The tcbnestbreak package

Breakable tcolorboxes inside breakable tcolorboxes

Munehiro Yamamoto

v0.3 (2026/11/29)

1 Introduction

tcolorbox typesets the content of a `breakable` box as one box and splits it into the parts for the pages. A box inside is one picture in this content and cannot be split, so tcolorbox ignores `breakable` for a box inside another box: a long box inside a breakable box sticks out of the page, or leaves a large gap before it.

With the tcbnestbreak package, `breakable` works for a box inside a breakable box, and for a box inside such a box, to any depth. The box below is a breakable box with a breakable box inside, which has a lower part and a breakable box of its own.

A breakable box

The outer box starts here. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken.

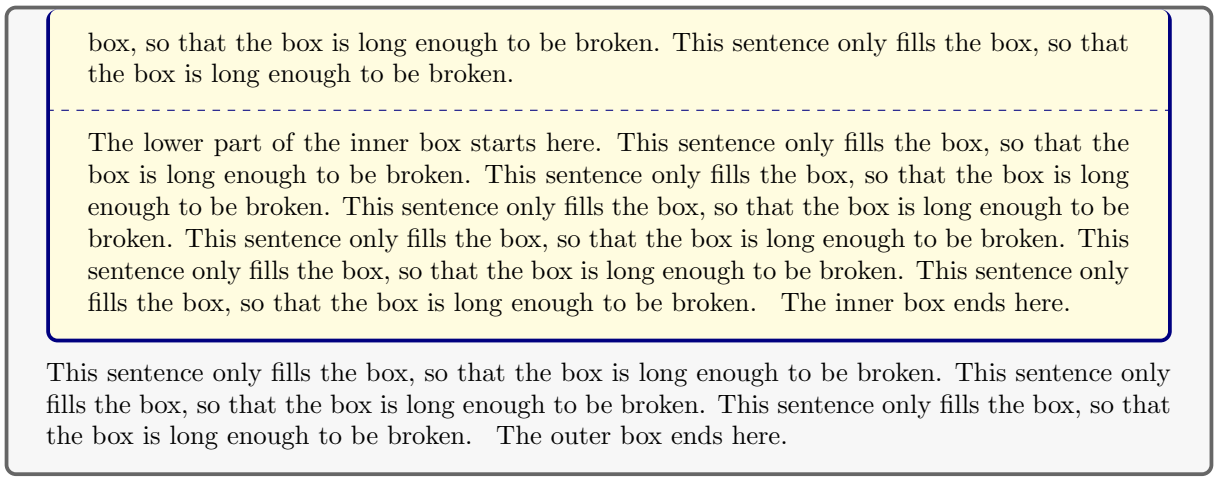
A breakable box inside

The inner box starts here. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken.

A breakable box inside the inner box

The innermost box starts here. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. The innermost box ends here.

This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the box, so that the box is long enough to be broken. This sentence only fills the



Where the outer box is broken, the frame of a box inside is open and goes on into the padding of the outer box, so that it is seen to continue on the next page.

Supported formats/engines pdfLaTeX, XeLaTeX, LuaLaTeX (with or without LuaTeX-ja), pLaTeX and upLaTeX (with dvipdfmx); horizontal (yoko) and vertical (tate) writing. The boxes are broken in one run, and no Lua code is used. The package requires tcolorbox and loads its `breakable` and `skins` libraries.

2 Usage

```
\usepackage{tcbnestbreak}

\begin{tcolorbox}[breakable, title=Outer]
  ...
  \begin{tcolorbox}[breakable, title=Inner]
    ...  % broken across pages together with the outer box
  \end{tcolorbox}
  ...
\end{tcolorbox}
```

There is no new key: the package makes `breakable` work for a box that is at the top level of the content of a breakable box, i.e. between its paragraphs, also inside a list. Such a box can have a title and a lower part (`\tcblower`), and it can be defined with `\newtcolorbox`. A box in a `minipage`, a `\parbox` or a cell of a `tabular` is not at the top level: it is an ordinary unbreakable box, as without the package.

3 How it works

1. **The inner box flows.** Its content is typeset indented, as the content of a list is (with `\parshape`), and put line by line into the list of the box around it, with the space of its frame above and below. A TeX mark (`\marks`, of one class for each depth of nesting) is put at its start, at its end and between its upper and its lower part. tcolorbox then splits the outer box between these lines as usual.

