

Package hvfloat

Rotating objects and captions

ver 1.2

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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.

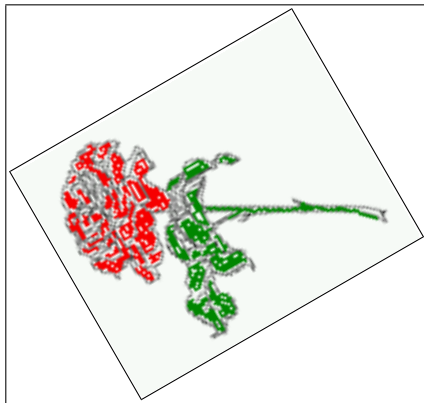


Figure 1: What a nice Caption :-)

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1 The Package Options

fbox The objects and captions are put into a `\fbox` command, like in this documentation.

This doesn't make real sense and is only for some demonstration useful.

The length `\belowcaptionskip` is set by \LaTeX to 0pt and changed in `hvfloa` 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 `hvfloa` 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 `hvfloa`, 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 horizontal placement 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.
use0Box	false	Instead of passing the object as parameter to the hvFloat, the contents maybe saved in the box \hv0Box With use0Box=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}
```

Code for figure 2:

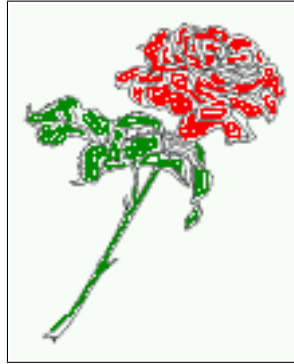


Figure 2: Without any Options (only the `fbox` package option)

```
1 \hvFloat{figure}{\includegraphics{rose}}{Without any Options (only the \texttt{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
<code>hvFloat</code>	command	places object and caption in different ways
<code>hvFloatEnv</code>	environment	places object and caption exactly Here
<code>figcaption</code>	command	writes a figure caption in a non floating environment
<code>tabcaption</code>	command	writes a table caption in a non floating environment
<code>setDefaultts</code>	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{setDefaultts} & 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

Code for figure 4:

```
1 \hvFloat[%
```

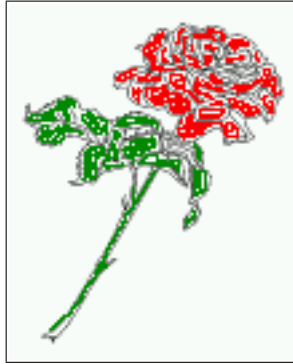


Figure 4: Caption vertically centered right beside the float with a caption width of 0.5\columnwidth and $\text{floatcapsep}=5\text{pt}$ (the default)

```

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

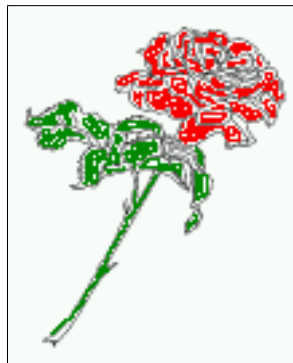


Figure 5: Caption vertically centered right beside the float with a caption width of 0.5\columnwidth and $\text{floatcapsep}=5\text{pt}$ (the default)

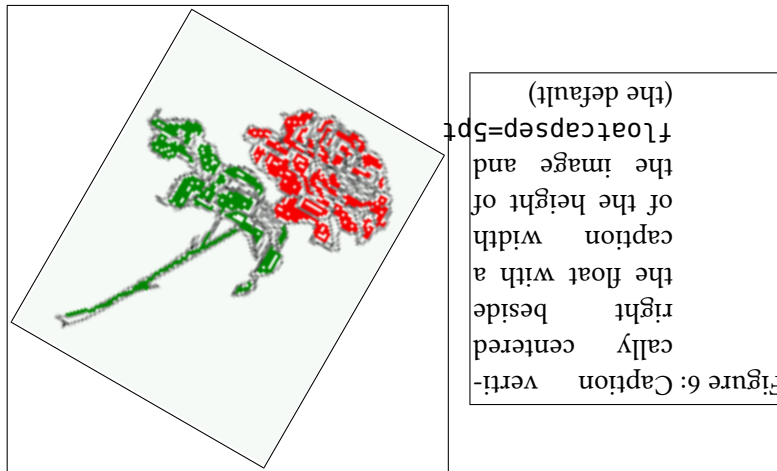
Code for figure 5:

