

finstrut.sty

Final Strut Allowing Vertical Mode—The `\@finalstrut` Encyclopedia and Toolkit*

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March 14, 2011

Abstract

L^AT_EX internally inserts `\@finalstrut`*(strutbox)* at the end of footnotes or `p` (paragraph) `tabular` cells. When the user's entry ends on a `\par` token—which may be issued by some more-general-purpose user macro such as the `\lipsum` command from the `lipsum` package¹ for dummy text—this produces a usually unwanted extra, empty line. `finstrut.sty` changes `\@finalstrut` in order to avoid this effect.

The first version of the package just had this minimum purpose. But then Donald Arseneau has convinced me to consider a wide range of cases and to replace my code by his proposals. `v0.5` again adds an idea of my own ones: instead of testing for `hmode` vs. `vmode`, `vmode` may be *forced* by a `\par`—saves tokens! In order not to break code that some package writers may have used so far, choices by package options are offered. `v0.4` offered choice among 6 definitions, with `v0.5` they are 9—! (Not 9!.)

Keywords: footnotes; tables, dummy text, macro programming

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*This document describes version `v0.5` of `finstrut.sty` as of 2011/03/14. This upload is a birthday package for Donald Arseneau—he will be so happy!

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¹<http://ctan.org/pkg/lipsum>

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1 Remark on lipsum

Almost at the same moment that `finstrut` v0.1 was installed (2011-02-09), a new version v1.1 of `lipsum` was uploaded that offers a package option `[nopar]` to avoid a final `\par`.

2 Installing and Calling

The package file `finstrut.sty` is provided ready, installation only requires putting it somewhere where \TeX finds it (which may need updating the filename data base).²

Below the `\documentclass` line(s) and above `\begin{document}`, you load `finstrut.sty` (as usually) by

```
\usepackage{finstrut}    or by    \usepackage[options]{finstrut}
```

—*options* described below.

3 The Package File

3.1 Header (Legalize)

```
1 \NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 \ProvidesPackage{finstrut}[2011/03/14 v0.5 vmode final strut (DA/UL)]
3
4 %% Copyright (C) 2010 2011 Uwe Lueck,
5 %% http://www.contact-ednotes.sty.de.vu
6 %% -- author-maintained in the sense of LPPL below --
7 %%
8 %% This file can be redistributed and/or modified under
9 %% the terms of the LaTeX Project Public License; either
10 %% version 1.3c of the License, or any later version.
11 %% The latest version of this license is in
12 %% http://www.latex-project.org/lppl.txt
13 %% We did our best to help you, but there is NO WARRANTY.
14 %%
15 %% Please report bugs, problems, and suggestions via
16 %%
17 %% http://www.contact-ednotes.sty.de.vu
```

²<http://www.tex.ac.uk/cgi-bin/texfaq2html?label=inst-wlcf>

18 %%

3.2 Outline

v0.5 considers recommendations by Donald Arseneau. Some of them may break in applications that we do not know about, therefore they must be called by package options. Package Option `[full]` calls all of them. Package Option `[fullpar]` calls a variant of them where instead of testing for `hmode` vs. `vmode`, `vmode` is *forced* by a `\par`, saving some tokens.

The choices shall not be checked at each invocation of `\@finalstrut`, instead they are evaluated at the definition of `\@finalstrut`, at the end of the package. Choices are prepended to this definition by defining `\@tempe`, `\@tempd`, `\@tempc`, and `\@tempb`.

3.3 Options

According to `ltboxes.dtx`, a `vmode` test once was introduced for $\text{\LaTeX} 2_{\epsilon}$, but in 1994 removed again—it “broke” in `p` columns. For this reason, v0.1 and v0.3 used an `hmode` test instead. `ltboxes.dtx` does not tell exactly what code broke in exactly which situation. Bad. Brave users may dare the `vmode` test again by choosing package option `[v]`. It sets `\@tempe` for `\edef\@finalstrut`. The #1 argument of `\@tempe` is applied in `hmode`, #2 in `vmode`—assuming we are not in math mode ...!? (TODO)

```
19 \AtEndOfPackage{\def\@tempe#1#2{\noexpand\ifhmode#1\else#2\fi}}
20 \DeclareOption{v}{%
21   \AtEndOfPackage{%
22     \def\@tempe#1#2{\noexpand\ifvmode#2\else#1\fi}}}
```

Replacing the `hmode` or `vmode` test by *forcing* `vmode` (and then applying Donald Arseneau’s suggestions for `vmode`) seems just to save a few tokens. With v0.5, option `[par]` picks this idea.

```
23 \DeclareOption{par}{\AtEndOfPackage{\def\@tempe#1#2{\par#2}}}
```