2. **The positions are measured.** Before a part of the outer box is drawn, a copy of the part is taken apart with `\vsplit ... to -1sp`, piece by piece. The heights of the pieces and of what is discarded between them (`\splitdiscards`) add up to the position of each mark. Where a box is the first or the last thing in the box around it, the list cannot be broken between the starts, or

between the ends, of the two boxes, and their marks are in one piece. They are of different classes, so TEX gives each of them, and the height of the space between them is known.

3. **The frames are drawn.** For each inner box in the part, tcolorbox draws the frame with the options of that box and without text: as an unbroken box, or as a first, middle or last part of the height that is needed, with the segmentation line if the part has it. The frames are put behind the text of the part.

The text color of an inner box (`coltext`, `colupper`, `collower`) is set again at the top of the next part.

4 With the tcbpagefootnote package

The tcbpagefootnote package (v1.4 or later) puts the footnotes of a box with the key `page footnote` at the bottom of the page, also for each part of a breakable box. With tcbnestbreak, this holds for the boxes inside as well: if the outer box and a box inside have `page footnote`, each footnote of the inner box is put on the page of its mark. A box inside without the key keeps its footnotes, below its text. This is also tested together with the footnotenosplit package, which keeps TEX from splitting a footnote.

5 Limitations

- A box flows only at the top level of the content of a breakable box or of a box that flows, and not with `float`, `sidebyside` or `\tcbox`.
- Where the outer box is broken, the frame of the inner box is always open: a part of a box of the `standard` skin is drawn with the skins `enhancedfirst`, `enhancedmiddle` and `enhancedlast`, and `toprule at break`, `bottomrule at break`, `topsep at break` and `bottomsep at break` of the inner box are not used.
- The frame is drawn when the part of the outer box is drawn, with the options of the inner box applied again. Colors or styles that are defined inside the content of the outer box are not known then. `height` and the `enlarge ... by` keys of a box that flows are not used.
- The content is indented like the content of a list. Material that does not follow `\parshape` (e.g. an `\hrule` in vertical mode) is not indented.
- The text color of the box is continued after a break; a `\color` inside the content is not.
- The package uses internal macros of tcolorbox (they are listed at the top of `tcbnestbreak.sty`); it is tested with tcolorbox 6.9.0 (TEX Live 2025, frozen) and 6.10.0 (TEX Live 2026).

6 Tests

`make test` compiles the test files with pdfLATEX, XeLATEX, LuaLATEX, pLATEX and upLATEX (+ dvipdfmx) and checks the log. Through the hooks `tcbnestbreak/flow` and `tcbnestbreak/frame`, `test-common.tex` records in the `.aux` file what has flowed and every frame that is drawn; when the `.aux` file is read back at `\end{document}`, it checks that every box has its frames in the right order, on pages that follow each other and with the segmentation in one of them, that the frames together are as high as what has flowed, and that a box that is the first thing in a box inside starts on the page where that box starts (`TNB-RESULT OK`).

Test	What it covers
`test-basic.tex`	boxes inside a box, three levels deep; titles, lower parts, skins, text colors, lists; a box as the first or the last thing in a box inside; boxes that do not flow
`test-plain.tex`	documents without a box that flows: unchanged by the package
`test-footnote.tex`	with tcbpagefootnote: the footnotes are on the pages of their marks
`test-tate.tex`	`test-basic.tex` and `test-footnote.tex` in tate (tarticle, utarticle, ltjtarticle)

7 History

v0.3 (2026/11/29) The end of a box that is the last thing in a box that flows was not found, e.g. of a box three levels deep or of a box before `\tcblower`: its frame went on to the end of the outer box. The marks are now of one class for each depth of nesting, and the end is found. The list is no longer broken between the start of a box that flows and a box that is the first thing in it: the title and the space above of the box around could be left at the bottom of a page.

v0.2 (2026/11/22) A box that flows can have a lower part: the segmentation line is drawn, and the text color of the lower part is continued. Vertical writing is tested. With tcbpagefootnote, the footnotes of a box inside are put on the pages of their marks.

v0.1 (2026/11/22) First version.

8 License

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