

SugarTeX

SugarTeX is a more readable LaTeX language extension and a transcompiler to LaTeX.

See [PDF version of this documentation](#) - it nicely renders all Unicode characters and LaTeX example at the end. See original markdown version [here](#).

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Command line interfaces

1. `sugartex`:

- `sugartex` reads from stdin and writes to stdout,
- `sugartex T0` - run Pandoc filter that iterates over math blocks,
- `sugartex --kiwi` - same as above but with kiwi flavor,

2. `pre-sugartex`:

- `pre-sugartex` reads from stdin and writes to stdout,
- `pre-sugartex` - replace ``` with `$` only,
- `pre-sugartex --all` - replace everything with regexp,
- `pre-sugartex --kiwi` - same as above but with kiwi flavor.

[Panflute](#) scripts are also installed so you can use it in default Panflute [automation interface in metadata](#) or in it's CLI wrapper from [pandoctools](#):

- `panfl sugartex_panfl --to markdown`,
- `panfl sugartex_kiwi -t markdown`.

Examples. Windows:

```
chcp 65001 > NUL
set PYTHONIOENCODING=utf-8
```

```
type doc.md | ^
pre-sugartex | ^
pandoc -f markdown --filter sugartex -o doc.md.md
```

Unix:

```
export PYTHONIOENCODING=utf-8

cat doc.md | \
pre-sugartex | \
pandoc -f markdown --filter sugartex -o doc.md.md
```

Or splitting Pandoc reader-writer:

```
chcp 65001 > NUL
set PYTHONIOENCODING=utf-8

type doc.md | ^
pre-sugartex | ^
pandoc -f markdown -t json | ^
sugartex --kiwi | ^
pandoc -f json -o doc.md.md
```

Tweaking SugarTeX

SugarTeX is written in python and has a tweakable architecture. As you can see in [this filter](#) tweaks can be made in between:

```
sugartex = SugarTeX(delay=True)
...
sugartex.ready()
```

Attributes of instance of `SugarTeX` class can be changed. See them in defining of `SugarTeX` class and in it's `__init__` method [here](#). List of attributes:

- `.brackets`
- `.brackets_types`
- `.simple_pre`
- `.superscripts`
- `.subscripts`
- `.regex_pre`
- `.null_ops` (class `NullOps`)
- `.pref_un_ops` (class `PrefUnOps`), including:
 - `.styles` (class `Styles`)
 - `.other_styles` (class `OtherStyles`)
 - `.pref_un_greedy` (class `PrefUnGreedy`)
- `.postf_un_ops` (class `PostfUnOps`)
- `.bin_centr_ops` (class `BinCentrOps`), including:
 - `.matrices` (class `Matrices`)
 - `.bin_centr_greedy` (class `BinCentrGreedy`)
- `.loop_regexps`
- `.regex_post`
- `.simple_post`
- `.escapes`

SugarTeX replacements and operators

Many replacements use `amsmath` macros.

Math delimiters

In default use-case SugarTeX first preprocesses text replacing ``` with `$` (modifier letter low grave accent U+02CE). Can be escaped: `\``.

