Footnote kerning and multiple footnotes

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The \texttt{fnpct} package basically does two things to footnotes: if footnote marks are followed by a punctuation mark the order of footnote and punctuation mark is reversed and the kerning gets adjusted. As a side effect multiple footnotes and footnote ranges are easily obtained.


ewenvironment{footnotepage}{
\begin{minipage}{1\textwidth}
\begin{center}
\textbf{Footnote kerning and multiple footnotes}
\end{center}
}\end{minipage}}{
\end{footnotepage}

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1 Preface for those upgrading from version 0.x

For those upgrading from versions 0 to version 1: a number of options have been dropped or renamed. Please have a close look at your log file for warnings. Also, the way commands are adapted and hence the syntax of \AdaptNote has changed completely. In many if not all cases leaving them as they were will lead to errors.\mult... variants are not defined by default anymore. They can be retained through the load-time option multiple if needed. Letting the note commands behave as their \mult... variants is not supported any more.\innernote is not provided anymore. Depending on user feedback I might try to add it again to \texttt{FNPCT}.

Please read this manual carefully so you detect all changes.

I am sorry for the inconvenience but I am convinced that the new syntax is more powerful and more flexible in the long run.

2 License

Permission is granted to copy, distribute and/or modify this software under the terms of the \texttt{LPPL}, version 1.3c or later (http://www.latex-project.org/lppl.txt). The software has the status “maintained.”

3 What’s it all about?

3.1 Introduction

The purpose of this package is to offer kerning for footnote marks, \textit{i.e.} the superscripts. This is not appropriate for all superscripts. Symbols must be handled differently than numbers. And of course the amount depends on the chosen font. Robert Bringhurst says in \textit{The Elements of Typographic Style}:

\begin{quote}
Superscripts frequently come at the ends of phrases or sentences. If they are high above the line, they can be kerned over a comma or period, but this may endanger readability, especially if the text is set in a modest size. \textit{The Elements of Typographic Style [Bringh]}
\end{quote}

\texttt{FNPCT} can not make these decisions for you. It sets some initial values for the comma and the full stop which looked good to me with the tested fonts. Additionally it kerns the superscripts away from words when it follows directly. The amounts of the kerning can be changed using options.

\texttt{FNPCT} also switches the order of the superscript and the following comma or full stop. Additional punctuation marks can be added to the switching behavior and the amount of kerning can be set for each punctuation mark individually. This behavior can also be turned off.
3 What’s it all about?

3.2 Basics

The \texttt{fnpct} package basically does two things to footnotes:

- if footnote marks are followed by a comma or a full stop\footnote{The order of footnote and punctuation mark is reversed}
- and the kerning gets adjusted.

As a side effect a new method of creating multiple footnotes\footnote{is provided.}

In what way is the kerning adjusted? After being placed behind the punctuation mark the footnote mark is moved a little bit back, namely by the amount specified with the option \texttt{after-punct-space}. If the footnote mark follows a word without being followed by a punctuation,\footnote{there (obviously) is no order switching and a little space is inserted before the footnote mark, namely the amount specified by the option \texttt{before-footnote-space}.}

Now, let’s see some action:

\begin{quote}
\texttt{The three little pigs built their houses out of straw, sticks and bricks.}
\end{quote}

\begin{quote}
\texttt{The three little pigs built their houses out of straw,\footnote{not to be confused with hay}, sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks}.}
\end{quote}

The three little pigs built their houses out of straw,\footnote{not to be confused with hay} sticks\footnote{or lumber according to some sources} and bricks.\footnote{probably fired clay bricks.}

To ensure that the kerning is set the right way the footnote must be placed before the full stop or the comma. The command can look ahead but not look back. This means if you place the \texttt{footnote} command after a full stop or a comma it is treated as if following a word, \textit{i.e.} a thin space is inserted: effectively the opposite of the desired behavior. The effects are demonstrated in figure 1 on the following page.

The order-switching can be prevented using the option \texttt{reverse} since not all countries and languages have the same typographic conventions. In this case the full stop and the comma are moved a bit back, namely by the amount specified with the option \texttt{before-punct-space}.

3.3 Temporarily disable (or enable) switching – new syntax of the \texttt{footnote} command

One maybe want to put some footnote marks before the punctuation and some after, for example because the first one describes a single word but the second one a whole sentence. For this

\footnote{More punctuation marks can be added through a package option.}
\footnote{like}
\footnote{this}
\footnote{Well, it does not necessarily have to follow a word. The important point is \textit{not being followed} by a punctuation mark.}
4 Options

<table>
<thead>
<tr>
<th>without \texttt{FNPCT}</th>
<th>with \texttt{FNPCT}</th>
</tr>
</thead>
<tbody>
<tr>
<td>text^1</td>
<td>text^1</td>
</tr>
<tr>
<td>text^2</td>
<td>text^2</td>
</tr>
<tr>
<td>text^3</td>
<td>text^3</td>
</tr>
</tbody>
</table>

\texttt{Figure 1:} The effect of \texttt{FNPCT}.

