

spbmark – Customize superscripts and subscripts

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Abstract

spbmark provides three commands `\super`, `\sub` and `\supersub` to improve the layout of superscripts and subscripts which can be adjusted the relative position and format, and can be used in text and math mode.

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1 Macro package options

ctex

New: 2021-06-26

This option works with the CTeX document class used by simplified Chinese users, there's actually no functional change. Adding path `style` to `\ctexset` command, which is equivalent to using `\spbset`.

newsupb

New: 2021-06-30

`newsupb` is a boolean option with a default value of true that redefines the L^AT_EX kernel commands to cause `\sp` and `\textsuperscript` are equivalent to `\super` command, and `\sb` and `\textsubscript` are equivalent to `\sub` command.

*<https://github.com/tex13/spbmark>

2 User commands

<code>\super</code>	<code>\super*[\vshift][\height,\depth](\code){\content}[\hshift]</code>
<code>\sub</code>	<code>\sub*[\vshift][\height,\depth](\code){\content}[\hshift]</code>
<code>\supersub</code>	<code>\supersub*[\script sep][\script align](\super format code)</code> <code>\{\super content\}\{\sub content\}</code> <code>[\horizontal shift](\sub format code)</code>

New: 2021-06-26
Updated: 2021-06-28

`\super` command is used to output superscripts, `\sub` command is used to output subscripts, `\supersub` command is used to output both superscripts and subscripts.

They match the corresponding pattern depending on whether they are currently in text mode or mathematical mode, or they can use an asterisk variant to force the mathematical pattern. The `\vshift` and `\hshift` represent respectively vertical and horizontal offsets of superscript or subscript, their default value is `0pt`, and the parameters of `\script align` are the same as the `\supersubalign`.

The second optional parameter generally does not need to be used. The `\height` and `\depth` are separated by commas. Only the front part indicates the height of the superscript or subscript, and only the back part indicates the depth.

The `\code` is used to format superscripts and subscripts, and can insert commands such as fonts or colors. The last command in the code can take an argument, which is either a superscript or a subscript.

<code>\sp</code>
<code>\sb</code>
<code>\spb</code>
<code>\textsuperscript</code>
<code>\textsubscript</code>

New: 2021-06-30

Except for the `\spb` command which is equivalent to `\supersub`, the others are L^AT_EX kernel commands. If you use the `newsupb` package option then they will be redefined to make the command shorter, see section 1.

If you need to use the original definitions of `\textsuperscript` and `\textsubscript`, then `\spb@textsuperscript@save` and `\spb@textsubscript@save` will be available. If you need to use the original definitions of `\sp` and `\sb`, then `\spb@sp@save` and `\spb@sb@save` will be available.

3 Global control interface

<code>\spbset</code>	<code>\spbset{\key-value list}</code>
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New: 2021-06-26
Updated: 2021-07-23

`spbmark` uses the `\spbset` command to control the global default format of superscripts and subscripts. The values set by it will be overwritten by the optional parameters of the superscript and other commands.

<code>super-vshift</code>	<code>super-vshift = \fixed length</code>
<code>super-hshift</code>	<code>super-hshift = \fixed length</code>
<code>sub-vshift</code>	<code>sub-vshift = \fixed length</code>
<code>sub-hshift</code>	<code>sub-hshift = \fixed length</code>
<code>super-format</code>	<code>super-format = \format code</code>
<code>sub-format</code>	<code>sub-format = \format code</code>

These list of keys control the format of superscript or subscript. They are equivalent to the optional parameters of the `\super` or `\sub` commands.

<code>super-vshift</code>	Extra vertical shift of the superscripts.
<code>super-hshift</code>	Extra horizontal shift of the superscripts.

<code>sub-vshift</code>	Extra vertical shift of the subscripts.
<code>sub-hshift</code>	Extra horizontal shift of the subscripts.
<code>super-format</code>	Control the format of superscripts, the last command in the code can take an argument, which is a superscript.
<code>sub-format</code>	Control the format of subscripts, the last command in the code can take an argument, which is a subscript.
<hr/>	
<code>supersub-hshift</code>	<code>supersub-hshift = <fixed length></code>
<code>supersub-format</code>	<code>supersub-format = {\<super code>,<sub code>}</code>
<code>supersubsep</code>	<code>supersubsep = <fixed length></code>
<code>supersubalign</code>	<code>supersubalign = <horizontal alignment></code>
<hr/>	
	These list of keys control the format of superscripts and subscripts. They are equivalent to the optional parameters of the <code>\supersub</code> command.
<code>supersub-hshift</code>	Extra vertical shift of the superscripts and the subscripts.
<code>supersub-format</code>	Control the format of superscripts or subscripts. The first part is in superscript format, and the latter part is in subscript format. The two are separated by commas, or only the first part exists.
<code>supersubsep</code>	The distance between superscripts and subscripts, its default value is <code>0.3ex</code> .
<code>supersubalign</code>	The alignment of superscripts and subscripts, which contains <code>l</code> , <code>c</code> , and <code>r</code> parameters respectively for left, center, and right alignment.