```

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}

```

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.



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 positions

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

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}

```

The code for figure 8:

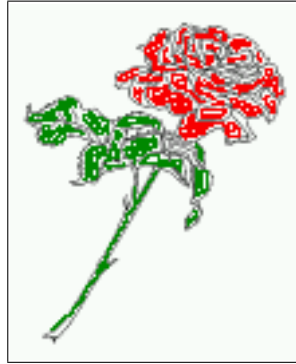
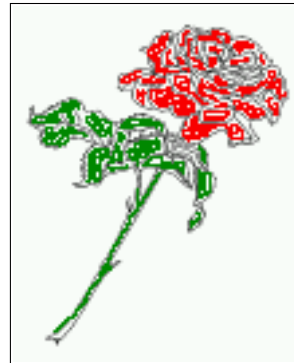


Figure 7: Caption at
bottom right
beside the
float

Figure 8: Caption at top
left beside the
float



```

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}

```

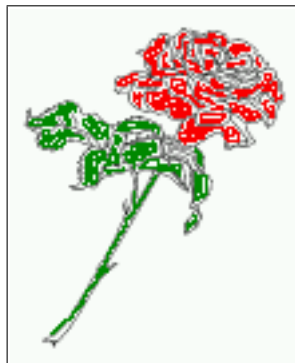