Purpose \texttt{FNPCT} adds a * argument to \texttt{footnote} and \texttt{footnotemark}. The complete new syntax now is as follows:

\texttt{footnote*\{\langle num\rangle\}\{footnote text\}\{tpunct\}}

new * argument added. \texttt{\{tpunct\}} is the optional trailing punctuation mark.

\texttt{footnotemark*\{\langle num\rangle\}\{tpunct\}}

new * argument added. \texttt{\{tpunct\}} is the optional trailing punctuation mark.

The * argument temporarily turns off the punctuation/footnote switching. In case you set \texttt{reverse = \{true\}} the * argument temporarily \textit{enables} the switching.

\begin{minipage}{.4\linewidth}
\noindent The three little pigs built their houses out of straw\footnote*{not to be confused with hay}, sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks}.
\end{minipage}

\begin{minipage}{.4\linewidth}
\noindent The three little pigs built their houses out of straw\footnote*{not to be confused with hay}, sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks}.
\end{minipage}

The three little pigs built their houses out of straw\footnote*{not to be confused with hay}, sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks}.

\begin{itemize}
  \item not to be confused with hay
  \item or lumber according to some sources
  \item probably fired clay bricks
\end{itemize}

4 Options

\texttt{\texttt{setfnpct}\{\langle options\rangle\}}

All available options are listed below. They are set with \texttt{\texttt{setfnpct}. Underlined values are set if
the option is used without value.

\texttt{dont-mess-around = true|false}  
\texttt{Initial: false}

Switches of \texttt{FNPC}s mechanism.

\texttt{reverse = true|false}  
\texttt{Initial: false}

This option reverses the behavior of starred and un-starred footnotes.

\texttt{ranges = true|false}  
\texttt{Initial: false}

Activates ranges for multiple footnotes. This is not compatible with \texttt{hyperref} and does not work for the marks of some packages.

\texttt{add-trailing-token = \{\langle before\rangle \langle token \rangle \langle after\rangle \langle name \rangle\}}  
\texttt{Adds \langle token \rangle to FNPC\textsc{'s} mechanism and activates it. \langle before\rangle sets the default value for the newly created option before-(name)-space. \langle after\rangle sets the default value for the newly created option after-(name)-space. Instead of the option you can also use the command \texttt{\textbackslash AddPunctuation}, see section 6.2.}

\texttt{activate-trailing-tokens = \{\langle tokenlist \rangle\}}  
\texttt{Activates tokens that have been added with add-trailing-token.}

\texttt{deactivate-trailing-tokens = \{\langle tokenlist \rangle\}}  
\texttt{Deactivates tokens that have been added with add-trailing-token.}

\texttt{before-footnote-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted before a footnote that \textit{does not follow a punctuation or other note} to \langle dimension \rangle.}

\texttt{before-dot-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted before a dot if the dot follows a footnote mark to \langle dimension \rangle.}

\texttt{before-comma-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted before a comma if the dot follows a footnote mark to \langle dimension \rangle.}

\texttt{before-punct-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted before any punctuation mark known to FNPC if the punctuation mark follows a footnote mark to \langle dimension \rangle.}

\texttt{after-dot-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted after a dot if the dot precedes a footnote mark to \langle dimension \rangle.}

\texttt{after-comma-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted after a comma if the dot precedes a footnote mark to \langle dimension \rangle.}

\texttt{after-punct-space = \{\langle dimension \rangle\}}  
\texttt{Sets the space that is inserted after any punctuation mark known to FNPC if the punctuation mark precedes a footnote mark to \langle dimension \rangle.}
5 Multiple footnotes

Since multiple footnotes have to be treated differently, \FNPCT recognizes if \footnote is used multiple times in a row:

\begin{quote}
\begin{verbatim}
\textsuperscript{1} The three little pigs built their houses out of straw,\footnote{not to be confused with hay}, sticks,\footnote{or lumber according to some sources} and bricks,\footnote{probably fired clay bricks}\footnote{or something else}.
\end{verbatim}
\end{quote}

\begin{quote}
The three little pigs built their houses out of straw,\footnote{not to be confused with hay}, sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks}\footnote{or something else}.
\end{quote}

