

The `luamathaccents` package

Unicode combining accents in math input, v1.0

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1 Introduction

Modern editors and input methods make it easy to type accented mathematical symbols directly, using Unicode *combining characters*. For instance, typing `x\hat` followed by `Tab` in VS Code (with the Julia or Unicode Latex extension) shows an `x` with a hat on top. However, $\text{\LaTeX}$ does not interpret this combination correctly.

What this package does is to make $\text{\LaTeX}$ interpret an accented character in the source correctly. This package requires $\text{\LuaTeX}$.

2 Usage

Load the package in the preamble of a document compiled with `lua $\text{\LaTeX}$` :

```
\usepackage{luamathaccents}
```

The rewriting is active from that point on. Two commands control it:

`\LuaMathAccentsOff` stop rewriting input lines (takes effect from the next input line);

`\LuaMathAccentsOn` resume rewriting.

Most of the generated commands are the classic math accents (`\hat`, `\tilde`, `\vec`, ...). A number of the rarer ones (`\ovhook`, `\candra`, `\annuity`, ...) are provided by the `unicode-math` package, which you should load if you use those characters. Since you are already compiling with $\text{\LuaTeX}$, loading `unicode-math` is recommended anyway.

3 Example

The input

`$\hat{x} + \tilde{y} = \bar{z}$` , force `$\vec{F} = m \vec{a}$` , and average `$\bar{v}$` .

is typeset as

$$\hat{x} + \tilde{y} = \bar{z}, \text{ force } \vec{F} = m\vec{a}, \text{ and average } \bar{v}.$$

4 Supported combining characters

Code	Unicode name (COMBINING ...)	Command	Result
U+0300	grave accent	<code>\grave</code>	$\grave{x}$
U+0301	acute accent	<code>\acute</code>	$\acute{x}$
U+0302	circumflex accent	<code>\hat</code>	$\hat{x}$
U+0303	tilde	<code>\tilde</code>	$\tilde{x}$
U+0304	macron	<code>\bar</code>	$\bar{x}$
U+0305	overline	<code>\bar</code>	$\bar{x}$
U+0306	breve	<code>\breve</code>	$\breve{x}$
U+0307	dot above	<code>\dot</code>	$\dot{x}$
U+0308	diaeresis	<code>\ddot</code>	$\ddot{x}$
U+0309	hook above	<code>\ovhook*</code>	$\overset{\hookrightarrow}{x}$
U+030A	ring above	<code>\ocirc*</code>	$\overset{\circ}{x}$
U+030C	caron	<code>\check</code>	$\check{x}$
U+0310	candrabindu	<code>\candra*</code>	$\text{̣}x$
U+0312	turned comma above	<code>\oturnedcomma*</code>	$\text{̌}x$
U+0315	comma above right	<code>\ocommatopright*</code>	$\text{̍}x$
U+031A	left angle above	<code>\droang*</code>	$\text{̎}x$
U+0331	macron below	<code>\underline</code>	$\underline{x}$
U+20D0	left harpoon above	<code>\leftharpoonaccent*</code>	$\overleftarrow{x}$
U+20D1	right harpoon above	<code>\rightharpoonaccent*</code>	$\overrightarrow{x}$
U+20D6	left arrow above	<code>\overleftarrow</code>	$\overleftarrow{x}$
U+20D7	right arrow above	<code>\vec</code>	$\vec{x}$
U+20DB	three dots above	<code>\dddots*</code>	$\overset{\cdots}{x}$
U+20E1	left right arrow above	<code>\overleftrightarrow*</code>	$\overleftrightarrow{x}$
U+20E7	annuity symbol	<code>\annuity*</code>	$\overline{x}$
U+20E9	wide bridge above	<code>\widebridgeabove*</code>	$\overbracket{x}$
U+20F0	asterisk above	<code>\asteraccent*</code>	$\overset{*}{x}$

Commands marked * are provided by `unicode-math` (or, for `\dddots`, also by `amsmath`).

5 Caveats

- The rewriting operates on *every* input line, in text mode as well as math mode, and also inside `verbatim` material, since it happens before TeX tokenizes the line. Use `\LuaMathAccentsOff` around text where combining characters must be left alone.
- Only *combining* sequences (Unicode normalization form NFD) are recognized. Precomposed characters such as U+0227 (LATIN SMALL LETTER A WITH DOT ABOVE) are a single codepoint and pass through unchanged.
- A combining character with no preceding base character on the same line is passed through unchanged.

- Only one accent per base character is converted; in a sequence of several combining characters, the ones after the first are passed through unchanged (whether they produce any output then depends on the font).

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