SugarTeX Completions for Atom:

- ``` \leftarrow `\``.

Brackets

Independently replace brackets:

- `.(` \rightarrow `\left({` and `.)` \rightarrow `}\right)` (modifier letter low ring U+02F3),
- `..(` \rightarrow `\bigl(` and `)..` \rightarrow `\bigr)`,
- `..(` \rightarrow `\Bigl(` and `)..` \rightarrow `\Bigr)`,
- `..(` \rightarrow `\biggl(` and `)..` \rightarrow `\biggr)`,
- `..(` \rightarrow `\Biggl(` and `)..` \rightarrow `\Biggr)` (modifier letter low vertical line U+02CC).

Instead of `(` and `)` can be other brackets:

- `[` \rightarrow `[` and `]` \rightarrow `]`,
- `(` \rightarrow `(` and `)` \rightarrow `)`,
- `{` \rightarrow `\{` and `}` \rightarrow `\}`,
- `|` \rightarrow `\vert` (box drawings light vertical U+2502, for math in markdown tables),
- `|` \rightarrow `\vert`,
- `||` \rightarrow `\Vert` (double vertical line U+2016),
- `◀` \rightarrow `.` and `▶` \rightarrow `.` (modifier letter low left/right arrowhead U+02F1/U+02F2),
- `⟨` \rightarrow `\langle` and `⟩` \rightarrow `\rangle` (mathematical left/right angle bracket U+27E8/27E9),
- `⌊` \rightarrow `\lfloor` and `⌋` \rightarrow `\rfloor` (left/right floor U+230A/U+230B),
- `⌈` \rightarrow `\lceil` and `⌉` \rightarrow `\rceil` (left/right ceiling U+2308/U+2309).

SugarTeX Completions for Atom:

Use these shortcuts for fast Unicode typing in Atom:

- $\&$ \leftarrow `\&`,
- o \leftarrow `_o\small`,
- ' \leftarrow `_'\small`.
- $|$ \leftarrow `\|`,
- $||$ \leftarrow `\||`,
- $<$ \leftarrow `_<`,
- $>$ \leftarrow `_>`,
- $<>$ \leftarrow `_<>`,
- \langle \leftarrow `\<\big`,
- \rangle \leftarrow `\>\big`,
- $\langle\rangle$ \leftarrow `\<>\big`,
- \lfloor \leftarrow `\lfloor`,
- \rfloor \leftarrow `\rfloor`,
- \lceil \leftarrow `\lceil`,
- \rceil \leftarrow `\rceil`.

Simple pre-replacements

- $\sqrt[3]{}$ \rightarrow $3\sqrt{}$ (cube root U+221B),
- $\sqrt[4]{}$ \rightarrow $4\sqrt{}$ (fourth root U+221C),
- \rightarrow $\,$ (thin space U+2009).

SugarTeX Completions for Atom:

- $\,$ \leftarrow `\,` (thin space),
- $\]$ \leftarrow `\], [` (thin space),
- $\sqrt{}$ \leftarrow `\^1/2`,
- $\sqrt[3]{}$ \leftarrow `\^1/3`,
- $\sqrt[4]{}$ \leftarrow `\^1/4`.

Superscripts and Subscripts

Groups of superscript Unicode characters like `¹²³` are replaced with `^{\123}`. Unless they are escaped with `\` or followed by `√`:

- `\¹²³√` → `¹²³√` (square root U+221A),
- `\¹²³` → `¹^{\23}`,
- `¹²³ a b c` → `^{\123abc}`.

Same is for groups of subscript Unicode characters:

- `\₁₂₃` → `₁_{23}`.
- `₁₂₃ k l m` → `_{123klm}`.

List of supported characters can be found in the beginning of the SugarTeX [source code](#).

UPDATE

