Package ‘latex2exp’

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Type Package
Title Use LaTeX Expressions in Plots
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Description Parses and converts LaTeX math formulas to R's plotmath expressions, used to enter mathematical formulas and symbols to be rendered as text, axis labels, etc. throughout R's plotting system.
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https://github.com/stefano-meschiari/latex2exp
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Author Stefano Meschiari [aut, cre]
Maintainer Stefano Meschiari <stefano.meschiari@gmail.com>
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R topics documented:

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Description

Deprecated; use **TeX** instead.

Usage

```r
latex2exp(string, output = c("expression", "character", "ast"))
```

Arguments

- `string`: A character vector containing LaTeX expressions. Note that any backslashes must be escaped (e.g. "\alpha").
- `output`: The returned object, one of "expression" (default, returns a plotmath expression ready for plotting), "character" (returns the expression as a string), and "ast" (returns the tree used to generate the expression).

Value

Returns an expression (see the `output` parameter).

latex2exp_examples  

**latex2exp Examples**

Description

Plots a number of example LaTeX string, as parsed by **TeX**.

Usage

```r
latex2exp_examples(cex = 1)
```

Arguments

- `cex`: Multiplier for font size
latex2exp_supported

Returns the list of supported LaTeX commands.

Description

If show is TRUE, also show a searchable table of symbols.

Usage

latex2exp_supported(show = FALSE, ...)

Arguments

show Show a searchable table of symbols
... Other parameters (not used)

Value

A data frame containing a table of supported LaTeX commands.

plot.expression

Previews a LaTeX equation

Description

Plots the result of a call to \TeX\ on the current graphical device. This is useful to preview the output before placing it on a plot.

Usage

## S3 method for class 'expression'
plot(x, ..., main = NULL)

Arguments

x A \texttt{plotmath} expression returned by \TeX.
... Parameters to be passed to the \texttt{text} function.
main Title of the plot

Examples

plot(TeX("Example equation: \(a \geq b\)))
print.latexexpression  \emph{Print an expression returned by \TeX()}

\section*{Description}

Prints out the plotmath expression generated by \TeX{} and the original TeX string.

\section*{Usage}

\begin{verbatim}
## S3 method for class 'latexexpression'
print(x, ...)
\end{verbatim}

\section*{Arguments}

\begin{itemize}
\item \textbf{x} \hspace{1cm} Object to print
\item \textbf{...} \hspace{1cm} Ignored
\end{itemize}

print.latextoken2 \emph{Prints out a parsed \LaTeX{} object, as returned by \TeX(..., output='ast'). This is primarily used for debugging.}

\section*{Description}

Prints out a parsed \LaTeX{} object, as returned by \TeX(..., output='ast'). This is primarily used for debugging.

\section*{Usage}

\begin{verbatim}
## S3 method for class 'latextoken2'
print(x, depth = 0, ...)
\end{verbatim}

\section*{Arguments}

\begin{itemize}
\item \textbf{x} \hspace{1cm} The object
\item \textbf{depth} \hspace{1cm} Increases padding when recursing down the parsed structure
\item \textbf{...} \hspace{1cm} (Ignored)
\end{itemize}
render_latex

| render_latex | Renders a LaTeX tree |

**Description**

Returns a string that is a valid plotmath expression, given a LaTeX tree returned by parse_latex.

**Usage**

```
render_latex(tokens, user_defined = list(), hack_parentheses = FALSE)
```

**Arguments**

- `tokens`: tree of tokens
- `user_defined`: any custom definitions of commands passed to TeX
- `hack_parentheses`: render parentheses using `group('(', phantom(), ')')` and `group(')', phantom(), '.')`. This is useful to return valid expressions when the LaTeX source contains mismatched parentheses, but makes the returned expression much less tidy.

**Value**

String that should be parseable as a valid plotmath expression

TeX

| TeX | Converts LaTeX to a plotmath expression. |

**Description**

TeX converts a string comprising LaTeX commands (such as a math equation) to a plotmath expression. Plotmath expressions can be used through R's graphic system to represent formatted text and equations.

**Usage**

```
TeX(
  input,
  bold = FALSE,
  italic = FALSE,
  user_defined = list(),
  output = c("expression", "character", "ast")
)
```
Arguments

- **input**: A character vector containing LaTeX strings. Note that any backslashes must be escaped (e.g. "$\alpha\$").
- **bold**: Whether to make the entire label bold
- **italic**: Whether to make the entire label italic
- **user_defined**: Described in the "Adding New Commands" section.
- **output**: The returned object, one of "expression" (default, returns a plotmath expression ready for plotting), "character" (returns the expression as a string), and "ast" (returns the tree used to generate the expression).

Value

Returns a plotmath expression by default. The output parameter can modify the type of the returned value.

If more than one string is specified in the input parameter, returns a list of expressions.

Adding new commands

New LaTeX commands can be defined by supplying the user_defined parameter. The user_defined parameter is a list that contains LaTeX commands as names, and template strings as values. A LaTeX command that matches one of the names is translated into the corresponding string and included in the final plotmath expression. The file symbols.R in the source code of this package contains one such table that can be used as a reference.

The template string can include one of the following special template parameters:

- $\arg1, \arg2, \ldots$ represent the first, second, ... brace argument. E.g. for $\frac{x}{y}$, $\arg1$ is $x$ and $\arg2$ is $y$.
- $opt$ is an optional argument in square brackets. E.g. for $\sqrt[2]{x}$, $opt$ is 2.
- $sub$ and $sup$ are arguments in the exponent (^) or subscript (_) following the current expression. E.g. for $\sum^x$, $sup$ is $x$.
- $\text{LEFT}$ and $\text{RIGHT}$ are substituted the previous and following LaTeX expression relative to the current token.

See the Examples section for an example of using the user_defined option.

Examples

```r
TeX("$\alpha$") # plots the greek alpha character
TeX("The ratio of 1 and 2 is $\frac{1}{2}$")

a <- 1:100
plot(a, a^2, xlab=TeX("$\alpha$"), ylab=TeX("$\alpha^2$"))

# create a \variance command that takes a single argument
TeX("$\variance(X) = 10$", user_defined=list("\variance"="sigma[\arg1]^2"))
```
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