

Universidade Federal do ABC
Centro de Ciências Naturais e Humanas
X Semana da Biologia da UFABC

Introdução (rápida) ao R



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Glossário (básico) do R

script

`>getwd()`

console

`>list`

argumento

`>setwd()`

função

`>c`

`>data.frame`

editor

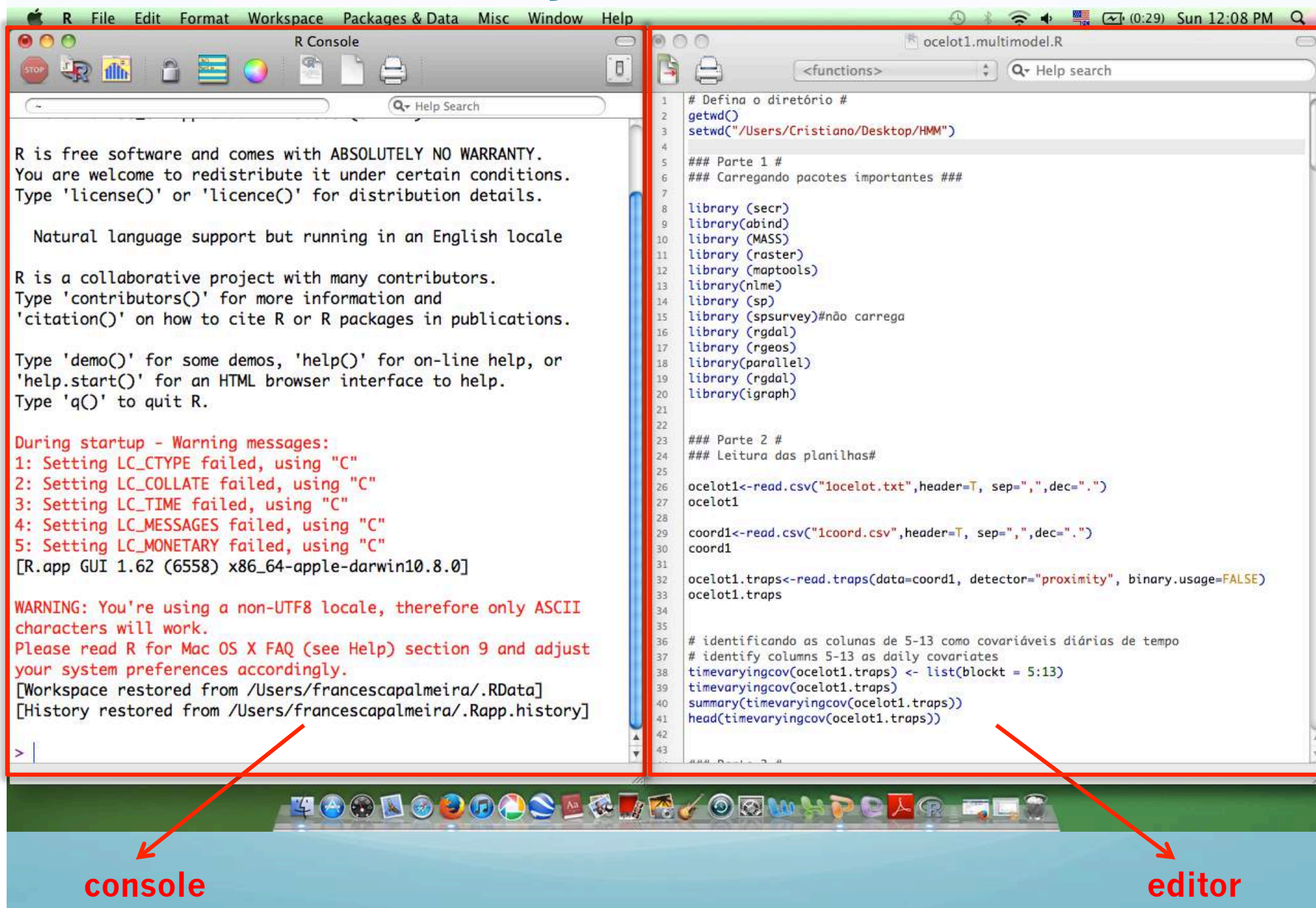
