

The Ragged2e-package*

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Abstract

This package provides new commands and environments for setting ragged text which are easy to configure to allow hyphenation. An earlier attempt to do this was the style `raggedright[6]` by the same author.

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1 The problem

`\LATEX` has three commands (`\centering`, `\raggedleft`,

and `\raggedright`) and three environments (`center`, `flushleft`, and `flushright`) to typeset ragged text. The environments

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are based upon the commands (center uses `\centering`, flush-left `\raggedright`, and flushright `\raggedleft`).

These commands have, however, one serious flaw: they render hyphenation almost impossible, and thus the text looks *too* ragged, as the following example shows:

<pre>\raggedright: “The L^AT_EX document preparation system is a special version of Donald Knuth’s T_EX program. T_EX is a sophisticated program designed to produce high-quality typesetting, especially for mathematical text.” [3, p. xiii]</pre>	<pre>\RaggedRight: “The L^AT_EX document prepa- ration system is a special ver- sion of Donald Knuth’s T_EX program. T_EX is a sophisti- cated program designed to produce high- quality typeset- ting, especially for mathemati- cal text.” [3, p. xiii]</pre>
--	---

2 Old “solutions”

2.1 L^AT_EX

L^AT_EX defines e. g. `\raggedright` as follows:

```
1 <*latex>
2 \def\raggedright{%
3   \let\=\@centercr
4   \@rightskip\@flushglue
5   \rightskip\@rightskip
6   \leftskip\z@
7   \parindent\z@}
```

Initially, `\@flushglue` is defined as

```
8 \@flushglue = 0pt plus 1fil
9 </latex>
```

Thus the `\rightskip` is set to `0pt plus 1fil`. Knuth, however warns [2, p. 101]:

“For example, a person can set `\rightskip=0pt plus 1fil`, and every line will be filled with space to the right. But this isn’t a particularly good way to make ragged-right margins, because the infinite stretchability will assign zero badness to lines that are very short. To do a decent job of ragged-right setting, the trick is to set `\rightskip` so that it will stretch enough to make line breaks possible, yet not too much, because short lines should be considered bad. Furthermore the spaces between words should be fixed so that they do not stretch or shrink.”

2.2 plain

plain T_EX defines an special version of `\raggedright`, which operates the way Knuth describes it; but which can not be used with L^AT_EX, because L^AT_EX redefines `\raggedright`.

```
10 <*plain>
11 \def\raggedright{%
12   \rightskip\z@ plus2em
13   \spaceskip.3333em
14   \xspaceskip.5em\relax}
```

plain provides also a version of `\raggedright` for typewriter fonts

```
15 \def\tttraggedright{%
16   \tt
17   \rightskip\z@ plus2em\relax}
18 </plain>
```

3 Our solution

3.1 Usage

Since the `plain` solution can not be used with \LaTeX , we have to redefine it and make it possible to configure it for personal preferences.

3.1.1 The macros

`\Centering`, `\RaggedLeft`, and `\RaggedRight` can be used in the same way as `\centering`, `\raggedleft`, and `\raggedright`: Just type the command, and after that the whole text will be set centered, ragged-left or ragged-right.

For example, we switched on `\RaggedRight` on the top of this text, and consequently this text was set ragged-right.

The new commands are fully compatible with their counterparts in \LaTeX , but implement the `plain` solution and can be easily configured using the following parameters:

3.1.2 The parameters

Command	Uses
<code>\Centering</code>	<code>\CenteringLeftSkip</code> , <code>\CenteringRightSkip</code> , <code>\CenteringParfillskip</code> , <code>\CenteringParIndent</code>
<code>\RaggedLeft</code>	<code>\RaggedLeftLeftskip</code> , <code>\RaggedLeftRightskip</code> , <code>\RaggedLeftParfillskip</code> , <code>\RaggedLeftParIndent</code>
<code>\RaggedRight</code>	<code>\RaggedRightLeftskip</code> , <code>\RaggedRightRightskip</code> , <code>\RaggedRightParfillskip</code> , <code>\RaggedRightParIndent</code>
<i>all</i>	<code>\RaggedSpaceskip</code> , <code>\RaggedXSpaceskip</code>

All Parameters can be set with `\setlength`, e. g.

```
\setlength{RaggedRightRightskip}{Opt plus 1em}
```

sets `\RaggedRightRightskip` to `Opt plus 1em`.

