

The footnotesplit package

Suppress orphan footnote rules when footnotes are not allowed to split

Munehiro Yamamoto

<https://github.com/munepi/footnotesplit>

v1.0 (2026/10/20)

1 The problem

Setting `\interfootnotelinepenalty=10000` keeps footnote text from being split across pages: a footnote that does not fit on the current page is moved to the next page as a whole. This policy is common in book production, but it has two side effects.

1. The original page may end with a *lone* `\footnoterule` (plus the `\skip\footins` space) with *no footnote text below it*.
2. The footnote moved to the next page gets only `\splittopskip` ($= \text{\footnotesep}$) above its first line, so it sits closer to the rule than a normal footnote does.

Schematically, the bottom of the page where the footnote call sits:

... filler text filler text filler text
the reference line sits here²

(without `footnotesplit`: a lone rule)

... filler text filler text filler text
the reference line sits here²

(with `footnotesplit`: no rule)

Why it happens. When the footnote insertion begins with vertical material—typically a leading `\kern` at the top of `\@makefnmark`, as in many book-production classes—and the page bottom has stretch (`\raggedbottom`), TeX’s page builder “splits” the unsplittable insertion at its very top. The page then keeps an *empty* `\box\footins` that contains only that leading kern, and the L^AT_EX output routine, which only tests `\ifvoid\footins`, duly typesets `\footnoterule` above the empty box. The phenomenon is a property of TeX’s page builder and the L^AT_EX output routine: it occurs with any engine (pdfL^AT_EX, LuaL^AT_EX, XeL^AT_EX, (u)pL^AT_EX) and any language.

2 What the package does

1. At the start of the output routine, if `\ht\footins < \footnotesep` (i.e. the footnote box holds no actual footnote line), `\box\footins` is discarded, so neither `\footnoterule` nor `\skip\footins` is emitted. The footnote itself is typeset normally on the next page.
2. `\splittopskip` inside `\@footnotetext` (`\H@@footnotetext` when `hyperref` is loaded) is patched to `\footnotesep + \footnotetopkern`, so that the moved footnote gets the same visual space below the rule as a normal footnote.

3 Usage

```
\usepackage{footnotenosplit}
```

```
% If your class's \@makefnctext starts with "\kern <dimen>",
% set \footnotetopkern to that dimension and replace the \kern:
\footnotetopkern=2pt
\makeatletter
\renewcommand\@makefnctext[1]{\kern\footnotetopkern ... #1}
\makeatother
```

The `dimen` register `\footnotetopkern` (default: `0pt`) tells the package how much vertical material `\@makefnctext` puts above the first footnote line; it is added to `\splittopskip` for footnotes moved to the next page.

Option `nopenalty`. By default the package sets `\interfootnotelinepenalty=\@M`. If your class already sets it, or you want to manage it yourself, load the package with `\usepackage[nopenalty]{footnotenosplit}`.

4 Implementation notes

The empty-box test is engine-independent, but where to hook it is not, so `footnotenosplit.sty` dispatches to one of two implementation files (do not load them directly):

`footnotenosplit-latex.sty` for $\text{\LaTeX}$ with the socket-based `\@makecol` ($\text{\LaTeX}2\text{e}$ 2025-06-01 or later; `pdf\text{\LaTeX}`, `Lua\text{\LaTeX}`, `Xe\text{\LaTeX}`, ...). It adds the test to the `build/column/before` hook, executed at the very beginning of `\@makecol`; the subsequent `\@outputbox@appendfootnotes` then sees a void `\footins` and emits neither `\footnoterule` nor `\skip\footins`.

`footnotenosplit-ptex.sty` for (u)p $\text{\LaTeX}$, whose `plcore.ltx` overrides `\@makecol` with a pre-socket definition. It patches that `\@makecol` directly (via `etoolbox`'s `\patchcmd`).

On an older $\text{\LaTeX}$ kernel (before 2025-06-01) without the socket mechanism, the package issues a warning and only applies the `\splittopskip` patch.

5 Tests

The repository ships `test-latex.tex` (`pdf\text{\LaTeX}`/`Lua\text{\LaTeX}`/`Xe\text{\LaTeX}`) and `test-ptex.tex` ((u)p $\text{\LaTeX}$ + `dvipdfmx`), which reproduce the lone rule and verify its suppression, plus `test-latex-show.tex` and `test-ptex-show.tex`, which dump the patched macros to the log. See the comments in each file.

6 License

This package is licensed under the conditions of the $\text{\LaTeX}$ Project Public License, either version 1.3c of this license or any later version.

Copyright © 2026 Munehiro Yamamoto