`{pacote}`

objeto

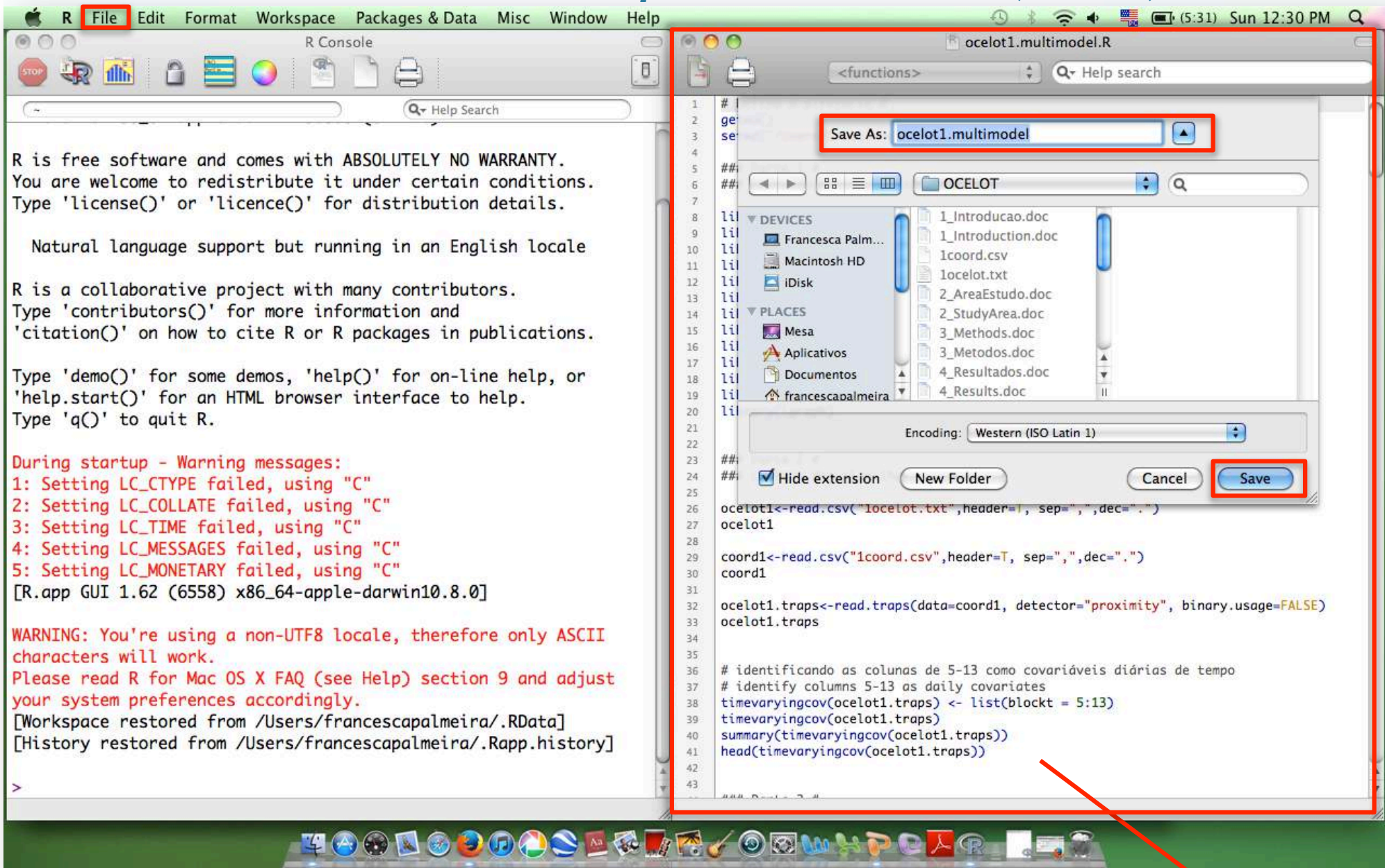
`>matrix`

?help

Layout no Mac

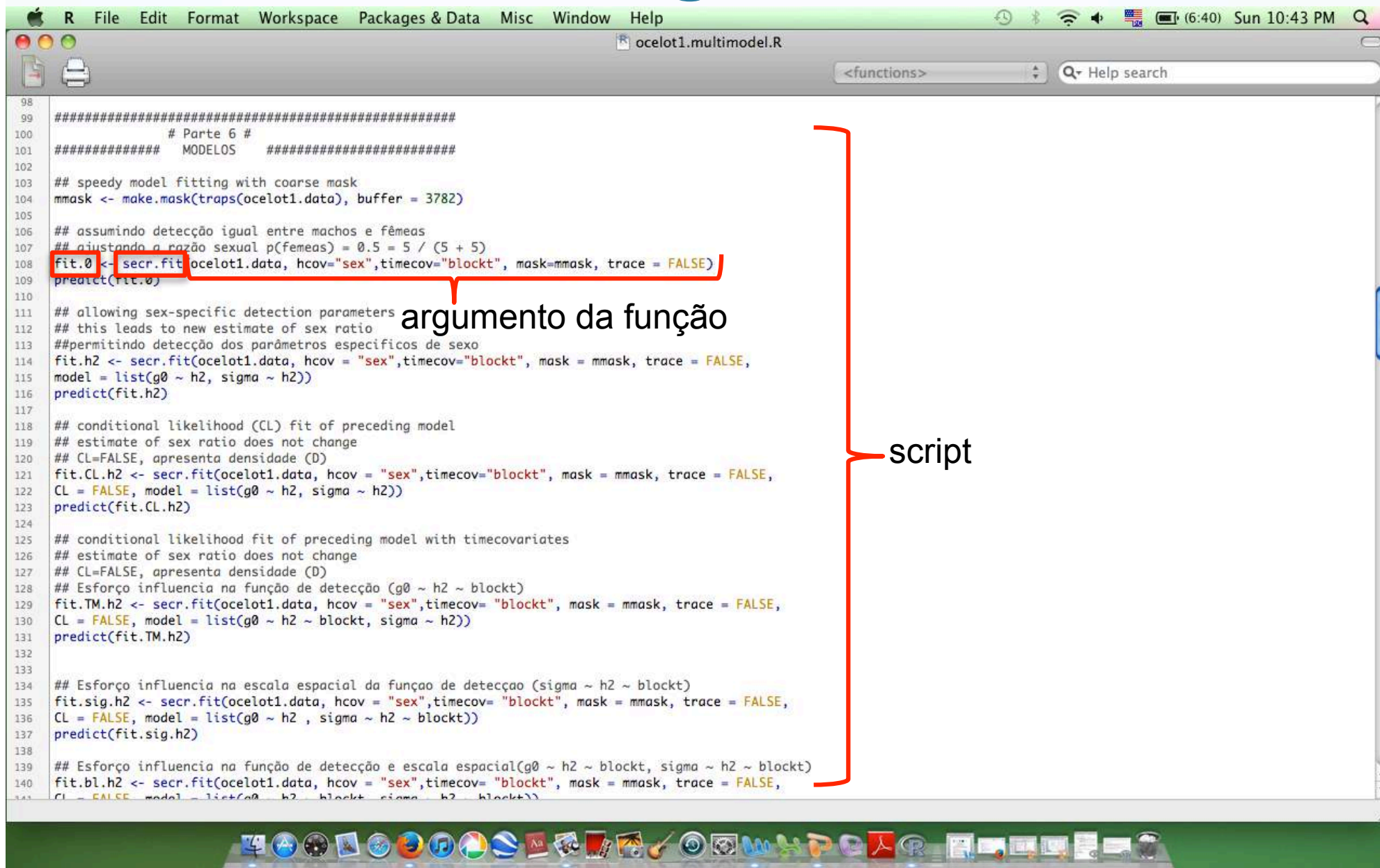


Salvar o script no editor (Mac)