Now `<>` and `{}^` from [Styles with special brackets](#) end up inside `_{}/^{}^`, like: `A<_ae>` → `A_{<ae>}`. Does not work if there are non-subscript/superscript characters inside `<>/{}^`, like: `A<^ae>` → `A<^{\a}e>`.

SugarTeX Completions for Atom:

- `₁` ← `_1`,
- `ₐ` ← `_a`,
- `¹` ← `\^1`,
- `ᵃ` ← `\^a`.

Regular expressions pre-replacements

Nothing. But can be tweaked.

Nullary operators

Big operators replacements:

- $\Sigma \rightarrow \backslash\text{sum}$ (n-ary summation U+2211),
- $\Sigma: \rightarrow \backslash\text{sum}\backslash\text{nolimits}$,
- $\Sigma: \rightarrow \backslash\text{sum}\backslash\text{limits}$ (braille pattern dots-48 U+2888).

Supported symbols for limits:

- $:,: \rightarrow \backslash\text{limits}$ (braille pattern dots-48/dots-17 U+2888/U+2841),
- $:,:,: \rightarrow \backslash\text{nolimits}$ (braille pattern dots-23/dots-56 U+2806/U+2830).

Supported big operators:

- $\Sigma \rightarrow \backslash\text{sum}$,
- $\Pi \rightarrow \backslash\text{prod}$,
- $\int \rightarrow \backslash\text{int}$,
- $\iint \rightarrow \backslash\text{iint}$,
- $\iiint \rightarrow \backslash\text{iiint}$,
- $\iiint \rightarrow \backslash\text{iiiint}$,
- $\oint \rightarrow \backslash\text{oint}$.

Who knows what I was thinking about by adding them here instead of
Regular expressions replacements...

SugarTeX Completions for Atom:

- $\cdot \leftarrow \backslash:\backslash\text{big}$,
- $\cdot \leftarrow \backslash:\backslash\text{small}$,
- $\Sigma \leftarrow \backslash\text{sum}$,
- $\Pi \leftarrow \backslash\text{prod}$,
- $\int \leftarrow \backslash\text{int}$,
- $\iint \leftarrow \backslash\text{iint}$,
- $\iiint \leftarrow \backslash\text{iiint}$,
- $\iiint \leftarrow \backslash\text{iiiint}$,

- $\oint \leftarrow \backslash\mathrm{oint}.$

Prefix unary operators

Styles

Text inside standard brackets $((, [, \{)$ with special prefix is replaced with style operator. For example:

$[\mathrm{r}\text{text}]$ or $[\mathrm{^{\{r}\}text}] \rightarrow \mathrm{mathrm}\{\text{text}\}.$

First SugarTeX finds opening part like $[\mathrm{^{\{r}\}text}]$ then searches for the first non-escaped closing part $]$ that is not inside $\{ \}$ or $\langle \rangle$ – SugarTeX counts opening and closing $\{ \}$ ($\langle \rangle$ would later be replaced with $\{ \}$ so both are counted together). For example:

$(\mathrm{r}\text{some}\{\mathrm{te}\})(\mathrm{t}) \rightarrow \mathrm{mathrm}\{\text{some}\{\mathrm{te}\}(\mathrm{t})\}.$

List of available styles:

- $\{\mathrm{r}\text{text}\} / \{\mathrm{^{\{r}\}text}\} \rightarrow \mathrm{mathrm}\{\text{text}\}$ (**math regular**),
- $\{\mathrm{i}x\} / \{\mathrm{^{\{i}\}x}\} \rightarrow \mathrm{mathit}\{x\}$ (**math italic**),
- $\{\mathrm{b}x\} / \{\mathrm{^{\{b}\}x}\} \rightarrow \mathrm{mathbf}\{x\}$ (**math bold**),