`\CenteringLeftskip`, `\RaggedLeftLeftskip`, and `\RaggedRightLeftskip` These are the `\leftskip`s inserted by `\Centering`, `\RaggedLeft`, and `\RaggedRight`.

“`\leftskip` (glue at left of justified lines)” [2, p. 274]

`\leftskip` must be set to a finite value, to make hyphenation possible. Setting it to infinite values like `Opt plus 1fil` makes hyphenation almost impossible.

`\CenteringRightskip`
`\RaggedLeftRightskip`
`\RaggedRightRightskip` These are the `\rightskips` inserted by `\Centering`, `\RaggedLeft`, and `\RaggedRight`.

“`\rightskip` (glue at right of justified lines)” [2, p. 274]

`\rightskip` must be set to a finite value, to make hyphenation possible. Setting it to infinite values like `0pt plus 1fil` makes hyphenation almost impossible.

`\CenteringParfillskip`
`\RaggedLeftParfillskip`
`\RaggedRightParfillskip` These are the `\parfillskips` inserted by `\Centering`, `\RaggedLeft`, and `\RaggedRight`.

“`\parfillskip` (additional `\rightskip` at end of paragraphs)” [2, p. 274]

The normal setting for `\parfillskip` is `0pt plus 1fil`; the parameters are provided for testing combinations of `\{left|right\}skip` and `\parfillskip`.

`\CenteringParindent`
`\RaggedLeftParindent`
`\RaggedRightParindent` These are the `\parindents` used by `\Centering`, `\RaggedLeft`, and `\RaggedRight`.

“`\parindent` (width of `\indent`)” [2, p. 274]

`\parindent` is the indent of the first line of a paragraph and should be set to `0pt`, since indented lines in ragged text do not look good.

`\RaggedSpaceskip` `\RaggedSpaceskip` is the `\spaceskip` used by `\Centering`, `\RaggedLeft`, and `\RaggedRight`.

“`\spaceskip` (glue between words, if nonzero)” [2, p. 274]

If `\spaceskip` is nonzero, the `\spaceskip` glue is used for an interword space. The `plain` solution sets `\spaceskip` to `.3333em` so that the spaces between words are fixed. This can only be used with proportional fonts, since with monospaced fonts like `cmtt` the `\spaceskip` should be set to the width of a space ‘`␣`’, which is e. g. `.5em` in `cmtt`. So `plain` provides the command `\ttraggedright` for monospaced fonts which doesn’t set `\spaceskip`.

To solve this problem we use the package `eversel` to distinguish between monospaced and proportional fonts. If the current font is monospaced (`\fontdimen3 = 0pt`) we set `\spaceskip` to the interword space defined by the font (`\fontdimen2`); otherwise we use `\RaggedSpaceskip`.¹

`\RaggedXSpaceskip` `\RaggedXSpaceskip` is the `\xspaceskip` used by `\Center`, `\RaggedLeft`, and `\RaggedRight`.

“`\xspaceskip` (glue between sentences, if nonzero)” [2, p. 274]

¹This will *not* allow hyphenation of typewriter fonts; \LaTeX disables this by setting `\hyphenchar` to `-1` for the `\ttfamily`[4].

`\xspaceskip` is the glue between sentences (after elements with a space factor ≥ 2000), if nonzero. Here we also have to distinguish between monospaced and proportional fonts using `everysel`.

The parameters have the following initial setting:

Parameter	L ^A T _E X setting	Ragged2e setting
<code>\CenteringLeftskip</code>	Opt plus 1fil	Opt plus 2em
<code>\RaggedLeftLeftskip</code>	Opt plus 1fil	Opt plus 2em
<code>\RaggedRightLeftskip</code>	Opt plus Opt minus Opt	Opt plus Opt minus Opt
<code>\CenteringRightskip</code>	Opt plus 1fil	Opt plus 2em
<code>\RaggedLeftRightskip</code>	Opt plus Opt minus Opt	Opt plus Opt minus Opt
<code>\RaggedRightRightskip</code>	Opt plus 1fil	Opt plus 2em
<code>\CenteringParfillskip</code>	Opt plus Opt minus Opt	Opt plus Opt minus Opt
<code>\RaggedLeftParfillskip</code>	Opt plus Opt minus Opt	Opt plus Opt minus Opt
<code>\RaggedRightParfillskip</code>	Opt plus 1fil	Opt plus 1fil
<code>\CenteringParindent</code>	Opt	Opt
<code>\RaggedLeftParindent</code>	Opt	Opt
<code>\RaggedRightParindent</code>	Opt	Opt
<code>\RaggedSpaceskip</code>	Opt	0.3333em/ <code>\fontdimen2</code> ²
<code>\RaggedXSpaceskip</code>	Opt	.5em/Opt ²

3.1.3 The environments

- Center** `Center` is fully compatible with `center`, but uses `\Centering` instead of `\centering`.
- FlushLeft** `FlushLeft` is fully compatible with `flushleft`, but uses `\RaggedRight` instead of `\raggedright`.
- FlushRight** `FlushRight` is fully compatible with `flushright`, but uses `\RaggedLeft` instead of `\raggedleft`.

