

*et al.* hiξ  
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## Using `\nobreakspace` under T1 in articles

As discussed in Mittelbach *et al.* (2004) [1, p. 377], for documents written using L<sup>A</sup>T<sub>E</sub>X which may contain characters outside of the canonical ANSI 7-bit list, an inclusion of the T1 font encoding package

```
\usepackage[T1]{fontenc}
```

in the preamble is *strongly* recommended. One of the more irritating side effects of this, however, is that inclusion of the very handy *no-break space* (NBS) command (often in the .tex code with a tilde, `~`) causes the document not to compile:

```
! LaTeX Error: Command \nobreakspace unavailable in encoding T1.
```

One major reason someone writing a lot of research-related papers might want the NBS is because it spaces things in a more aesthetically pleasing manner. While by no stretch of the imagination am I an expert on typesetting, intuitively I appreciate having the space after a full-stop larger than the one after an abbreviating period (as can be seen in the image at the top of the page).

Since *et al.* is an abbreviation of *et alii*, the period belongs there. To use it in an `article`, add the following to your preamble (note the space in the final curly braces):

```
\DeclareTextCommand{\nobreakspace}{T1}{\leavevmode\nobreak\ } }
```

Simply using it should work just fine, but let's look at some documentation on it. From the section on font encodings of the "L<sup>A</sup>T<sub>E</sub>X2e font selection" documentation [2], we see that `DeclareTextCommand` defines a command (first curly braces) for the encoding specified in the second set of curly braces. The last argument is how we define it.

The `leavevmode` means "leave vertical mode," and if you think of the characters which T<sub>E</sub>X typesets as "boxes," it can either pile the boxes on top of each other (vertically, line-by-line), or horizontally (on a given line). Using this command thus tells T<sub>E</sub>X to place whatever comes next in our redefinition of `nobreakspace` horizontally. The `nobreak` is (according to David Carlisle [3]) defined in plain T<sub>E</sub>X as

```
\penalty \@M
```

which is equivalent to a penalty of 10,000 or in other words, the maximum penalty we can place in our documents. When deciding where to insert line and page breaks, T<sub>E</sub>X chiefly looks to minimize penalties [4], and thus a maximum value essentially tells text to *not* break the line if at all possible. Then we have a space there since that is what we want T<sub>E</sub>X to typeset for us.

## References

- [1] Mittelbach, F. and M. Goosens, with J. Braams, D. Carlisle, C. Rowley. The  $\LaTeX$  Companion. Addison-Wesley, 2004.
- [2] <http://tex.loria.fr/general/new/fntguide.html>
- [3] TeX.StackExchange: “What is the difference between `\nobreak` and `\nolinebreak`?”
- [4] TeX.StackExchange: “What are penalties and which ones are defined?”