     Do not use float environment
77       \lowercase{\hvSet@boolkey{#1}}{nonFloat}%
78   }
79   \define@key{hvSet}{onlyText}[false]{%     Write the caption only as
         text
80       \lowercase{\hvSet@boolkey{#1}}{onlyText}%
81   }
82   %
83   \newcommand{\setDefaults}{%
84   \setkeys{hvSet}{%
85       floatPos=htbp, rotAngle=0, capWidth=.8, capAngle=0,%
86       capPos=b, capVPos=c, objectPos=c, objectAngle=0,%
87       floatCapSep=5, useOBox=false, nonFloat=false,%
88       onlyText=false}%
89   }
90   %
```

```latex
91  \def\hv@Top{t}
92  \def\hv@Bottom{b}
93  \def\hv@Right{r}
94  \def\hv@Left{l}
95  \def\hv@Center{c}
96  \def\hv@Width{w}
97  \def\hv@Height{h}
98  \def\hv@Zero{0}
99  %
100 \newlength{\hvAboveCaptionSkip}
101 \newlength{\hvBelowCaptionSkip}
102 \setlength{\belowcaptionskip}{\abovecaptionskip}% it is in latex.ltx =
        0pt
103 \newcommand{\saveCaptionSkip}{%
104    \setlength{\hvAboveCaptionSkip}{\abovecaptionskip}
105    \setlength{\hvBelowCaptionSkip}{\belowcaptionskip}
106    \setlength{\abovecaptionskip}{0pt}
107    \setlength{\belowcaptionskip}{0pt}
108 }
109 \newcommand{\restoreCaptionSkip}{%
110    \setlength\abovecaptionskip{\hvAboveCaptionSkip}
111    \setlength\belowcaptionskip{\hvBelowCaptionSkip}
112 }
113 %
114 %
115 \newcommand{\figcaption}[2][]{\def\@captype{figure}%
116    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi}
117 \newcommand{\tabcaption}[2][]{\def\@captype{table}%
118    \ifx\relax#1\relax \caption{#2}\else\caption[#1]{#2}\fi}
119 %
120 %
121 %
122 \def\hvFloat{\@ifnextchar[{\do@hvFloat}{\do@hvFloat[]}}
123 \def\do@hvFloat[#1]#2#3{%
124    \setDefaults%
125    \ifx\relax#1\relax\else\setkeys{hvSet}{#1}\fi%
126    \gdef\hv@floatType{#2}%
127    \ifx\relax#2\relax \setkeys{hvSet}{nonFloat=true}\fi%
128    \gdef\hv@floatObject{#3}%
129    \@ifnextchar[{\do@@hvFloat}{\do@@hvFloat[]}%
130 }
131 \def\do@@hvFloat[#1]#2#3{%
132    \def\hv@shortCap{#1}
133    \def\hv@longCap{#2}
134    \def\hv@label{#3}
135 %\newcommand*{\hvFloat}[5][]{%
136 % [#1]: keyvalues
137 % #2: type  figure | table | ...
138 % #3: float contents
139 % [#4]: short caption
140 % #5: caption
141 % #6: label
142 % \setDefaults%
143 % \def\@tempa{#1}%
144 % \ifx\@tempa\empty\else\setkeys{hvSet}{#1}\fi% set options, only when
        not empty
145    \def\@tempa{90}%
```