5.2 Ranges

Starting with a minimum number of three footnotes in a row \FNPCT can also display the footnote marks as a range.

\begin{quote}
\begin{verbatim}
\setfnpct{ ranges = true }
The three little pigs built their houses out of straw,\footnote{not to be confused with hay}, sticks,\footnote{or lumber according to some sources} and bricks,\footnote{probably fired clay bricks}.
\end{verbatim}
\end{quote}

5. see these footnotes
6. for an example
The three little pigs built their houses out of straw,\textsuperscript{1} sticks\textsuperscript{2} and bricks\textsuperscript{3–5}:

1. not to be confused with hay
2. or lumber according to some sources
3. probably fired clay bricks
4. or something else
5. what do I know

It is important to note that this has limits: ranges do not work well with hyperref. For that reason \texttt{FNPCT}' disables ranges if it detects that hyperref has been loaded. If you insist on using ranges together with hyperref use

\begin{verbatim}
keep-ranges = \texttt{true}|false
\end{verbatim}

Initial: false

to enable them again.

\subsection{The delimiter and separator}

Some packages or classes like the KOMA-Script classes define \texttt{\multfootsep}. If it is not predefined it is defined by \texttt{FNPCT}:

\begin{verbatim}
\multfootsep
\end{verbatim}

Initial: ,

In its default definition this command simply expands to a comma.

\begin{verbatim}
\multfootrange
\end{verbatim}

Initial: --

In its default definition this command simply expands to an endash.

This commands can be redefined to adapt to your needs. You can do this with \texttt{\renewcommand} or by using these options:

\texttt{\textbf{separation-symbol} = \texttt{(⟨value⟩)}}. Redefines \texttt{\multfootsep} to \texttt{(⟨value⟩)}. This symbol separates multiple footnotes if \texttt{ranges = {false}}.

\texttt{\textbf{range-symbol} = \texttt{(⟨value⟩)}}

Initial: --

Redefines \texttt{\multfootrange} to \texttt{(⟨value⟩)}. This symbol separates multiple footnotes if \texttt{ranges = {true}}.

Both symbols are placed inside \texttt{\textsuperscript}. This can also be redefined if necessary:

\texttt{\textbf{print-separation} = \texttt{(⟨code⟩)}}

Initial: \texttt{\textsuperscript{\texttt{\multfootsep}}}

The actual code placed between multiple footnotes if \texttt{ranges = {false}}.

\texttt{\textbf{print-range} = \texttt{(⟨code⟩)}}

Initial: \texttt{\textsuperscript{\texttt{\multfootrange}}}

The actual code placed between multiple footnotes if \texttt{ranges = {true}}.
5 Multiple footnotes

5.4 \mult... variants

The commands presented in this section are defined to keep some backwards compatibility to versions of \texttt{fnpc} prior to v1.0. In order to use them you have to call the package with \texttt{\usepackage[multiple]{fnpc}}.

In earlier versions of \texttt{fnpc} detecting following footnotes was not as reliable as it is now. For that reason it defined the following command:

\texttt{\multfootnote*{(list);(of);(footnotes)}(tpunct)}

Different footnotes are separated with a semicolon. The * turns the footnote/punctuation switching temporarily off.

\begin{itemize}
\item The three little pigs built their houses out of straw\footnote{not to be}
\item confused with hay}, sticks\footnote{or lumber according to some sources}
\item and bricks\multfootnote{probably fired clay bricks; or something else}.
\end{itemize}

This command splits its content at every occurrence of ; and creates a footnote for each. This delimiter can be changed:

\texttt{mult-fn-delim = {⟨code⟩}}

Sets the symbol that divides the separate notes in the \mult... variants.

Since the semicolon might be part of the footnote text you might have some trouble. Enclosing it in braces should work:

\begin{itemize}
\item The three little pigs built their houses out of straw\footnote{not to be}
\item confused with hay}, sticks\footnote{or lumber according to some sources}
\item and bricks\multfootnote{probably fired clay bricks; or something else; what}
\item do I know}.
\end{itemize}

The three little pigs built their houses out of straw,\footnote{not to be} sticks\footnote{or lumber according to some sources} and bricks\footnote{probably fired clay bricks; or something else; what do I know}.\footnote{what do I know}
6 Extend \textsc{fnpct}

6.1 Additional punctuation marks

So if you want to extend the punctuation switching and kerning to other punctuation marks you can do something like this:

\begin{verbatim}
\setfnpct{ add-trailing-token = !{bang} }
\end{verbatim}

After that the bang is recognized and footnotes switch position:

\begin{verbatim}
The three little pigs built their houses out of straw\footnote{not to be
confused with hay}? Sticks\footnote{or lumber according to some sources}
and bricks\footnote{probably fired clay bricks}!
\end{verbatim}

The three little pigs built their houses out of straw\footnote{not to be
confused with hay}? Sticks\footnote{or lumber according to some sources}
and bricks\footnote{probably fired clay bricks}!

