The `freemath` Package, version 1.1

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Usage

The `freemath` package allows for the omission of backslashes from most math mode commands. Specifically, any maximal consecutive string of at least two (Latin) letters appearing in math mode will automatically be replaced with the control sequence having the same name, if it is defined.

The package is loaded by `\usepackage{freemath}` and provides the `\freemathon` and `\freemathoff` commands which respectively activate and deactivate this behaviour. It is **disabled** by default upon loading.

Regular commands initiated by a backslash may of course still be used when freemath is active, and can furthermore be freely mixed with backslash-free commands.

To prevent undesirable command formation simply insert spaces in-between letters to break the word apart (eg. to write the product of three variables e, x, and p you can write `e x p`, `ex p`, or `e xp`).

Example with freemath:

    lim_{n to infty} int_Omega n log left(1 + frac{f}{n} right) d mu.

Example without freemath:

    \lim_{n\to\infty} \int_\Omega n \log\left(1 + \frac{f}{n} \right) d\mu.

$$\lim_{n\to\infty} \int_\Omega n \log\left(1 + \frac{f}{n}\right) d\mu.$$

Known Limitations

- Braces are required whenever such a string of letters appears as an argument to another macro. For instance, one must write `frac{omega}{phi}` instead of `frac omega phi`, even though `\frac\omega\phi` is acceptable in ordinary LaTeX.

Exceptions to the rule above are superscripts, subscripts, and `\left \right`, where for instance `left lVert f_mu right rVert` renders as expected ($\|f_\mu\|$).

- When used in conjunction with the `unicode-math` package, some math mode commands like `\sqrt` and `\vec` require mandatory braces even for single-letter arguments.

Changes to LaTeX internals are summarised below:

- All letters are assigned a mathcode of `"8000` (`"1000000` in LuaLaTeX).

- The characters `^` and `_` have been made active (category code 13).

- The primitives `\left` and `\right` have been redefined.

- The primitive `\radical` has been redefined to have a macro-style argument in the second parameter.

- Commands which typeset their own name may result in infinite loops. One class of such commands is the math operators (eg. `\lim`, `\exp`) and the package includes a fix in this case by modifying `\operator@font`. The workaround in general is to patch these commands to insert `\freemathoff` locally.

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Repository

The upstream repository of this package may be found at

$$\text{https://github.com/plante3/freemath/tree/main}.$$