The luamathaccents package

Unicode combining accents in math input, v1.1

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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, LaTeX does not interpret this combination correctly.

What this package does is to make LaTeX interpret an accented character in the source correctly. This package requires LuaLaTeX.

2 Usage

Load the package in the preamble of a document compiled with `lualatex`:

```
\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 LuaTeX, loading unicode-math is recommended anyway.

3 Example

The input

```
$x̂ + ỹ = z̄$, force $F⃗ = m a⃗$, and average $v̄$.
```

is typeset as

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

4 Supported combining characters

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

Commands marked * are provided by unicode-math (or, for \dddot, 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.

- Several combining characters on one base character are stacked, the first one nearest the base: `x` followed by `U+0302` and `U+0303` becomes `\tilde{\hat x}`.

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