E.g. `FlushLeft` can be used in the same way as `flushleft`:

```
\begin{FlushLeft}
<text, which is set ragged-right>
\end{FlushLeft}
```

4 Options

This package has the following options:

²For proportional and monospaced fonts.

OriginalCommands The L^AT_EX-commands `\centering`, `\raggedleft`, and `\raggedright` and the L^AT_EX-environments `center`, `flushleft`, and `flushright` remain unchanged. It is the default.

NewCommands The L^AT_EX-commands `\centering`, `\raggedleft`, and `\raggedright` and the L^AT_EX-environments `center`, `flushleft`, and `flushright` are set equal to their counterparts defined by `ragged2e`. Thus `\raggedright` invokes `\RaggedRight`. The original commands can be accessed under the Names `\LaTeX<original name>`, e. g. `\LaTeXraggedright`.

OriginalParameters The parameters used by the commands implemented by `ragged2e` are initialized with the default settings used by L^AT_EX.

NewParameters The parameters used by the commands implemented by `ragged2e` are initialized with the default settings defined by `ragged2e`. It is the default.

5 Required packages

This package requires the following package:

`everysel[5]` It is used to distinguish between monospaced and proportional fonts.

6 The implementation

19 `<*package>`

6.1 Initial Code

```
\if@raggedtwoe@originalcommands \if@raggedtwoe@originalcommands is used to flag the use of the
OriginalCommands or NewCommands option.
20 \newif\if@raggedtwoe@originalcommands

\if@raggedtwoe@originalparameters \if@raggedtwoe@originalparameters is used to flag the use of the
OriginalParameters or NewParameters option.
21 \newif\if@raggedtwoe@originalparameters
```

6.2 Declaration of options

6.2.1 OriginalCommands option

The `OriginalCommands` and `NewCommands` options control the meaning of the L^AT_EX-commands for ragged text: If `NewCommands`

is used the L^AT_EX-commands are set equal to the commands defined by ragged2e.

```
22 \DeclareOption{OriginalCommands}{\@raggedtwoe@originalcommandstrue}
23 \DeclareOption{NewCommands}{\@raggedtwoe@originalcommandsfalse}
```

6.2.2 OriginalParameters option

The OriginalParameters and NewParameters options control the defaults for the parameters used by the commands implemented by ragged2e: If NewParameters is used the parameters are set to the values defined by ragged2e.

```
24 \DeclareOption{OriginalParameters}{\@raggedtwoe@originalparameterstrue}
25 \DeclareOption{NewParameters}{\@raggedtwoe@originalparametersfalse}
```

6.3 Executing options

The default options are OriginalCommands and NewParameters.

```
26 \ExecuteOptions{OriginalCommands,NewParameters}
27 \ProcessOptions\relax
```

6.4 Loading packages

We need the everysel package.

```
28 \RequirePackage{everysel}
```

6.5 Allocations

\CenteringLeftskip	First we allocate the parameters
\RaggedLeftLeftskip	29 \newlength{\CenteringLeftskip}
\RaggedRightLeftskip	30 \newlength{\RaggedLeftLeftskip}
\CenteringRightskip	31 \newlength{\RaggedRightLeftskip}
\RaggedLeftRightskip	32 \newlength{\CenteringRightskip}
\RaggedRightRightskip	33 \newlength{\RaggedLeftRightskip}
\CenteringParfillskip	34 \newlength{\RaggedRightRightskip}
\RaggedLeftParfillskip	35 \newlength{\CenteringParfillskip}
\RaggedRightParfillskip	36 \newlength{\RaggedLeftParfillskip}
\CenteringParindent	37 \newlength{\RaggedRightParfillskip}
\RaggedLeftParindent	38 \newlength{\CenteringParindent}
\RaggedRightParindent	39 \newlength{\RaggedLeftParindent}
\RaggedSpaceskip	40 \newlength{\RaggedRightParindent}
\RaggedXSpaceskip	41 \newlength{\RaggedSpaceskip}
	42 \newlength{\RaggedXSpaceskip}