- $\{\mathrm{\beta}x\} / \{\mathrm{^{\{\beta\}x}\} \rightarrow \mathrm{boldsymbol}\{x\}$ (**math bold italic**),
- $\{\mathrm{m}\text{text}\} / \{\mathrm{^{\{m}\}text}\} \rightarrow \mathrm{mathtt}\{\text{text}\}$ (**math monospace**),
- $\{\mathrm{c}A\} / \{\mathrm{^{\{c\}A}\} \rightarrow \mathrm{mathcal}\{A\}$ (**math calligraphic**,
no cyrillic support, see Monotype Corsiva),
- $\{\mathrm{t}\text{text}\} / \{\mathrm{^{\{t}\}text}\} \rightarrow \mathrm{text}\{\text{text}\}$ (**text**),
- $\{\mathrm{ti}\text{text}\} / \{\mathrm{^{\{ti\}text}\} \rightarrow \mathrm{textit}\{\text{text}\}$ (**text italic**),
- $\{\mathrm{tb}\text{text}\} / \{\mathrm{^{\{tb\}text}\} \rightarrow \mathrm{textbf}\{\text{text}\}$ (**text bold**),
- $\{\mathrm{t\beta}\text{text}\} / \{\mathrm{^{\{t\beta\}text}\} \rightarrow \mathrm{textit}\{\mathrm{textbf}\{\text{text}\}\}$ (**text bold italic**),
- $\{\vec{x}\} / \{\vec{x}\} \rightarrow \mathrm{mathbf}\{x\}$ (**vector bold notation**,
combining right arrow above U+20D7, first one is ‘space’ + $\vec{}$),
- $\{\mathrm{:}x\} / \{\mathrm{:}x\} \rightarrow \mathrm{mathbf}\{x\}$ (**vector bold notation**,
braille pattern dots-45/dots-12 U+2818/U+2803 [right upper 2/left upper

2]),

- $\{\ddot{A}\} / \{\ddot{A}\} \rightarrow \mathbf{A}$ (**matrix bold notation**,
braille pattern dots-124/dots-1245 U+280B/U+281B).

SugarTeX Completions for Atom:

- $\overleftarrow{}$ $\leftarrow \backslash^{\leftarrow}$,
- $\overrightarrow{}$ $\leftarrow \backslash^{\rightarrow}$,
- $\overleftrightarrow{}$ $\leftarrow \backslash^{\leftrightarrow}$,
- $\overdot{}$ $\leftarrow \backslash^{\dot{}}\backslash\text{rot}$.

Styles with special brackets

- $\langle^{\beta}\text{text}\rangle / \langle^{\beta}\text{text}\rangle \rightarrow \textit{\textbf{text}}$ (**text bold italic**),
- $\langle^i\text{text}\rangle / \langle^i\text{text}\rangle \rightarrow \textit{\text{text}}$ (**text italic**),
- $\langle^b\text{text}\rangle / \langle^b\text{text}\rangle \rightarrow \textbf{\text{text}}$ (**text bold**),
- $\langle\text{text}\rangle \rightarrow \text{\text{text}}$ (**text regular**,
single left/right-pointing angle quotation mark U+2039/U+203A),
- $\mathrm{\text{text}}$ $\rightarrow \mathrm{\text{text}}$ (**math regular**,
modifier letter begin/end high tone U+02F9/U+02FA).

SugarTeX Completions for Atom:

- $\langle \leftarrow \backslash<$,
- $\rangle \leftarrow \backslash>$,
- $\langle \rangle \leftarrow \backslash<>$,
- $\mathrm{\text{r}} \leftarrow \backslash^{\mathrm{\text{r}}}\backslash\text{small}$.

Greedy prefix unary operators

- $\{\in \text{smth}\} / \leq \text{smth} \rightarrow \begin{cases} \text{smth} \end{cases}$ (**piecewise**,
element of with long horizontal stroke U+22F2).

