The rotfloat package*

Harald Axel Sommerfeldt
axel@hp1.ang-physik.uni-kiel.de

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Abstract

The float package [1] provides commands to define new floats of various styles (`plain`, `boxed`, `ruled`, and userdefined ones); the rotating package [2] provides new environments (`sidewaysfigure` and `sidewaystable`) which are rotated by 90° or 270°. But what about new rotated floats, e.g. a rotated ruled one? This package makes this possible; it builds a bridge between both packages and extend the commands from the float package to define rotated versions of the new floats, too.

1 The user interface

To use this package just type

```
\usepackage[options]{rotfloat}
```

in the preamble of your document. The options are exactly the same as for the rotating package, in fact this package hasn't got any own options at all.

`\newfloat` `\restylefloat` The commands `\newfloat` and `\restylefloat` from the float package (re)define the float type ⟨*type*⟩ and now additionally a rotated one called ⟨`sideways`*type*⟩:

```
\newrotfloat{type}{placement}{ext}[within]
\restylerotfloat{type}
```

E.g. the code

```
\floatstyle{ruled}
\floatname{program}{Program}
\newfloat{program}{tbp}{lop}[section]
```

defines the new floating environments `program`, `program*`, and `sidewaysprogram` which behave equivalent to `figure`, `figure*`, and `sidewaysfigure`.
The code

```
\floatstyle{boxed}
\restylefloat{table}
```

will restyle the environments `table`, `table*`, and `sidewaystable`.

*This package has version number 1.0, last revised 1995/03/30.

Please take a look at the float package for a complete description of these commands. Additionally an example file is provided with this package.

2 A final note

This package was written and tested with the version 1.2 of the float package and version 2.6 of the rotating package. You should **not** use this package together with older versions of them!

Future versions of these packages may make some trouble, but I hope they will not.

3 The code

3.1 The identification part

```
\NeedsTeXFormat{LaTeX2e}[1994/12/01]
\ProvidesPackage{rotfloat}[1995/03/30 v1.0 rotfloat package (AS)]
\typeout{Package: rotfloat v1.0 <1995/03/30> (Axel Sommerfeldt)}
```

3.2 The declaration and execution of options

The rotfloat package hasn't got any own options, so we just pass everything we get to the rotating package.

```
\DeclareOption*{\PassOptionsToPackage{\CurrentOption}{rotating}}
\ProcessOptions
```

3.3 The package loading part

Of course this package needs the float and the rotating package, so we load them here.

```
\RequirePackage{float}[1994/06/20]
\RequirePackage{rotating}%[1995/01/06]
```

3.4 Adaption of the float package

`\float@end` First of all one improvement of the float package: `\float@end` now calls `\end@float` from the LaTeX 2_ε kernel. This code is more independent of what's really going on in the LaTeX 2_ε macros `\@float` and `\end@float` than the original code of the float package is.

```
\renewcommand*\float@end{%
  \egroup%
  \global\setbox\@currbox\vbox\bgroup%
  \float@makebox\end@float\egroup}
```

`\@HHfloat` `\float@endH` This patch has two functions: First of all, an error of the float package is fixed that causes floats with the placement specifier `[H]` to look differ from floats with other float placements. Additionaly this patch is required to make the sideways floats work with the placement `[H]`.

```
\def\@HHfloat#1[H]{\@Hxfloat{#1}[!ht]}
\let\float@endH\undefined
```

3.5 The main code part

If you really want to know what's exactly going on here, you have to study the code from the packages float and rotating first!

`\rotfloat@restyle` First, we save the old definition of `\restylefloat` because we need it later on.

```
\let\rotfloat@restyle\restylefloat
```

`\restylefloat` The new code for `\restylefloat` behaves quite like the old one, but it defines a sideways float as well. What differs sideways floats from the 'normal' ones?

1. `\columnwidth` ist set to `\textheight` before calling `\@float` (`\@float` itself set `\hsize` to `\columnwidth`).
2. `\rotfloat@end` is used instead of `\float@end`.
3. We define no $*$-form of the environment because a rotated float always fills the whole page.

```
\renewcommand*\restylefloat[1]{%
  \rotfloat@restyle{#1}%
  \@namedef{sideways#1}{%
    \bgroup\@nameuse{fst@#1}\columnwidth\textheight\@float{#1}}%
  \expandafter\let\csname endsideways#1\endcsname\rotfloat@end}
```

`\rotfloat@end` This macro does all the stuff that `\float@end` does and of course more:
First of all, we finish the definition of `\@currbox` with `\egroup`. Then we set `\@currbox` to the new contents:

1. `\@rotfloat` (but without the contents of `\@float`)
2. `\float@makebox` (which includes the contents of `\@float` = `\@currbox`)
3. `\end@rotfloat` (which includes `\end@float`)

Finally we finish the whole group (started in `\@namedef{sideways#1}` within `\restylefloat`) with `\egroup`.

```
\newcommand*\rotfloat@end{%
  \egroup%
  \global\setbox\@currbox\vbox\bgroup%
  \def\@float##1[##2]{}\let\@xfloat\@float\@rotfloat{}%
  \float@makebox\end@rotfloat\egroup}
```

References

[1] Anselm Lingnau: *An Improved Environment for Floats*, 1994/06/20

[2] Sebastian Rahtz and Leonor Barroca: *A style option for rotated objects in LaTeX*, 1994/08/26