Package 'greekLetters'

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Type Package

Title Routines for Writing Greek Letters and Mathematical Symbols on
the 'RStudio' and 'RGui'

Version 1.0.4

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Description
An implementation of functions to display Greek letters on the 'RStudio' (include subscript and superscript indexes) and 'RGui' (without subscripts and only with superscript 1, 2 or 3; because 'RGui' doesn't support printing the corresponding Unicode characters as a string: all subscripts ranging from 0 to 9 and superscripts equal to 0, 4, 5, 6, 7, 8 or 9). The functions in this package do not work properly on the R console. Characters are used via Unicode and encoded as UTF-8 to ensure that they can be viewed on all operating systems. Other characters related to mathematics are included, such as the infinity symbol. All this accessible from very simple commands. This is a package that can be used for teaching purposes, the statistical notation for hypothesis testing can be written from this package and so it is possible to build a course from the 'swirlify' package. Another utility of this package is to create new summary functions that contain the functional form of the model adjusted with the Greek letters, thus making the transition from statistical theory to practice easier. In addition, it is a natural extension of the 'clisymbols' package.

License GPL (>= 2.0)

Depends R (>= 3.6)

Encoding UTF-8

Imports stringr, stats, assertthat

Suggests clisymbols, swirlify, swirl, testthat (>= 3.2.0)

RoxygenNote 7.3.2

NeedsCompilation no

Repository CRAN

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Contents

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greeks   *Function that returns strings with Greek letters*

Description

Function to obtain strings with Greek letters and mathematical symbols with or without subscripts and superscripts.

Usage

```
greeks(greekletter)
```

Arguments

greekletter   is a string that contains the Greek letter name.

Details

It is recommended that the font size of the R console be increased for better visualization of the symbols, as some of the symbols are quite small.

The subscripts and supersripts are restricted to numbers 0 to 9.

For users working with Rgui this function don't accept subscripts and just accept superscripts 1, 2 and 3. For more details run the commands:

symbols printed as a "rectangle" don't work in RGui, but these symbols work normally in RStudio.

To see names of symbols use `print_greeks`.

Value

Returns the desired Greek letter or mathematical symbol in string format.

Author(s)

Kévin Allan Sales Rodrigues.

Examples

```
# Linear regression
paste("y", " = X", greeks("beta"), " + ", greeks("epsilon"), sep ="")

# pi constant
paste(greeks("pi"), greeks("almostEqual"), "3.14")

# Expected value
paste("E[X] = ", greeks("integral"), "xf(x)dx", sep = "")

greeks("sigma^2")

greeks("Delta^5")

greeks("yourname^9")

# testing statistical hypothesis
paste(greeks("H_0"),":", greeks("mu"), " = 0")
paste("versus", greeks("H_1"), ":", greeks("notEqual"), " 0" )

# returns the Greek letters
paste("The Greek letters", greeks("alpha"), greeks("beta"), "...", greeks("omega"), ".", sep=", ")
```

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print.summary_greek   *Print Summary for Linear Model Fits With Greek Letters*

Description

print summary method with Greek letters for class "lm".

Usage

```
## S3 method for class 'summary_greek'
print(
  x,
  digits = max(3L, getOption("digits") - 3L),
  symbolic.cor = x$symbolic.cor,
  signif.stars = getOption("show.signif.stars"),
  concise = FALSE,
  ...
)
```

Arguments

x	an object used to select a method.
digits	minimal number of *significant* digits, see `print.default`.

symbolic.cor	logical. If TRUE, print the correlations in a symbolic form (see symnum) rather than as numbers.
signif.stars	logical. If TRUE, 'significance stars' are printed for each coefficient.
concise	logical.
...	Arguments passed on to base::print, stats::summary.lm

       object an object of class "lm", usually, a result of a call to lm.

       correlation logical; if TRUE, the correlation matrix of the estimated parameters is returned and printed.

Details

It is recommended that the font size of the R console be increased for better visualization of the symbols, as some of the symbols are quite small.

Value

The function is like print.summary.lm but with Greek letters in output.

Author(s)

Kévin Allan Sales Rodrigues.

See Also

See summary.lm for more details.

Examples

```
#Same example as summary.lm and print.summary.lm from stat packages but with Greek letters.
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)
lm.D90 <- lm(weight ~ group - 1) # omitting intercept
coef(lm.D90)  # the bare coefficients
summary_greek(lm.D90 <- lm(weight ~ group -1))  # omitting intercept
```

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print_greeks *Print all Greek letters and mathematical symbols names*

Description

Function to Print all Greek letters and mathematical symbols names.

Usage

```
print_greeks()
```

Details

It is recommended that the font size of the R console be increased for better visualization of the symbols, as some of the symbols are quite small.

The subscripts and supersripts are restricted to numbers 0 to 9.

Symbols printed as a "rectangle" don't work in RGui, but these symbols work normally in RStudio.

Value

Print all Greek letters and mathematical symbols names.

Author(s)

Kévin Allan Sales Rodrigues.

Examples

```
#all Greek letters and mathematical symbols names
print_greeks()
```

---

summary_greek *Summarizing Linear Model Fits With Greek Letters*

Description

summary method with Greek letters for class "lm".

Usage

```
summary_greek(object, correlation = FALSE, symbolic.cor = FALSE, ...)
```

Arguments

object	an object of class "lm", usually, a result of a call to lm.
correlation	logical; if TRUE, the correlation matrix of the estimated parameters is returned and printed.
symbolic.cor	logical. If TRUE, print the correlations in a symbolic form (see symnum) rather than as numbers.
...	further arguments passed to or from other methods.

Details

It is recommended that the font size of the R console be increased for better visualization of the symbols, as some of the symbols are quite small.

Value

The function is like summary.lm but with Greek letters in output.

Author(s)

Kévin Allan Sales Rodrigues.

See Also

See summary.lm for more details.

Examples

```
# Same example as summary.lm but with Greek letters
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)
lm.D90 <- lm(weight ~ group - 1) # omitting intercept
coef(lm.D90)  # the bare coefficients
summary_greek(lm.D90 <- lm(weight ~ group -1))  # omitting intercept
```

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