```

. |x|. = {€ x. < if> x≥0 |
        -x. < if> x<0 }
..

```

SugarTeX finds non-escaped {€ or {€ first then searches for non-escaped } or } that is not inside {} or {€ – SugarTeX counts opening and closing {}< (€ would later be replaced with {} so both are counted together).

SugarTeX Completions for Atom:

- € ← \-e,
- € ← \-E.

Standard prefix unary operators

- <matrix a → \begin{matrix} a
(left-pointing curved angle bracket U+29FC),
- ☹ A² a → \vphantom{A^2} a
(invisible characters that adjust height, ghost U+1F47B),
- →[⌈] text a → \xrightarrow{text} a
(arrow with text above that adjusts to the text length, rightwards arrow U+2192, top square bracket U+23B4),
- ←[⌈] long text, a → \xleftarrow{{long text}} a
(leftwards arrow U+2190).

SugarTeX finds non-escaped < * first (for example) then searches for a place before non-escaped }, , space, newline or end of the string that is not inside {} or {€ – SugarTeX counts opening and closing {}< (€ would later be replaced with {} so both are counted together).

SugarTeX Completions for Atom:

- < ← \<\big2,
- > ← \>\big2,
- <> ← \<>\big2,
- ☹ ← \ghost,

- $\hat{} \leftarrow \backslash^{\wedge} \backslash \text{rot},$
- $\rightarrow \leftarrow \backslash ->,$
- $\leftarrow \leftarrow \backslash <-.$

Postfix unary operators

- $a \ x^{\rightarrow} \rightarrow a \ \backslash \text{vec}\{x \}$ (**vector**, combining right arrow above U+20D7),
- $a \ x^{\overrightarrow{}} \rightarrow a \ \backslash \text{overrightarrow}\{x \}$ (**arrow above**, combining right harpoon above U+20D1),
- $a \ x^{\widehat{}} \rightarrow a \ \backslash \text{widehat}\{x\}$ **warning:** works only if the next character after $\widehat{}$ is $\}$, $\,$, newline or end of the string,
- $a \ x^{\hat{}} \rightarrow a \ \backslash \text{hat}\{x\}$ (modifier letter circumflex accent U+02C6),
- $a \ x^{\bar{}} \rightarrow a \ \backslash \text{bar}\{x\}$ (macron U+00AF),
- $a \ x^{\overline{}} \rightarrow a \ \backslash \text{overline}\{x\}$ (overline U+203E),
- $a \ x^{\dot{}} \rightarrow a \ \backslash \text{dot}\{x\}$ (dot above U+02D9),
- $a \ x^{\ddot{}} \rightarrow a \ \backslash \text{ddot}\{x\}$ (diaeresis U+00A8),
- $x + y + z^{\overbrace{}} \rightarrow x + \backslash \text{overbrace}\{y+z\}$
(top curly bracket U+23DE),
- $x + \{y + z\}^{\underbrace{}} \rightarrow x + \backslash \text{underbrace}\{\{y + z\}\}$
(bottom curly bracket U+23DF),
- $a \ x_{} \rightarrow a \ \backslash \text{underline}\{x\}$
warning: works only if the next character after $_{}$ is $\}$, $\,$, newline or end of the string (modifier letter low macron U+02CD),
- $a \ \text{matrix}\rangle \rightarrow a \ \backslash \text{end}\{\text{matrix}\}$
(right-pointing curved angle bracket U+29FD),

SugarTeX finds non-escaped \rangle first (for example) then before it searches for a place after non-escaped $\{$, $\,$, space, newline or start of the string that is not inside $\{\}$ or $\langle \rangle$ – SugarTeX counts opening and closing $\{\}$, $\langle \rangle$ ($\langle \rangle$ would later be replaced with $\{\}$ so both are counted together).

In combination with styles:

When combining **one-character** postfix unary operators with styles the order in which operators are applied changes:

`[bx→]` \rightarrow `\vec{\mathbf{x}}`

SugarTeX Completions for Atom:

- `→` \leftarrow `\^->`,
- `↗` \leftarrow `\^->\har`,
- `^` \leftarrow `\^\small`,
- `˘` \leftarrow `\^_\small` (macron),
- `˘˘` \leftarrow `\^-_\small` (macron),
- `¯` \leftarrow `\^_` (overline),
- `˙` \leftarrow `\^.`,
- `¨` \leftarrow `\^..`,
- `⸀` \leftarrow `\^}\rot`,
- `⸁` \leftarrow `_}\rot`,
- `⸂` \leftarrow `_`,
- `⸃` \leftarrow `\<\big2`,
- `⸄` \leftarrow `\>\big2`,
- `⸅` \leftarrow `\<>\big2`.

Center binary operators