Figure 9: Caption centered
right be-
side the float

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}
```

Figure 11: Caption at top left beside the float and object position right



The code for figure 11:

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

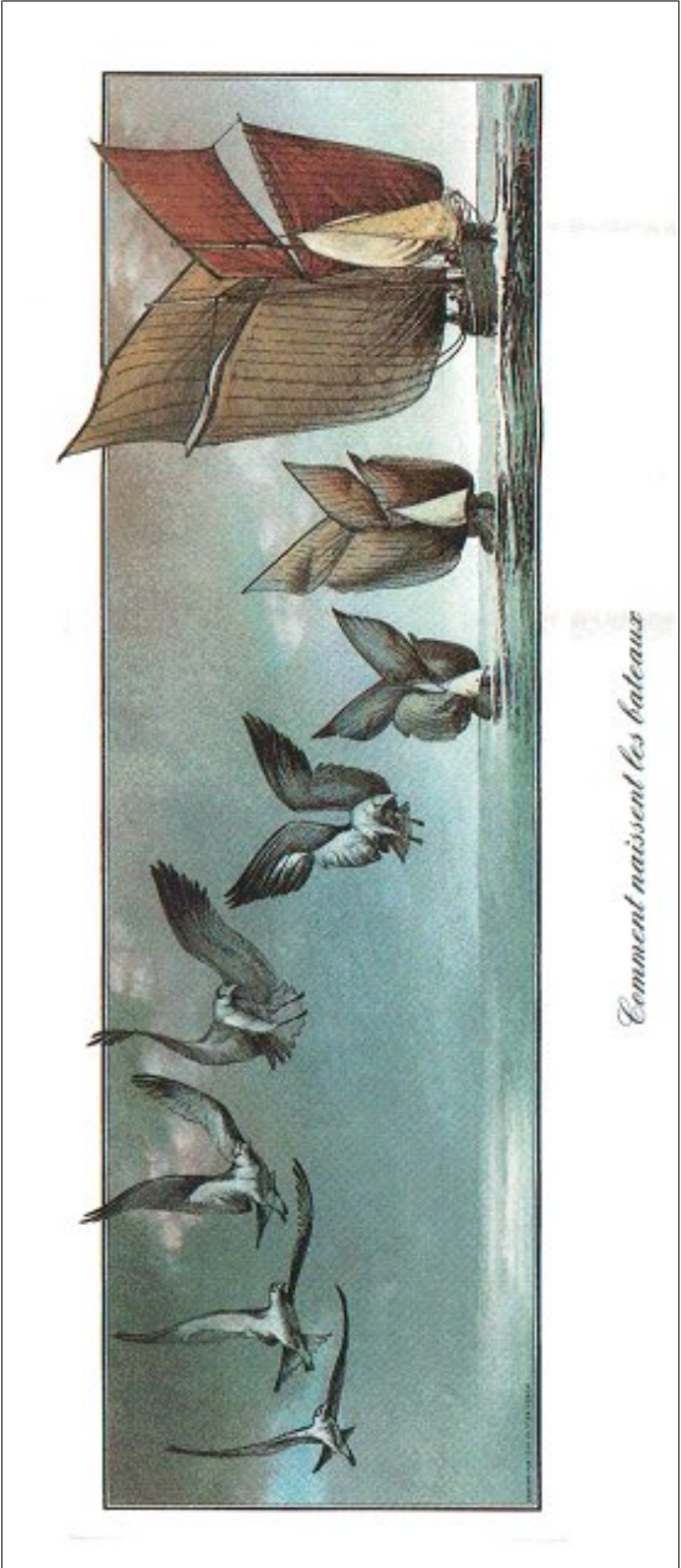
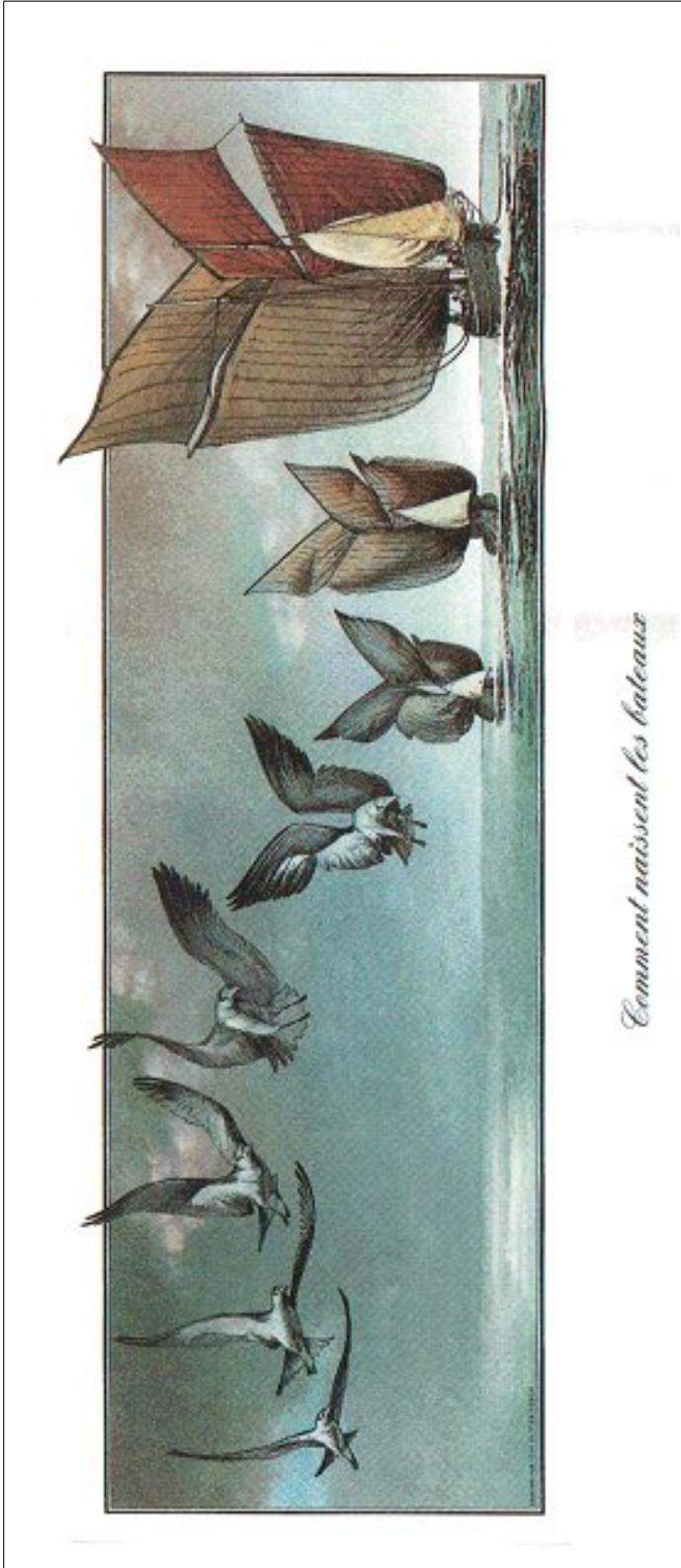


Figure 13: Caption right beside the float and object position left. The caption rotated by -90 degrees



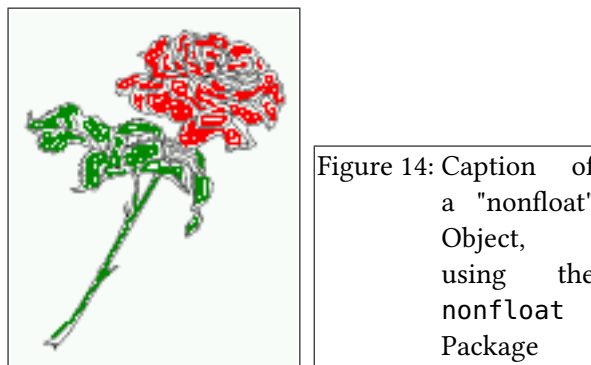


Figure 14: Caption of
a "nonfloat"
Object,
using the
nonfloat
Package

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