6.6 Initializations

Depending on \if@raggedtwoe@originalparameters we initialize the parameters with the values L^AT_EX uses for its own commands or

with our new parameters.

```

43 \if@raggedtwoe@originalparameters
44   \setlength{\CenteringLeftskip}    {\z@ plus \@ne fil}
45   \setlength{\RaggedLeftLeftskip}  {\z@ plus \@ne fil}
46   \setlength{\RaggedRightLeftskip} {\z@skip}
47   \setlength{\CenteringRightskip}  {\z@ plus \@ne fil}
48   \setlength{\RaggedLeftRightskip} {\z@skip}
49   \setlength{\RaggedRightRightskip} {\z@ plus \@ne fil}
50   \setlength{\CenteringParfillskip} {\z@skip}
51   \setlength{\RaggedLeftParfillskip} {\z@ plus}
52   \setlength{\RaggedRightParfillskip} {\z@ plus \@ne fil}
53   \setlength{\CenteringParindent}  {\z@}
54   \setlength{\RaggedLeftParindent} {\z@}
55   \setlength{\RaggedRightParindent} {\z@}
56   \setlength{\RaggedSpaceskip}     {\z@}
57   \setlength{\RaggedXSpaceskip}    {\z@}
58 \else
59   \setlength{\CenteringLeftskip}    {\z@ plus \tw@ em}
60   \setlength{\RaggedLeftLeftskip}  {\z@ plus \tw@ em}
61   \setlength{\RaggedRightLeftskip} {\z@skip}
62   \setlength{\CenteringRightskip}  {\z@ plus \tw@ em}
63   \setlength{\RaggedLeftRightskip} {\z@skip}
64   \setlength{\RaggedRightRightskip} {\z@ plus \tw@ em}
65   \setlength{\CenteringParfillskip} {\z@skip}
66   \setlength{\RaggedLeftParfillskip} {\z@skip}
67   \setlength{\RaggedRightParfillskip} {\z@ plus \@ne fil}
68   \setlength{\CenteringParindent}  {\z@}
69   \setlength{\RaggedLeftParindent} {\z@}
70   \setlength{\RaggedRightParindent} {\z@}
71   \setlength{\RaggedSpaceskip}     {.3333em}
72   \setlength{\RaggedXSpaceskip}    {.5em}
73 \fi

```

6.7 Setting the `\spaceskip` and `\xspaceskip`

To set ragged text with proportional fonts *and* monospaced fonts correctly, we must distinguish between these two kinds of fonts *everytime* a font is loaded. Otherwise the settings for e.g. a proportional fonts would be in effect if you start `\RaggedRight` in `\rmfamily` and then switch to `\ttfamily`.

We do the setting with the help of `everysel[5]`, which allows us to define code which is (hopefully) executed after every fontchange in a L^AT_EX document.³

```

\if@raggedtwoe@spaceskip \if@raggedtwoe@spaceskip signals the use of commands defined
by ragged2e to the command inserted into \selectfont. It is set
to true by these commands and restored to false by TEX when the
scope of them ends.

```

³It *is* executed after every `\selectfont`, so if you stay within NFSS and don't declare your fonts with commands like `\newfont` and then switch to them, it will work.


```

74 \newif\if@raggedtwo@spaceskip

\@raggedtwo@everyselectfont \@raggedtwo@everyselectfont is our code inserted into
\selectfont.

75 \newcommand{\@raggedtwo@everyselectfont}{%
76   \if@raggedtwo@spaceskip

If no command defined by ragged2e is in use, we do nothing. But if it
is, we look at \fontdimen3 to see if the current font is monospaced or
not. If it is, we set \spaceskip to the value intended by the designer
of the font (\fontdimen2) and \xspaceskip to 0pt. If it isn't, we use
the values defined by \RaggedSpaceskip and \RaggedXSpaceskip.

77     \ifdim\fontdimen\thr@@\font=\z@\relax
78       \setlength{\spaceskip} {\fontdimen\tw@\font}%
79       \setlength{\xspaceskip} {\z0}%
80     \else
81       \setlength{\spaceskip} {\RaggedSpaceskip}%
82       \setlength{\xspaceskip} {\RaggedXSpaceskip}%
83     \fi
84   \fi
85   }
86 \EverySelectfont{\@raggedtwo@everyselectfont}

```

6.8 The commands

`\@raggedtwo@savedcr` We save the definition of `\` in `\@raggedtwo@savedcr`.

```
87 \let\@raggedtwo@savedcr\
```

`\Centering` `\Centering` first lets `\` = `\@centercr`, but only if `\` has its original meaning, otherwise `\Center` would not work inside environments like `tabular` etc., in which `\` has a different meaning. Then, the `LATEX` and `TEX`-parameters are set. `\@rightskip` is `LATEX`'s version of `\rightskip`.