1. not to be confused with hay
2. or lumber according to some sources
3. probably fired clay bricks

New options have also been defined:

\begin{verbatim}
\setfnpct{ after-bang-space = .03em }
\end{verbatim}

\begin{verbatim}
The three little pigs built their houses out of straw\footnote{not to be
confused with hay}? Sticks\footnote{or lumber according to some sources}
and bricks\footnote{probably fired clay bricks}!
\end{verbatim}

The three little pigs built their houses out of straw\footnote{not to be
confused with hay}? Sticks\footnote{or lumber according to some sources}
and bricks\footnote{probably fired clay bricks}!

1. not to be confused with hay
2. or lumber according to some sources
3. probably fired clay bricks

And option \texttt{after-punct-space} is obeyed:

\begin{verbatim}
\setfnpct{ after-punct-space = 2pt }
\end{verbatim}

\begin{verbatim}
The three little pigs built their houses out of straw\footnote{not to be
confused with hay}? Sticks\footnote{or lumber according to some sources}
and bricks\footnote{probably fired clay bricks}!
\end{verbatim}

1. not to be confused with hay
2. or lumber according to some sources
3. probably fired clay bricks
The three little pigs built their houses out of straw? Sticks? and bricks! ³

1. not to be confused with hay
2. or lumber according to some sources
3. probably fired clay bricks

Please note that you should not use add-trailing-token inside a group. Ideally it is used in the document preamble only. Using it inside of a group can lead to unwanted side effects and should not be attempted.

6.2 Make note commands known to FNPCT

If a package is not natively supported you can try and adapt commands yourself. Before you do so please check section 7 on the next page.

\AdaptNote{\cs}{⟨arguments⟩}{⟨counter name⟩}{⟨code⟩}
This redefines \cs. How the redefinition works is best demonstrated with an example. See below for an example. The arguments ⟨arguments⟩ are defined with the same syntax as xparse’s \NewDocumentCommand. See the xparse manual [L3Pb] for a complete description. Within ⟨code⟩ #NOTE is replaced with the original command. If the optional argument is not used the counter name cs for a note command \cs is assumed.

In addition to the arguments specified in ⟨arguments⟩ an optional star as first argument is defined which reverses FNPCT’s behavior. ⟨code⟩ is also placed inside a group.

\AdaptNoteName{⟨csname⟩}{⟨arguments⟩}{⟨counter name⟩}{⟨code⟩}
Like \AdaptNote but the first argument expects a csname instead of a command sequence token.

\MultVariant{\cs}
Defines a command \multcs which splits is argument at each occurence of the token set by the option mult-fn-delim and turns it into a series of calls of \cs. \multcs also has a starred variant in order to create a series of starred calls of \cs.

\MultVariantName{⟨csname⟩}
Like \MultVariant but the argument expects a csname instead of a command sequence token.

\AddPunctuation{⟨before⟩}{⟨token⟩}{⟨after⟩}{⟨name⟩}
Adds ⟨token⟩ to FNPCT’s mechanism and activates it. ⟨before⟩ sets the default value for the newly created option before-⟨name⟩-space. ⟨after⟩ sets the default value for the newly created option after-⟨name⟩-space. This is the same as using option add-trailing-token.

FNPCT adapts \LaTeX’s standard footnote commands the following way:⁷

⁷. Using \@mpfn as counter name is essential to make ranges work in minipages.
7 Other packages

\begin{verbatim}
\AdaptNote\footnote{0+m}{\@mpfn}{\IfNoValueTF{#1}{\NOTE{#2}}{\NOTE[#1]{#2}}}
\AdaptNote\footnotemark{0}{\IfNoValueTF{#1}{\NOTE}{\NOTE[#1]}}
\MultVariant\footnote
% KOMA-Script's or memoir's \footref:
\AdaptNote\footref{m}{\NOTE[#1]}
\end{verbatim}

You essentially have to rebuild the syntax of the original command and place \#NOTE in the code where it should be called. This may seem cumbersome at first but allows to adapt commands with a more or less arbitrary kind of syntax.

The command \AdaptNote can be used multiple times on the same command in order to change a previous redefinition.