Matrices

Family of `*matrix` amsmath macros is given by `|` operator (broken bar U+00A6, braille pattern dots-124 U+280B):

`[a .b | c .d]` \rightarrow

`\begin{bmatrix}a .b|c .d\end{bmatrix}` \rightarrow

`\begin{bmatrix}a &b\\c &d\end{bmatrix}`

All brackets:

- $\langle a \cdot b \mid c \cdot d \rangle \rightarrow \dots\text{matrix}\dots$ (**no brackets**,
modifier letter low left/right arrowhead U+02F1/U+02F2),
- $\{a \cdot b \mid c \cdot d\} \rightarrow \dots\text{Bmatrix}\dots$ (**curly brackets**),
- $\langle (a \cdot b \mid c \cdot d) \rangle / \{ (a \cdot b \mid c \cdot d) \} \rightarrow \dots\text{pmatrix}\dots$,
- $\langle [a \cdot b \mid c \cdot d] \rangle / \{ [a \cdot b \mid c \cdot d] \} \rightarrow \dots\text{bmatrix}\dots$,
- $\langle |a \cdot b \mid c \cdot d| \rangle / \{ |a \cdot b \mid c \cdot d| \} /$
 $\langle |a \cdot b \mid c \cdot d| \rangle / \{ |a \cdot b \mid c \cdot d| \} \rightarrow \dots\text{vmatrix}\dots$
(box drawings light vertical U+2502, for math in markdown tables),
- $\langle ||a \cdot b \mid c \cdot d|| \rangle / \{ ||a \cdot b \mid c \cdot d|| \} \rightarrow \dots\text{Vmatrix}\dots$
(double vertical line U+2016).

SugarTeX finds non-escaped binary operator separator \mid first then:

- searches for a place after non-escaped $\{$ or \langle that is not inside $\{\}$ or $\langle \rangle$,
- searches for a place before non-escaped $\}$ or \rangle that is not inside $\{\}$ or $\langle \rangle$,
- it also figures out bracket type properly,
- this way it finds two arguments (SugarTeX counts opening and closing $\{\}$, $\langle \rangle$ would later be replaced with $\{\}$ so both are counted together).

SugarTeX Completions for Atom:

- $\& \leftarrow \backslash\&$,
- $\small \leftarrow \backslash_o\small$,
- $| \leftarrow \backslash|$,
- $|| \leftarrow \backslash||$,
- $\langle \leftarrow \backslash_<$,
- $\rangle \leftarrow \backslash_>$,
- $\langle \rangle \leftarrow \backslash_<>$,
- $\| \leftarrow \backslash\|$,
- $|/2 \leftarrow \backslash|/2$,
- $\cdot \leftarrow \backslash^{\cdot}\cdot\rot$.

General fractions without bars

Fractions works almost the same as Matrices - they add brackets and stack arguments: first arg is atop of the second arg. But with some differences:

- they use `|:` or `|:` as a separator (broken bar U+00A6, braille pattern dots-45 U+2818 / dots-12 U+2803),
- cannot handle more than one line break (so two args only),
- they use `\genfrac` `amsmath` macro,
- they can have size modifiers after `|:`:
 - `d/^{\d}` - display mode,
 - `t/^{\t}` - text mode,
 - `s/^{\s}` - smaller,
 - `x s/^{\xs}` - extra small,
- left and right brackets can be different.

Examples:

- $\text{<}(x|:^t y)\text{>}$,
- $\text{<}[x|:y]\text{>}$,
- $\{x|:y\}$ (**curly brackets**),
- $\text{<}x|:y\text{>}$ (**no brackets**, modifier letter low left/right arrowhead U+02F1/U+02F2),
- $\text{<}|x|:y|\text{>}$, $\text{<}|x|:y|\text{>}$ (box drawings light vertical U+2502, for math in markdown tables),
- $\text{<}\|x|:^d y\|\text{>}$ (double vertical line U+2016).

Arguments search algorithm is the same as for matrices.

SugarTeX Completions for Atom:

- `|` \leftarrow `\|`,
- `||` \leftarrow `\| |`,
- `<` \leftarrow `_<`,
- `>` \leftarrow `_>`,
- `<>` \leftarrow `_<>`,
- `!` \leftarrow `\|`,

- $\lvert \leftarrow \backslash \lvert / 2,$
- $\dot{} \leftarrow \backslash ^\cdot \dot{}.$

Greedy center binary operators

Arguments search algorithm is the same as for matrices (except it now does not have brackets).

1. $\langle \text{smth1} \mid \dot{}^\text{t} \text{smth2} \rangle \rightarrow$
 $\backslash \text{begin}\{\text{smallmatrix}\}\text{smth1}\mid \text{smth2}\backslash \text{end}\{\text{smallmatrix}\},$
 (Braille Pattern Dots-1245 U+281B).