“Every environment, like the list environments, that set `\rightskip` to its 'normal' value set it to `\@rightskip`” [1]

Finally we signal the code inserted into `\selectfont` that we are active.

```

88 \newcommand{\Centering}{%
89   \ifx\@raggedtwo@savedcr
90     \let\@centercr
91   \fi
92   \setlength{\leftskip} {\CenteringLeftskip}%
93   \setlength{\@rightskip} {\CenteringRightskip}%
94   \setlength{\rightskip} {\@rightskip}%
95   \setlength{\parfillskip}{\CenteringParfillskip}%
96   \setlength{\parindent} {\CenteringParindent}%
97   \@raggedtwo@spaceskiptrue
98   }

```

`\RaggedLeft` `\RaggedLeft` is like `\Centering`; it only uses other parameters.

```

99 \newcommand{\RaggedLeft}{%
100   \ifx\\ \@raggedtwo@savedcr
101     \let\\ @centercr
102   \fi
103   \setlength{\leftskip} {\RaggedLeftLeftskip}%
104   \setlength{\@rightskip} {\RaggedLeftRightskip}%
105   \setlength{\rightskip} {\@rightskip}%
106   \setlength{\parfillskip}{\RaggedLeftParfillskip}%
107   \setlength{\parindent} {\RaggedLeftParindent}%
108   \@raggedtwo@spaceskiptrue
109 }

```

`\RaggedRight` `\RaggedRight` is like `\Centering`; it only uses other parameters.

```

110 \newcommand{\RaggedRight}{%
111   \ifx\\ \@raggedtwo@savedcr
112     \let\\ @centercr
113   \fi
114   \setlength{\leftskip} {\RaggedRightLeftskip}%
115   \setlength{\@rightskip} {\RaggedRightRightskip}%
116   \setlength{\rightskip} {\@rightskip}%
117   \setlength{\parfillskip}{\RaggedRightParfillskip}%
118   \setlength{\parindent} {\RaggedRightParindent}%
119   \@raggedtwo@spaceskiptrue
120 }

```

6.9 The environments

`Center` The environments `Center`, `FlushLeft`, and `\FlushRight` are implemented like their counterparts in \LaTeX : Start a trivlist and switch on the right command.

```

121 \newenvironment{Center}{%
122   \begin{trivlist}%
123     \Centering\item\relax
124   }{%
125     \end{trivlist}%
126   }
127 \newenvironment{FlushLeft}{%
128   \begin{trivlist}%
129     \RaggedRight\item\relax
130   }{%
131     \end{trivlist}%
132   }
133 \newenvironment{FlushRight}{%
134   \begin{trivlist}%
135     \RaggedLeft\item\relax
136   }{%
137     \end{trivlist}%
138   }

```

6.10 Overloading the L^AT_EX-commands

If the option `NewCommands` is used, we save the original L^AT_EX-commands for ragged text and overload them.

```

139 \if@raggedtwo@originalcommands
140 \else
141   \let\LaTeXcentering\centering
142   \let\LaTeXraggedleft\raggedleft
143   \let\LaTeXraggedright\raggedright
144   \let\LaTeXcenter\center
145   \let\LaTeXflushleft\flushleft
146   \let\LaTeXflushright\flushright
147   \let\centering\Centering
148   \let\raggedleft\RaggedLeft
149   \let\raggedright\RaggedRight
150   \let\begincenter\beginCenter
151   \let\beginflushleft\beginFlushleft
152   \let\beginflushright\beginFlushRight
153 \fi
154 </package>

```

7 Acknowledgements

A first version of this package for L^AT_EX2.09 was named `raggedri`[6]. Laurent Siebenmann (`lcs@topo.math.u-psud.fr`) with his style `ragged.sty`[7] provided the final impulse for this new implementation. Without the constant nagging of Rainer Sieger (`rsieger@awi-bremerhaven.de`) this package might not be.

References

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Change History

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