```
146    \ifx\hvSet@rotAngle\@tempa \setlength{\hvMaxCapWidth}{\textheight}
147    \else                        \setlength{\hvMaxCapWidth}{\linewidth}
148    \fi
149  %
150  % First we save the object in \hvObjectBox
151  %
152    \ifx\hvSet@objectAngle\hv@Zero % rotate the object?
153      \savebox{\hvObjectBox}{\ifhv@useOBox\usebox{\hvOBox}\else\
             hv@floatObject\fi}
154    \else
155      \savebox{\hvObjectBox}{%
156      \rotatebox{\hvSet@objectAngle}{%
157      \ifhv@useOBox\usebox{\hvOBox}\else\hv@floatObject\fi}}
158    \fi
159    \setlength{\hvObjectWidth}{\wd\hvObjectBox}
160  %
161  % Now we save the caption with its defined \hvCapWidth
162  %
163    \ifx\hvSet@capWidth\hv@Width\setlength{\hvCapWidth}{\hvObjectWidth}
164    \else
165      \ifx\hvSet@capWidth\hv@Height\setlength{\hvCapWidth}{\ht\
             hvObjectBox}
166      \else
167        \setlength{\hvCapWidth}{\hvObjectWidth}
168        \ifx\hvSet@capPos\hv@Left\addtolength{\hvMaxCapWidth}{-\
             hvObjectWidth}\fi
169        \ifx\hvSet@capPos\hv@Right\addtolength{\hvMaxCapWidth}{-\
             hvObjectWidth}\fi
170        \ifdim\hvSet@capWidth\columnwidth<\hvMaxCapWidth
171      \setlength{\hvCapWidth}{\hvSet@capWidth\columnwidth}
172        \else
173      \setlength{\hvCapWidth}{\hvMaxCapWidth}
174        \fi
175      \fi
176    \fi
177  %
178  % now we have the object and the caption with the right
179  % rotated angles saved in boxes
180  %
181    \def\fps@figure{\hvSet@floatPos}
182    \ifhv@nonFloat\begingroup%  Start the nonfloat part
183    \else         \begin{\hv@floatType}%    Start the floating
         environment
184    \fi%
185    \saveCaptionSkip% we put this space ourselve
186    \ifx\hvSet@capAngle\hv@Width % need rotation?
187      \sbox{\hvCaptionBox}{%
188        \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
189          \ifhv@nonFloat%
190        \ifhv@onlyText#2%
191        \else%
192          \ifx\hv@floatType\hv@figure
193            \ifx\relax#1\relax \figcaption{#2}\else\figcaption[#1]{#2}\fi
194          \else
195            \ifx\relax#1\relax \tabcaption{#2}\else\tabcaption[#1]{#2}\fi%
196          \fi
197        \fi
```

```latex
198    \else\ifx\relax\hv@shortCap\relax\caption{#2}\else\caption[#1]{#2}\
          fi%
199    \fi%
200    \label{#3}%
201      \end{minipage}%
202    }%
203  \else%
204    \sbox{\hvCaptionBox}{%
205      \rotatebox{\hvSet@capAngle}{%
206      \begin{minipage}[b]{\hvCapWidth}% minipage, to get hyphenation
207  \ifhv@nonFloat%
208    \ifhv@onlyText#2%
209    \else%
210      \ifx\hv@floatType\hv@figure
211        \ifx\relax#1\relax \figcaption{#2}\else\figcaption[#1]{#2}\fi
212      \else
213        \ifx\relax#1\relax \tabcaption{#2}\else\tabcaption[#1]{#2}\fi%
214      \fi
215    \fi
216  \else\ifx\relax\hv@shortCap\relax\caption{#2}\else\caption[#1]{#2}\
          fi%
217      \fi%
218      \label{#3}%
219    \end{minipage}%
220    }%
221  }%
222  \fi%
223  %%
224    \restoreCaptionSkip% save old values
225    \ifx\hvSet@objectPos\hv@Right\raggedleft%
226    \else%
227      \ifx\hvSet@objectPos\hv@Center
228        \ifhv@nonFloat\hspace*{\fill}\else\centering\fi%
229      \fi%
230    \fi%
231  %
232  % to rotate object and caption together, we save all in another box
233  % the caption comes first, if its on the left or the top
234  %
235    \savebox{\@tempboxa}{%
236    \ifx\hvSet@capPos\hv@Left  % caption on left side
237      \ifx\hvSet@capVPos\hv@Center%
238        \ifhv@fbox\fbox{\parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox
              }}}%
239        \else        \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox}}%
240        \fi%
241      \hspace{\hvSet@floatCapSep pt}% capfloatsep
242      \ifhv@fbox\fbox{\parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}}
243      \else        \parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}
244      \fi%
245    \else%
246      \ifx\hvSet@capVPos\hv@Top % caption at top
247        \ifhv@fbox\fbox{\raisebox{-\height}{\usebox{\hvCaptionBox}}}%
248        \else        \raisebox{-\height}{\usebox{\hvCaptionBox}}%
249        \fi
250        \hspace{\hvSet@floatCapSep pt}% capfloatsep
251        \ifhv@fbox\fbox{\raisebox{-\height}{\usebox{\hvObjectBox}}}%
```