`[argdelim]` appends a `\relax` to `\@finalstrut`’s argument in case the box number is given as a string of digits (whereas `latex.ltx` only has `\strutbox` and `\@arstrutbox` as arguments). This does not work when somebody tries (e.g.) `\@finalstrut111`. I.e., a “multi-token” argument must be enclosed in braces indeed.

```
24 \AtEndOfPackage{\let\@tempd\@empty}
25 \DeclareOption{argdelim}{%
26   \AtEndOfPackage{\def\@tempd{\relax}}}
```

`[dptest]` caters for depth exceeding the depth of the strut box and for negative depth. The test requires that a multi-token argument (see above) is enclosed in braces.

```
27 \AtEndOfPackage{\let\@tempc\@secondoftwo}
```

```

28 \DeclareOption{dptest}{%
29   \AtEndOfPackage{%
30     \def\@tempd{\relax}%
31     \let\@tempc\@firstoftwo}}

```

`[full]` enables all of Donald Arseneau’s suggestions:

```

32 \DeclareOption{full}{%
33   \AtEndOfPackage{%
34     \def\@tempe#1#2{\noexpand\ifvmode#2\else#1\fi}%
35     \def\@tempd{\relax}%
36     \let\@tempc\@firstoftwo
37   }}

```

`[fullpar]` enables all of Donald Arseneau’s suggestions apart from replacing the `vmode` test by *forcing* `vmode`, as with option `[par]`:

```

38 \DeclareOption{fullpar}{%
39   \AtEndOfPackage{%
40     \def\@tempe#1#2{\par#2}%
41     \def\@tempd{\relax}%
42     \let\@tempc\@firstoftwo
43   }}

```

`[show]` displays the definition of `\@finalstrut` actually resulting:

```

44 \AtEndOfPackage{\let\@tempb\relax}
45 \DeclareOption{show}{%
46   \AtEndOfPackage{\def\@tempb{\show\@finalstrut}}}

```

Appending choices to the end-of-package hook:

```

47 \ProcessOptions

```

3.4 Core Code

Now we append the `\edef` of `\@finalstrut` to the end-of-package hook (we must hurry so that nobody changes `\@tempe` etc.). `\dp@only` will be an abbreviation for invoking a strut rule; it will only be enabled after the `\edef`:

```

48 \let\dp@only\relax
49 \AtEndOfPackage{%
50   \begingroup

```

Some conditionals are disabled for the `\edef`.

```

51   \let\ifdim\relax \let\else\relax \let\fi\relax

```

Actually, they will be restored by `\endgroup`; and in order to get the final `\@finalstrut` outside the group, we “emulate” its `\edef` by `\xdefing` an alias `\@gtempa` of it etc. . . .

```

52   \xdef\@gtempa#1{%

```

```

53     \unskip
54     \@tempe{%                               %% \ifhmode/\ifvmode
55         \noexpand\nobreak
56         \vrule \dp@only #1\@tempd         %% maybe \relax
57     }{%

```

Whereas v0.1 and v0.3 used `\kern` to get the bottom distance in `vmode`, Donald Arseneau recommends `\hrule` for the sake of bottom alignment with `array.sty` (`b` type columns):

```

58         \@tempc{%                               %% depth test or not
59             \ifdim\prevdepth<\dp#1\relax
60                 \ifdim\prevdepth>\z@
61                     \kern -\prevdepth
62                 \fi
63                 \hrule \dp@only#1\relax
64             \fi
65         }{\hrule \dp@only #1\@tempd}% %% maybe \relax
66     }%
67 }
68 \endgroup
69 \let\@finalstrut\@gtempa
70 \@tempb                                     %% maybe \show

```

`\dp@only`

```

71 \def\dp@only{\@width\z@ \@height\z@ \@depth\dp}
72 }

```

3.5 Example Result

Option `[fullpar]` amounts to

```

\def\@finalstrut#1{%
  \unskip\par
  \ifdim\prevdepth<\dp#1\relax
    \ifdim\prevdepth>\z@
      \kern -\prevdepth
    \fi
    \hrule \@width\z@ \@height\z@ \@depth\dp#1\relax
  \fi
}

```

3.6 Leaving

```

73 \endinput

```

3.7 VERSION HISTORY

```
74 v0.1 2010/12/20 very first
75 v0.2 2011/02/09 redundancies removed -- still bad
76 NOT DISTRIBUTED
77 v0.3 2011/02/11 code much reduced again (no \expandafter at all!);
78 wrong comments replaced; \subsection
79 v0.4 2011/02/12 Donald Arseneau's full suggestions as options
80 v0.5 2011/02/12 first \@tempc line moved down
81 2011/02/16 options [par] and [fullpar]
82 2011/02/17 explaining \edef/\xdef
83 2011/02/18 "emulate" \edef
84 2011/03/14 some more text on v0.5
85
```