

# Package: latexSymb (via r-universe)

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**Type** Package

**Title** Write Equations in a Way that You Can Read

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**Description** Utilities to help you write 'LaTeX' in a more readable way. Instead of using plain code or a series of 'newcommand' statements, use 'R' functions. You will be able to write what you mean and make fewer mistakes.

**License** GPL(>= 3)

**Encoding** UTF-8

**VignetteBuilder** knitr, rmarkdown

**Depends** R (>= 4.1.0), purrr

**Suggests** knitr, rmarkdown, testthat (>= 3.0.0)

**Config/testthat/edition** 3

**URL** <https://nicoesve.github.io/latexSymb/>

**BugReports** <https://github.com/nicoesve/latexSymb/issues>

**Repository** <https://nicoesve.r-universe.dev>

**RemoteUrl** <https://github.com/nicoesve/latexsymb>

**RemoteRef** HEAD

**RemoteSha** ba9d2dbfd6d0fd1b9adebac552f29ba5714a0978

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**Description**

These functions are used to create operations on functions in LaTeX. They represent evaluation, pullback, pushforward, derivatives and limits of functions.

**Usage**

```
at(f, var)
pback(f)
pfow(f)
dd(f, var)
pp(f, var)
lim(f, var, to = lsymb("\\infty"))
```

**Arguments**

f	latex_symb object representing a function
var	latex_symb object representing a variable
to	latex_symb object representing the limit of the function

**Value**

An object of class `latex_symb` whose `repr` is the LaTeX code for the operation applied to the function and the variable.

**Examples**

```
f <- lsymb("f")
x <- lsymb("x")
at(f, x)
pback(f)
pfow(f)
dd(f, x)
pp(f, x)
lim(f, x)
```

---

common

*Common latex\_symb objects*

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### **Description**

A collection of common latex\_symb objects.

### **Format**

An RData file containing:

**i** latex\_symb object whose repr is "i"  
**j** latex\_symb object whose repr is "j"  
**k** latex\_symb object whose repr is "k"  
**l** latex\_symb object whose repr is "l"  
**m** latex\_symb object whose repr is "m"  
**n** latex\_symb object whose repr is "n"  
**x** latex\_symb object whose repr is "x"  
**y** latex\_symb object whose repr is "y"  
**z** latex\_symb object whose repr is "z"  
**f** latex\_symb object whose repr is "f"  
**g** latex\_symb object whose repr is "g"  
**h** latex\_symb object whose repr is "h"  
**al** latex\_symb object whose repr is "\\alpha"  
**be** latex\_symb object whose repr is "\\beta"  
**ga** latex\_symb object whose repr is "\\gamma"  
**de** latex\_symb object whose repr is "\\delta"  
**ep** latex\_symb object whose repr is "\\epsilon"  
**ze** latex\_symb object whose repr is "\\zeta"  
**et** latex\_symb object whose repr is "\\eta"  
**th** latex\_symb object whose repr is "\\theta"  
**io** latex\_symb object whose repr is "\\iota"  
**ka** latex\_symb object whose repr is "\\kappa"  
**la** latex\_symb object whose repr is "\\lambda"  
**mu** latex\_symb object whose repr is "\\mu"  
**nu** latex\_symb object whose repr is "\\nu"  
**xi** latex\_symb object whose repr is "\\xi"  
**om** latex\_symb object whose repr is "\\omicron"  
**pi.l** latex\_symb object whose repr is "\\pi"

**rh** latex\_symb object whose repr is "\rho"  
**si** latex\_symb object whose repr is "\sigma"  
**ta** latex\_symb object whose repr is "\tau"  
**up** latex\_symb object whose repr is "\upsilon"  
**ph** latex\_symb object whose repr is "\phi"  
**ch** latex\_symb object whose repr is "\chi"  
**ps** latex\_symb object whose repr is "\psi"  
**om** latex\_symb object whose repr is "\omega"  
**des** latex\_symb object whose repr is ":"  
**eq** latex\_symb object whose repr is "="  
**neq** latex\_symb object whose repr is "\neq"  
**lt** latex\_symb object whose repr is "<"  
**gt** latex\_symb object whose repr is ">"  
**leq** latex\_symb object whose repr is "\leq"  
**geq** latex\_symb object whose repr is "\geq"  
**bgs** latex\_symb object whose repr is "\in"  
**mapsto** latex\_symb object whose repr is "\mapsto"  
**to** latex\_symb object whose repr is "\rightarrow"  
**ldots** latex\_symb object whose repr is "\ldots"  
**Reals** latex\_symb object whose repr is "\mathbb{R}"  
**Nats** latex\_symb object whose repr is "\mathbb{N}"  
**Ints** latex\_symb object whose repr is "\mathbb{Z}"  
**Rats** latex\_symb object whose repr is "\mathbb{Q}"  
**Comps** latex\_symb object whose repr is "\mathbb{C}"  
**indic** latex\_symb object whose repr is "\mathbb{1}"  
**infty** latex\_symb object whose repr is "\infty"