```
1 \newcommand{\figcaption}{\def\@capttype{figure}\caption}
2 \newcommand{\tabcaption}{\def\@capttype{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 \hv0Box to save the table in this box and pass it then to hvFloat with the use0Box option. For example see table 3 and 4:

```
1 \begin{tabular}{l|l|l}
2   Name & Type & Description\\\hline
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{setDefault} & 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   use0Box=true]{table}{}{Demonstration of the \texttt{use0Box} Parameter}{table:1}
4
5 \hvFloat[%
6   floatPos=hb,%
7   use0Box=true,%
8   objectAngle=90,%
9   capPos=r,%
10  capVPos=t,%
11  capWidth=0.3]{table}{}{Demonstration of the \texttt{use0Box} Parameter}{table:2}
```

In this case leave the third parameter empty.

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
setDefaultts	command	sets all options to the defaults

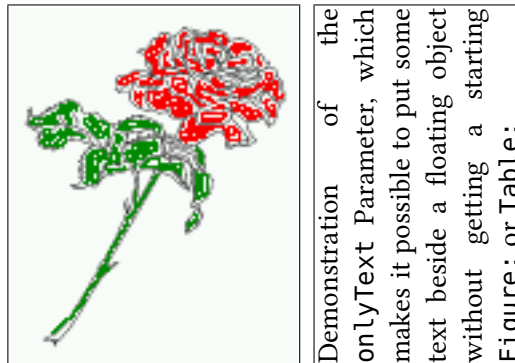
Table 3: Demonstration of the use0Box Parameter

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

Table 4: Demonstration
of the use0Box
Parameter

10 Text and Objects

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



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 \\
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 \\
6 \end{tabular}
7 \end{hvFloatEnv}

```

12 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, 2017
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{1.2}
19 \def\filedate{2017/01/28}
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@use0Box
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 htpb
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 \
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}{use0Box}[false]{ % use of the hv0Box contents
74   \lowercase{\hvSet@boolkey{#1}}{use0Box}%
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, use0Box=false, nonFloat=false,%
88   onlyText=false}%
89 }

```

```

90 %
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\begin@group% Start the nonfloat part
183 \else \begin{\hv@floatType}% Start the floating environment
184 \fi
185 \saveCaptionSkip% we put this space ourselves
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

```

```

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

```

```

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

```

```

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

```

```

358     \end{\hv@floatType}% End the floating environment
359     \fi
360 }
361 %
362 \newenvironment{hvFloatEnv}[1][\textwidth]
363     {\minipage{#1}\center}
364     {\endcenter\endminipage}
365 %
366 \endinput

```