```
...(\langle a \rangle .b \mid \dot{\phantom{x}}^\text{t} c \rangle .d \rangle)...
```

2. $\langle \text{smth1} \mid \dot{} \text{smth2} \rangle \rightarrow$
 $\backslash \text{begin}\{\text{array}\}\text{smth1}\mid \text{smth2}\backslash \text{end}\{\text{array}\},$
 (Braille Pattern Dots-1245 U+281B).

```
..
.[\langle
  X_{11} \ .X_{12} \ .X_{13} \ .\dots \ .X_{1n} \ \mid \dot{\phantom{x}}
  X_{21} \ .X_{22} \ .X_{23} \ .\dots \ .X_{2n} \ \mid
  \vdots \ .\vdots \ .\vdots \ .\ddots \ .\vdots \ \mid
  X_{p1} \ .X_{p2} \ .X_{p3} \ .\dots \ .X_{pn} \ \rangle].
..
```

3. $\langle \text{smth1} \mid \# \text{smth2} \rangle \rightarrow$
 $\backslash \text{begin}\{\text{aligned}\}\text{smth1}\mid \text{smth2}\backslash \text{end}\{\text{aligned}\},$

```
..
.|x|. = .{\langle x. \langle if \rangle x \ge 0 \ \mid \#
          -x. \langle if \rangle x < 0 \ \rangle \rangle.
..
```


4. `\smth1 |_{\smth2} / \smth1 |_{\smth2} \rightarrow`

`\substack{\smth1|\smth2},`

(modifier letter shelf U+02FD / bottom square bracket U+23B5)

`.. \sum_{0 \leq i \leq N} |_{0 \leq j \leq M} (ij)^3 ..`

5. `\smth1 |_{\smth2}^1 / \smth1 |_{\smth2}^1 \rightarrow`

`\begin{subarray}{l}\smth1|\smth2\end{subarray},`

(modifier letter shelf U+02FD / bottom square bracket U+23B5)

`.. \sum_{0 \leq i \leq N} |_{\smth2}^1 0 \leq j \leq M} (ij)^3 ..`

Instead of `^l` (left) it can also be `^c` (center) or `^r` (right).

SugarTeX Completions for Atom:

- `:: \leftarrow \wedge ::,`
- `_{\leftarrow \backslash} \rightarrow \backslash \text{rot},`
- `_{\leftarrow \backslash} \rightarrow \backslash \text{rot}2,`
- `| \leftarrow \backslash \backslash,`
- `| \leftarrow \backslash | /2.`

Standard center binary operators

Fractions

- `x/y \rightarrow \frac{x}{y}` (division slash U+2215),
- `1+x/y \rightarrow \frac{1+x}{y},`
- `1 + {x + z}/y \rightarrow 1 + \frac{\{x + z\}}{y},`
- `x/^dy \rightarrow \dfrac{x}{y},`
- `x/^ty \rightarrow \tfrac{x}{y},`
- `x/^cy \rightarrow \cfrac{x}{y},`

- x/sy and $x/^{sy}$ are the same as $x/^ty$ but smaller and use `\genfrac` macros. Bar thickness can be set this way: `{0.5pt}x/sy`.

Roots, overset, underset

- $\sqrt{64} \rightarrow \sqrt{64}$ (square root U+221A),
- $\sqrt[6]{64} \rightarrow \sqrt[6]{64}$,
- $1 + \sqrt[6]{64} \rightarrow 1 + \sqrt[6]{64}$,
- $\lim_{x \rightarrow 0} / \lim_{x \rightarrow 0} \rightarrow \underset{x \rightarrow 0}{\lim}$ (modifier letter shelf U+02FD / bottom square bracket U+23B5),
- $\{x + \dots + x\}^{k \text{ times}} \rightarrow \overset{k \text{ times}}{\{x + \dots + x\}}$ (top square bracket U+23B4).

Binomial coefficients

- $(i|c_n) \rightarrow \binom{i}{n}$,
- $(i|c^d_n) \rightarrow \dbinom{i}{n}$ (display),
- $(i|c^t_n) \rightarrow \tbinom{i}{n}$ (text).

In this case SugarTeX finds non-escaped binary operator separator `|` first then searches for `(` and `)`. Other stop symbols do not work.

SugarTeX finds non-escaped binary operator separator (like `/`) first then:

- searches for a place after non-escaped `{`, `,`, space, newline or start of the string that is not inside `}` or `<>`,
- searches for a place before non-escaped `}`, `,`, space, newline or end of the string that is not inside `}` or `<>`,
- this way it finds two arguments (SugarTeX counts opening and closing `{}`, `<>` would later be replaced with `{}` so both are counted together).

SugarTeX Completions for Atom:

- `_` $\leftarrow \backslash_ \backslash rot$,
- `_` $\leftarrow \backslash_ \backslash rot2$,
