Package 'mathjaxr'

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Title Using 'Mathjax' in Rd Files

Description Provides 'MathJax' and macros to enable its use within Rd files for rendering equations in the HTML help files.

License GPL-3

Encoding UTF-8

URL https://github.com/wviechtb/mathjaxr

BugReports https://github.com/wviechtb/mathjaxr/issues

Suggests js

R topics documented:

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mathjaxr-package	*Using MathJax in Rd Files*

Description

The **mathjaxr** package allows for easy inclusion of MathJax equations in Rd files. Package authors wanting to make use of the package and its functionality need to:

1. install the **mathjaxr** package,

2. add mathjaxr to Suggests or Imports in the 'DESCRIPTION' file of their package,

3. add mathjaxr to RdMacros in the 'DESCRIPTION' file of their package (or add RdMacros: mathjaxr if the 'DESCRIPTION' file does not yet contain a RdMacros entry)

1

One can then enable the use of MathJax by calling the \loadmathjax macro (that is provided by the **mathjaxr** package) within the \description{} section of an Rd file (or within the @description section if you use **roxygen2**).

An inline equation can then be added with the \mjeqn{latex}{ascii} macro, with the LaTeX commands for the equation given between the first set of curly brackets (which will be rendered in the HTML and PDF help pages) and the plain-text version of the equation given between the second set of curly brackets (which will be shown in the plain text help). With the \mjdeqn{latex}{ascii} macro, one can add 'displayed equations' (as in LaTeX's displaymath environment).

Single argument versions of these macros, \mjseqn{latexascii} and \mjsdeqn{latexascii}, are also available. For the relatively rare case that one must specify different LaTeX commands for the PDF and HTML pages, there are also triple argument versions of these macros, namely \mjteqn{pdflatex}{htmllatex}{ascii} and \mjtdeqn{pdflatex}{htmllatex}{ascii}.

Details

The Javascript code for MathJax is contained in this package. If a user viewing a help page has **mathjaxr** installed, it will be retrieved from there, otherwise it will be retrieved from the CDN site https://cdn.jsdelivr.net/npm/mathjax@3/es5/tex-chtml-full.js. To force use of the CDN site, the user can set the environment variable MATHJAXR_USECDN to any non-blank value (e.g., Sys.setenv(MATHJAXR_USECDN=TRUE)). The URL for a diferent CDN can be specified via the environment variable MATHJAXR_CDN.

Package authors who want to ensure that users can see the rendered equations in the HTML help pages also when offline should add **mathjaxr** to Imports. To avoid the note from 'R CMD check' that 'All declared Imports should be used', one can add import(mathjaxr) to 'NAMESPACE'.

Issues

Care must be taken when using the less-than and greater-than symbols in equations as these might get interpreted by the browser as HTML tags. See here for further details. Adding space around these symbols should solve this problem (e.g., instead of writing \mjseqn{i<j}, one should write \mjseqn{i < j}). Do not use the \lt and \gt macros provided by MathJax as these will cause problems when rendering the PDF help pages.

Curly braces/brackets in equations also cause problems. Using \lbrace and \rbrace (possibly in combination with \left and \right to make them sufficiently large) is a solution (e.g., \mjeqn{\left\lbrace ... \right\rbrace}{\{...\}} should render nicely in the PDF/HTML help pages and the plain-text version).

Using the percent symbol (i.e., %) inside of equations is also problematic. The percent symbol needs to be 'escaped' by using a backslash, but backslashes need to be escaped as well. For this to work, we need to use the correct number of backslashes, which works slightly differently for producing the PDF, HTML, and plain-text help pages. The equation \mjteqn{100\\\%}{100\\\\\\\%}{100\%} should be rendered correctly in all three help pages.

Finally, while MathJax supports a large number of LaTeX commands, only the math-mode commands are implemented. See here for a list of the supported commands.

Example

The probability density function of a normal distribution is given by

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma}e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2},$$

where μ denotes the mean of the distribution and σ its standard deviation.

Author(s)

Wolfgang Viechtbauer <wvb@wvbauer.com> https://www.wvbauer.com/

See Also

preview_rd

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preview_rd	*Preview rendered version of an Rd file*

Description

Function to preview the rendered version of an Rd file.

Usage

```
preview_rd(Rdfile, view = TRUE, type = "html", verbose = FALSE, dark = FALSE)
```

Arguments

Rdfile	character string with the name of the Rd file to preview (either with or without the .Rd or .rd extension).
view	logical indicating whether the rendered version of the help file should be displayed.
type	character string indicating which version should be rendered (either "html", "txt", or "pdf").
verbose	logical indicating whether diagnostic output will be shown.
dark	logical indicating whether the rendererd HTML page should use a dark mode.

Details

The function is useful when writing a help file that contains MathJax equations. Instead of having to reinstall the package under development to check if the equations are being rendered correctly, one can just set the current working directory to the root of the package (or its man directory) and then use preview_rd() to preview the HTML, plain-text, or PDF version of an Rd file on the fly.

For type="html", the HTML page will be opened in the browser with the browseURL function. When making further changes to the Rd file, reopening the page each time preview_rd() is called

is inconvenient as this will usually open up a new tab in the browser. Setting view=FALSE prevents this. Reloading the page in the open tab should then reflect the updates. In RStudio, the generated HTML version will be displayed in the 'Viewer' pane and the view argument is then irrelevant.

Setting dark=TRUE (in combination with type="html") renders the HTML page in dark mode. Unfortunately, this does not work in RStudio.

For type="txt" (or type="text"), the plain-text version of the help file will be shown (using the file.show function and directly on the console in RStudio).

For type="pdf", the PDF is generated using R CMD Rd2pdf and should open up in the default PDF viewer.

Note

Due to some limitations as to how MathJax can be loaded via the **mathjaxr** package, MathJax must be loaded via the CDN when using the preview_rd() function. Hence, rendering of equations in HTML will only work in the preview with an active internet connection.

Author(s)

Wolfgang Viechtbauer <wvb@wvbauer.com> https://www.wvbauer.com/

Examples

```
## Not run:
setwd("/path/to/root/of/package")
preview_rd("someRdfile")

## End(Not run)
```

Index