```latex
252          \else       \raisebox{-\height}{\usebox{\hvObjectBox}}%
253        \fi%
254      \else% caption on bottom
255        \ifhv@fbox\fbox{\usebox{\hvCaptionBox}}
256                  \else\usebox{\hvCaptionBox}
257        \fi%
258        \hspace{\hvSet@floatCapSep pt}%
259        \ifhv@fbox\fbox{\usebox{\hvObjectBox}}
260        \else       \usebox{\hvObjectBox}
261        \fi%
262      \fi%
263    \fi%
264    \else
265            \ifx\hvSet@capPos\hv@Top
266              \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
267                 \begin{minipage}{\wd\hvCaptionBox}
268              \else
269                 \begin{minipage}{\wd\hvObjectBox}
270              \fi
271              \centering
272              \ifhv@fbox
273                 \fbox{\usebox{\hvCaptionBox}}\\[\hvBelowCaptionSkip]
274                 \fbox{\usebox{\hvObjectBox}}
275              \else
276                 \usebox{\hvCaptionBox}\\[\hvBelowCaptionSkip]
277                 \usebox{\hvObjectBox}
278              \fi%
279              \end{minipage}
280            \else
281              \ifx\hvSet@capPos\hv@Bottom
282                 \ifdim\wd\hvCaptionBox>\wd\hvObjectBox
283                    \begin{minipage}{\wd\hvCaptionBox}
284                 \else
285                    \begin{minipage}{\wd\hvObjectBox}
286                 \fi
287                 \centering
288                 \ifhv@fbox
289                    \fbox{\usebox{\hvObjectBox}}\\[\hvAboveCaptionSkip
                          ]
290                    \fbox{\usebox{\hvCaptionBox}}
291                 \else
292                    \usebox{\hvObjectBox}\\[\hvAboveCaptionSkip]
293                    \usebox{\hvCaptionBox}
294                 \fi%
295                 \end{minipage}
296              \else% the last option: put the caption on the right
297                 \ifx\hvSet@capVPos\hv@Center%
298                    \ifhv@fbox
299                       \fbox{\parbox{\wd\hvObjectBox}{\usebox{\
                             hvObjectBox}}}
300                    \else
301                       \parbox{\wd\hvObjectBox}{\usebox{\hvObjectBox}}
302                    \fi%
303                    \hspace{\hvSet@floatCapSep pt}%
304                    \ifhv@fbox
305                       \fbox{\parbox{\wd\hvCaptionBox}{\usebox{\
                             hvCaptionBox}}}%
```

```latex
306                     \else
307                         \parbox{\wd\hvCaptionBox}{\usebox{\hvCaptionBox
                               }}
308                     \fi%
309                 \else%
310                     \ifx\hvSet@capVPos\hv@Top
311                         \ifhv@fbox
312                             \fbox{\raisebox{-\height}{\usebox{\
                                   hvObjectBox}}}%
313                         \else
314                             \raisebox{-\height}{\usebox{\hvObjectBox}}%
315                         \fi%
316                         \hspace{\hvSet@floatCapSep pt}%
317                         \ifhv@fbox
318                             \fbox{\raisebox{-\height}{\usebox{\
                                   hvCaptionBox}}}%
319                         \else
320                             \raisebox{-\height}{\usebox{\hvCaptionBox}}%
321                         \fi
322                     \else
323                         \ifhv@fbox
324                             \fbox{\usebox{\hvObjectBox}}%
325                         \else
326                             \usebox{\hvObjectBox}%
327                         \fi
328                         \hspace{\hvSet@floatCapSep pt}%
329                         \ifhv@fbox
330                             \fbox{\usebox{\hvCaptionBox}}%
331                         \else
332                             \usebox{\hvCaptionBox}%
333                         \fi%
334                     \fi%
335                 \fi
336             \fi
337         \fi
338     \fi
339     }% End savebox Object and caption
340 %
341 % now we rotate the object and caption, if needed
342 %
343     \ifx\hvSet@rotAngle\hv@Zero
344         \usebox{\@tempboxa}
345     \else
346         \rotatebox{\hvSet@rotAngle}{\usebox{\@tempboxa}}
347     \fi
348 \ifhv@nonFloat
349     \ifx\hvSet@objectPos\hv@Center
350         \ifhv@nonFloat
351             \hspace{\fill}
352         \fi
353     \fi
354     \endgroup%  End the nonfloat part
355 \else
356     \end{hv@floatType}% End the floating environment
357 \fi
358 }
359 %
```

```
360  \newenvironment{hvFloatEnv}[1][\textwidth]
361    {\minipage{#1}\center}
362    {\endcenter\endminipage}
363  %
364  \endinput
```