- `^` $\leftarrow \backslash^ \backslash rot$,

- $\frac{}{} \leftarrow \backslash/$,
- $\sqrt{} \leftarrow \backslash^1/2$,
- $\mathbb{I} \leftarrow \backslash\backslash$,
- $\mathbb{I} \leftarrow \backslash|/2$.

Regular expressions loop replacements

Nothing. But can be tweaked.

Regular expressions post-replacements

Nothing. But can be tweaked.

Simple post-replacements

- $\mathbb{I} \rightarrow \backslash\backslash$ (broken bar U+00A6, this should be after other \mathbb{I} replacements),
- $\text{\textcircled{.}} \rightarrow \&$ (modifier letter low ring U+02F3, this should be after brackets and other $\text{\textcircled{.}}$ replacements),
- $\text{\textless} \rightarrow \{$ and $\text{\textgreater} \rightarrow \}$ (modifier letter low left/right arrowhead U+02F1/U+02F2),
- $\text{\textcircled{~}} \rightarrow \text{\textcircled{~}}$ (modifier letter low macron U+02CD),
- $\updownarrow^{\text{d}} \rightarrow \backslashdisplaystyle$ (up down arrow U+2195),
- $\updownarrow^{\text{t}} \rightarrow \backslashtextstyle$,
- $\updownarrow^{\text{s}} \rightarrow \backscriptstyle$,
- $\updownarrow^{\text{xs}} \rightarrow \backscriptscriptstyle$,
- Superscripts and Subscripts replacements give:
- $\updownarrow^{\text{d}} \rightarrow \backdisplaystyle$,

- $\updownarrow^t \rightarrow \backslash\text{textstyle},$
- $\updownarrow^s \rightarrow \backslash\text{scriptstyle},$
- $\updownarrow^{xs} \rightarrow \backslash\text{scriptscriptstyle}.$

SugarTeX Completions for Atom:

- $\| \leftarrow \backslash\|,$
- $\| \leftarrow \backslash\|/2,$
- $\cdot \leftarrow \backslash\& ,$
- $\cdot \leftarrow \backslash_o\small,$
- $_< \leftarrow \backslash_< ,$
- $_> \leftarrow \backslash_> ,$
- $_<> \leftarrow \backslash_<> ,$
- $_ \leftarrow \backslash_ ,$
- $\updownarrow \leftarrow \backslash<->\backslash\text{rot}.$

Escapable characters

All one-character replacements from:

- Prefix unary operators,
- Postfix unary operators,
- Center binary operators,
- Nullary operators,
- Simple pre-replacements,
- Simple post-replacements,

and €, ›, ˆ, †, ‡, .

(element of with long horizontal stroke U+22F2, single right-pointing angle quotation mark U+203A, modifier letter end high tone U+02FA, up down arrow U+2195, modifier letter low vertical line U+02CC)

are escapable with \backslash .

Examples

$$\begin{aligned} \nabla \times \vec{B} - \frac{1}{c} \frac{\partial \vec{E}}{\partial t} &= \frac{4\pi}{c} \vec{j} \\ \nabla \cdot \vec{E} &= 4\pi\rho \\ \nabla \times \vec{E} + \frac{1}{c} \frac{\partial \vec{B}}{\partial t} &= \vec{0} \\ \nabla \cdot \vec{B} &= 0 \end{aligned}$$

where $\vec{B}, \vec{E}, \vec{j}: \mathbb{R}^4 \rightarrow \mathbb{R}^3$ – vector functions of the form $(t, x, y, z) \mapsto \vec{f}(t, x, y, z)$, $\vec{f} = (f_x, f_y, f_z)$.

renders to:

$$\begin{aligned} \nabla \times \mathbf{B} - \frac{1}{c} \frac{\partial \mathbf{E}}{\partial t} &= \frac{4\pi}{c} \mathbf{j} \\ \nabla \cdot \mathbf{E} &= 4\pi\rho \\ \nabla \times \mathbf{E} + \frac{1}{c} \frac{\partial \mathbf{B}}{\partial t} &= \mathbf{0} \\ \nabla \cdot \mathbf{B} &= 0 \end{aligned}, \quad (1)$$

where $\mathbf{B}, \mathbf{E}, \mathbf{j}: \mathbb{R}^4 \rightarrow \mathbb{R}^3$ – vector functions of the form $(t, x, y, z) \mapsto \mathbf{f}(t, x, y, z)$, $\mathbf{f} = (f_x, f_y, f_z)$

(you can see it in the [PDF version of this documentation](#)).

TODO

- Add examples to every section,
- Add more examples here at the end.