7 Other packages

FNPCT tries its best to support other footnote and related packages. Each of the following subsections is dedicated to one of these packages and if and how they work together with FNPCT. Fortunately most of them do quite well.

Most notably the ranges option cannot deal with some packages, often due to the lack of a suiting \...text

7.1 bigfoot

The package bigfoot [Kas15] is supported.

You need to be a bit cautious, though: verbatim material won’t work inside footnotes anymore. You might use Bruno L. FLOCH’s cprotect package [Flo11] if you really need verbatim material in footnotes and want to use FNPCT. Since FNPCT does not redefine any \footnotetext like command it will still work inside one of them.

7.2 endnotes

The package endnotes [L3Pa] is supported.

7.3 enotez

The package enotez [Nie20a] is supported.

7.4 fixfoot

The fixfoot [Fai10] package provides a possibility to create repeating footnotes. FNPCT supports this package provided you take care of the following:

Use \DeclareFixedFootnote only in the preamble but after loading FNPCT.

---

8. If you find some package missing please let me know.
7 Other packages

\`DeclareFixedFootnote{\cs}{{footnote text}}` is used to store the `\`footnote text` in \cs which in turn creates a footnote mark for it but doesn’t repeat the footnote text on the same page in the bottom. The document needs several runs to get all the numbers and footnotes right. Every fixed footnote declared with \`DeclareFixedFootnote` gets an optional * to prevent the punctuation switching.

\begin{itemize}
\item fixfoot cannot be used together with \textit{ranges = \{true\}}.
\end{itemize}

### 7.5 footmisc

The footmisc package \cite{Fai11} provides a range of options to customize footnotes, for example output them as margin notes or count footnotes per page. Testing showed no incompatibilities with footmisc. The only thing is that you won’t have to (and shouldn’t) use its \textit{multiple} option.

### 7.6 footnote

Testing showed no incompatibilities with footnote. It cannot adapt its environment \textit{footnote}, though.

### 7.7 manyfoot

The package manyfoot \cite{Roz19} is supported.

### 7.8 pagenote

The package pagenote \cite{Wilo9} is supported.

\begin{itemize}
\item pagenote cannot be used together with \textit{ranges = \{true\}}.
\end{itemize}

### 7.9 parnotes

The package parnotes \cite{Hug19} is supported.

\begin{itemize}
\item parnotes cannot be used together with \textit{ranges = \{true\}}.
\end{itemize}

### 7.10 sepfootnotes

The package sepfootnotes \cite{dLim16} is supported. Define new footnote types \textit{after FNPCT} has been loaded.
7 Other packages

7.11 sidenotes

The package sidenotes [TS20] is not supported!

\texttt{fpnct} is not able to adapt sidenotes’ commands due to the current implementation of sidenotes.

7.12 snotez

The package snotes [Nie20b] is supported.

7.13 tablefootnote

The package tablefootnote [Mün14] is supported.

\textbf{Error:} tablefootnote cannot be used together with \texttt{ranges = \{true\}}.

7.14 \texttt{tufte-latex}'s \texttt{sidenote}

The \texttt{sidenote} command from the tufte-latex classes tufte-book and tufte-handout is supported.

\textbf{Error:} tufte-latex cannot be used together with \texttt{ranges = \{true\}}.

More precisely: the \texttt{sidenote} command from tufte-latex does not work with \texttt{ranges}. But since \texttt{sidenote} is only a synonym for \texttt{footnote} for tufte-latex you can use the latter.

7.15 \texttt{biblatex}'s \texttt{footcite}

If you’re willing to sacrifice \texttt{footcite}’s * argument (which it has in some styles) you can adapt the commands provided by biblatex [Leh+20] as well:

\begin{verbatim}
1 \AdaptNote\footcite{oo+m}\{footnote\}{% 
2 \setfnpct\{dont-mess-around\}% 
3 \IfNoValueTF{#1}{% 
4 \{#NOTE{#3}}%
5 \{\IfNoValueTF{#2}{#NOTE[#1]{#3}}{#NOTE[#1][#2]{#3}}}% 
6 }%
\end{verbatim}

You could use another token for the star, though, if needed:

\begin{verbatim}
1 \AdaptNote\footcite{t+oo+m}\{footnote\}{% 
2 \setfnpct\{dont-mess-around\}% 
3 \IfBooleanTF{#1}{% 
\end{verbatim}
Testing showed no problems whatsoever but \texttt{FNPCT} does not adapt the command itself.

Turning \texttt{FNPCT} off inside of \texttt{\footcite} is advised as shown in above examples. \texttt{\footcite} calls \texttt{\footnote} internally which else might lead to inconsistent and unwanted spaces.

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