4 Examples of use

Here is a list of the three commands, please pay attention to the delimiter and usage of optional parameters:

```
\spbset{supersub-format = {\ttfamily,\color{blue}}}\
A\super[0.2ex]{\textcolor{red}{exam}}[0.2em]B
$A\sub{\mathsf}{exam}B$
A\supersub[0.3ex][c]{examsuper}{sub}B
A examB
AexamB
AexamsubB
```

It can also be used with the `siunitx` package to output superscripts and subscripts in the unit:

```
\unit[mode = math]{kg.m/s\super*[-1pt]{2}}
\qty[mode = text]{30}{A\supersub{\color{red}}{b}{c}[1pt]}
\spbset{sub-hshift = 2pt}\unit[mode = text]{A_b}
kg m/s2
30 Acb
Ab
```

`spbmark` also patches the footer markers for standard document class and KOMA-Script. You can format the footer markers by redefining the `\fnmarkfont` command. Note that extra horizontal shift does not work with footnote markers.

5 Known issues

At present, the vertical and horizontal offsets are effective for the unit commands in the `siunitx` macro package. However, due to the special mechanism that the decimal point is not recognized correctly because it is converted to a space in the `\unit` command, it is recommended to use `pt` as the unit of offset.

References

- [1] WILL ROBERTSON. *The realscripts package* [CP/OL]. version 0.3d, (2016-02-13)
<https://ctan.org/pkg/realscripts>

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The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.

C		
<code>ctex</code>	<i>1</i>	<code>super-format</code> <i>2</i>
N		<code>super-hshift (option)</code> <i>2</i>
<code>newsupb</code>	<i>1</i>	<code>super-hshift</code> <i>2</i>
O		<code>super-vshift (option)</code> <i>2</i>
options:		<code>super-vshift</code> <i>2</i>
<code>sub-format</code>	<i>2</i>	<code>\supersub</code> <i>1</i>
<code>sub-hshift</code>	<i>2</i>	<code>supersub-format (option)</code> <i>3</i>
<code>sub-vshift</code>	<i>2</i>	<code>supersub-format</code> <i>2</i>
<code>super-format</code>	<i>2</i>	<code>supersub-hshift (option)</code> <i>3</i>
<code>super-hshift</code>	<i>2</i>	<code>supersub-hshift</code> <i>2</i>
<code>super-vshift</code>	<i>2</i>	<code>supersubalign (option)</code> <i>3</i>
<code>supersub-format</code>	<i>3</i>	<code>supersubalign</code> <i>2</i>
<code>supersub-hshift</code>	<i>3</i>	<code>supersubsep (option)</code> <i>3</i>
<code>supersubalign</code>	<i>3</i>	<code>supersubsep</code> <i>2</i>
<code>supersubsep</code>	<i>3</i>	
S		T
<code>\sb</code>	<i>2</i>	TeX and L ^A T _E X 2 _ε commands:
<code>\sp</code>	<i>2</i>	<code>\ctexset</code> <i>1</i>
<code>\spb</code>	<i>2</i>	<code>\fnmarkfont</code> <i>3</i>
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<code>\sub</code>	<i>1</i>	<code>\sp</code> <i>1, 2</i>
<code>sub-format (option)</code>	<i>2</i>	<code>\spb</code> <i>2</i>
<code>sub-format</code>	<i>2</i>	<code>\spb@sb@save</code> <i>2</i>
<code>sub-hshift (option)</code>	<i>2</i>	<code>\spb@sp@save</code> <i>2</i>
<code>sub-hshift</code>	<i>2</i>	<code>\spb@textsubscript@save</code> <i>2</i>
<code>sub-vshift (option)</code>	<i>2</i>	<code>\spb@textsuperscript@save</code> <i>2</i>
<code>sub-vshift</code>	<i>2</i>	<code>\spbset</code> <i>1, 2</i>
<code>\super</code>	<i>1</i>	<code>\sub</code> <i>1, 2</i>
<code>super-format (option)</code>	<i>2</i>	<code>\sub*</code> <i>1</i>
		<code>\super</code> <i>1, 2</i>
		<code>\super*</code> <i>1</i>
		<code>\supersub</code> <i>1, 2</i>

<code>\supersub*</code>	<i>1</i>	<code>\unit</code>	<i>3</i>
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<code>\textsuperscript</code>	<i>1, 2</i>	<code>\textsuperscript</code>	<i>2</i>