The **dtnfootnotes** package

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Introduction

The default formatting of footnotes in LaTeX is painfully ugly with footnotes indented and footnote marks superscripted and directly adjoining the footnote text.

This package changes the footnote format to:

- flush left
- display the mark in normal (non-superscripted) font
- add space between the footnote mark and text.

The package can also optionally:

- add a blank line between footnotes
- adjust the space between the footnote mark and text
- adjust the footnote font size.

Usage

The package is loaded with the command:

$$\texttt{\usepackage[}\langle sep \rangle \texttt{][}\langle margin \rangle \texttt{][}\langle size \rangle \texttt{]\{dtnfootnotes\}}$$

The package options are:

sep This is a boolean that determines whether footnotes are separated by a blank line. It defaults to `false`. The option value is stored in the TeX switch `@dtn@opt@sep`.

margin This accepts a length used to set `\footnotemargin`, which determines the space between the footnote mark and text. It defaults to `1.10em`. If an invalid length is provided the package displays a warning and reverts `margin` to its default value. The option value is stored in the `\dtn@opt@margin` macro.

size   This is a font size used to set \footnotesize, which is one of the standard LaTeX predefined commands: \tiny, \scriptsize, \footnotesize, \small, \normalsize, \large, \Large, \LARGE, \huge, and \Huge. Use the option value to reduce the footnote size by one step, and to increase it by one step. The option value is stored in the \dtn@opt@size macro.

Here is an example in which all options are used in loading the package:

\usepackage[sep=true][margin=1.6em][size=\small]{dtnfootnotes}

Implementation

```
1 \DeclareCurrentRelease{v0.1}{2023-07-10}
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{dtnfootnotes}
4     [2023-07-10 v0.1 Improve footnote formatting]
```

@dtn@opt@sep Process the package options.
\dtn@opt@margin
\dtn@opt@size
```
5 \DeclareKeys{
6            sep.if = @dtn@opt@sep,         sep.usage = preamble,
7     margin.store = \dtn@opt@margin,  margin.usage = preamble,
8       size.store = \dtn@opt@size,      size.usage = preamble
9 }
10 \SetKeys{
11        sep = false,
12     margin = 1.10em,
13       size = \empty
14 }
15 \ProcessKeyOptions
```

Processing the margin option value requires checking the validity of a length value. This is done by setting up a command that checks length validity. The command definition is taken from https://tex.stackexchange.com/a/499223. It, in turn, credits https://stackoverflow.com/a/23872060/923955 for the regex it contains.

To ensure that any commands containing lengths, such as \small, are expanded the newly defined command needs to be invoked with \expandafter preceding and following the command name.

```
16 \ExplSyntaxOn
17 \NewDocumentCommand{\iflengthTF}{mmm}{%
18     \regex_match:nnTF
19     { \A [+\-]? ((\d+(\.\d*)?)|(\.\d+)) \s*
20     (pt|pc|in|bp|cm|mm|dd|cc|sp|ex|em) \Z} % regex
21     { #1 } % test string
22     { #2 } % true text
```

```
23      { #3 } % false text
24 }
25 \ExplSyntaxOff
```

If the `margin` is not a valid length then warn the user and reset `margin` to the default value.

```
26 \expandafter\iflengthTF\expandafter{\dtn@opt@margin}{}{%
27     \PackageWarning{dtnfootnotes}{margin value is not a valid length
28                                   \MessageBreak
29                                   using default value of 1.10em instead}
30     \renewcommand{\dtn@opt@margin}{1.10em}
31 }
```

Uses footmisc to shift the footnotes flush left and use hanging indent. The ifthen package is used for logical branching. The purpose served by the setspace is truly mysterious.

```
32 \RequirePackage[hang,flushmargin,splitrule,multiple,abovefloats]{footmisc}
33 \RequirePackage{etoolbox}
34 \RequirePackage{ifthen}
35 \RequirePackage{setspace}
```

Change the footnote font size if a `size` option value was provided.

```
36 \ifthenelse{\equal{\dtn@opt@size}{\empty}}{}{%
37     \renewcommand{\footnotesize}{\small}
38 }%
```

Make the footnote mark normal font size. This technique is taken from https://tex.stackexchange.com/a/306278.

```
39 \patchcmd{\@makefntext}{%
40 \ifFN@hangfoot
41 \bgroup}%
42 {%
43 \ifFN@hangfoot
44 \bgroup\def\@makefnmark{\rlap{\normalfont\@thefnmark.}}}{}{}%
45 \patchcmd{\@makefntext}{%
46 \ifdim\footnotemargin>\z@
47 \hb@xt@ \footnotemargin{\hss\@makefnmark}}%
48 {%
49 \ifdim\footnotemargin>\z@
50 \hb@xt@ \footnotemargin{\@makefnmark\hss}}{}{}%
```

Set distance between main text and note rule.

```
51 \setlength{\skip\footins}{1\baselineskip}
```

Set distance between footnote mark and text, using the `margin` option value if provided.

```
52 \expandafter\setlength\expandafter{\footnotemargin}{\dtn@opt@margin}
```

Add a blank line between footnotes if requested with the `sep` option. This is implemented by setting `\footnotesep` to a non-zero length. This vertical space is inserted before each footnote.

```
53 \ifthenelse{\boolean{@dtn@opt@sep}}{%
54     \setlength{\footnotesep}{\skip\footins} % Between footnotes [= previous]
55 }{}%
56 \renewcommand{\hangfootparskip}{0pt}
57 \renewcommand{\hangfootparindent}{1em}
```