### Description

Equations and symbols in LaTeX can be either inline or on their own. `i1` wraps expressions for the former, `lenv` for the latter.

### Usage

```

i1(x)
lenv(name, rows)

```

**Arguments**

x	An object of class <code>latex_symb</code>
name	The name of the LaTeX environment. For instance, <code>align</code> or <code>gather</code>
.	
rows	A list of objects that can be passed to <code>as.character</code> .

**Value**

- For `il`, x's repr surrounded by dollar signs.
- For `lenv`, a multiline string whose lines are: 1. A `\begin` statement for `name`; 2. The character representation of each row; 3. An `\end` statement for `name`

**Examples**

```
al <- lsymb("\\alpha")
be <- lsymb("\\beta")
il(al)
lenv("align",
     c(
       lsymb(al^2 - be^2, "&=", 0, "\\|"),
       lsymb(pths(al - be)*pths(al + be), "&=", 0)
     )
)
```

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 lsymb

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*Create, print and turn to string objects of class latex\_symb*


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**Description**

The class `latex_symb` is simply a wrapper for a string with LaTeX code. `lsymb` creates the wrapper, `as.character` and `print` extract the string.

**Usage**

```
lsymb(...)
## S3 method for class 'latex_symb'
print(x, ...)
## S3 method for class 'latex_symb'
as.character(x, ...)
```

**Arguments**

...	Objects that can be passed to <code>as.character</code> .
x	An object of class <code>latex_symb</code>

**Value**

- `lsymb` returns an object of class `latex_symb`. It is an S3 class, whose objects are lists with a single component called `repr`. `repr` is the LaTeX code for the object, which is obtained by pasting the character representations of all the arguments.
- `print.lsymb` passes the `repr` of its first argument, plus additional arguments, to `print`. The returned value is whatever `print` returns.
- `as.character.lsymb` passes the `repr` of its first argument, plus additional arguments, to `as.character`. The returned value is whatever `as.character` returns.

**Examples**

```
a1 <- lsymb("\\alpha")
print(a1)
as.character(a1)
```

---

pths

LaTeX *Enclosings*

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**Description**

It is cumbersome to have to write `left` and `right` every time a grouping is used in LaTeX. These functions take care of that.

**Usage**

```
pths(x)
br(x)
sqbr(x)
ang(x)
```

**Arguments**

`x` An object that can be passed to `as.character`.

**Value**

An object of class `latex_symb` whose `repr` is `x`'s `repr` enclosed by the corresponding symbols.

**Examples**

```
a1 <- lsymb("\\alpha")
pths(a1)
br(a1)
sqbr(a1)
ang(a1)
```

---

Sum

*Cumulative Operators*

---

### Description

These functions are used to create cumulative operators in LaTeX. They take care of the sum, prod and int functions.

### Usage

```
Sum(f, from = lsymb(""), to = lsymb(""))
Prod(f, from = lsymb(""), to = lsymb(""))
Int(f, meas = lsymb("dx"), from = lsymb(""), to = lsymb(""))
```

### Arguments

f	An expression to be summed, multiplied or integrated.
from	The lower limit of the sum, product or integral.
to	The upper limit of the sum, product or integral.
meas	The measure of the integral.

### Value

An object of class `latex_symb` whose `repr` is the LaTeX code for the cumulative operator concatenated with the limits and the expression.

### Examples

```
i <- lsymb("i")
n <- lsymb("n")
x <- lsymb("x")
f <- function(x) lsymb("f") * pths(x)
Sum(i, from = 1, to = n)
Prod(i, from = 1, to = n)
Int(f(x), from = 0, to = 1)
```



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