editor

Código do R

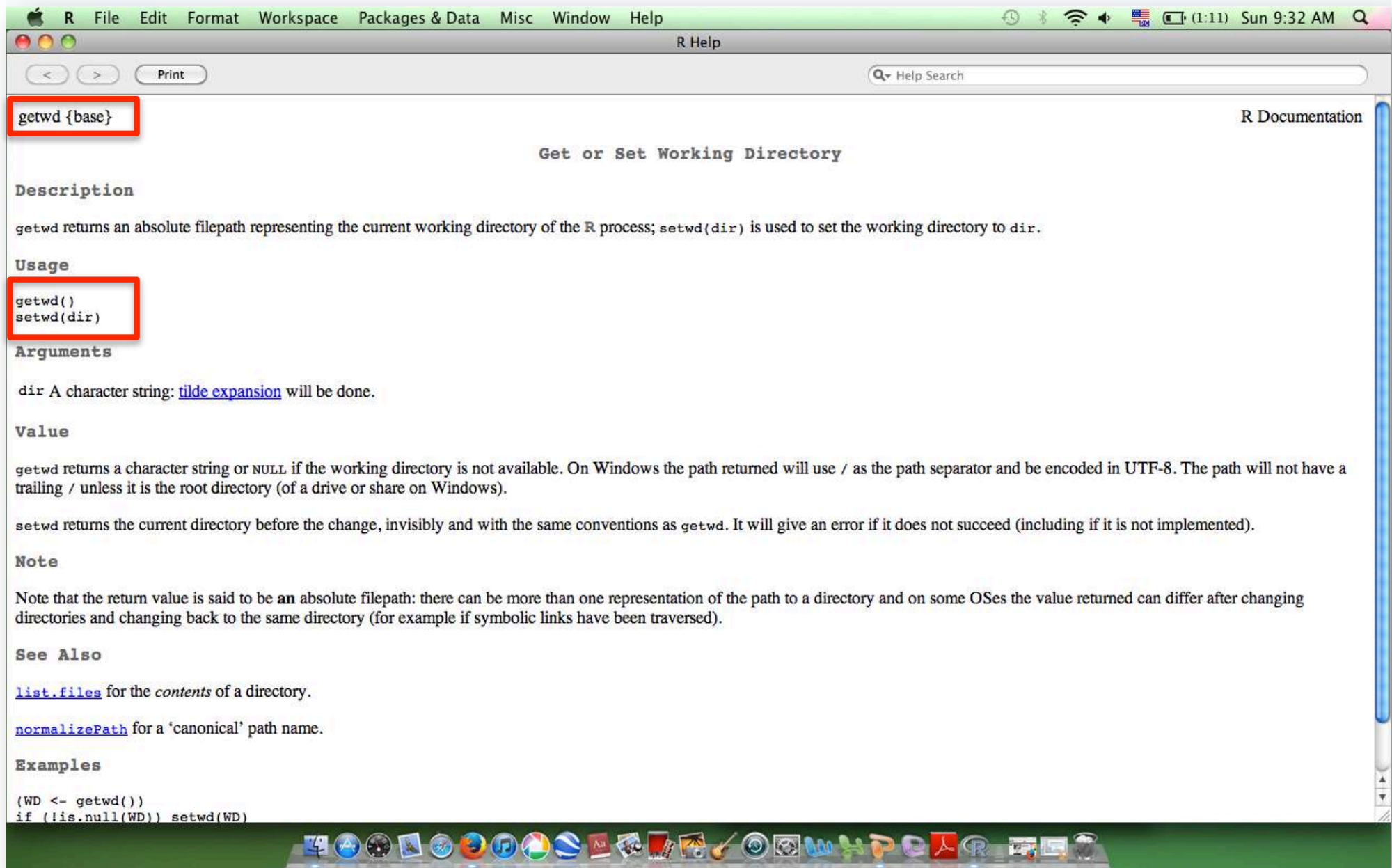


```
98
99 #####
100 # Parte 6 #
101 ##### MODELOS #####
102
103 ## speedy model fitting with coarse mask
104 mmask <- make.mask(traps(ocelot1.data), buffer = 3782)
105
106 ## assumindo detecção igual entre machos e fêmeas
107 ## ajustando a razão sexual p(fêmeas) = 0.5 = 5 / (5 + 5)
108 fit.0 <- secr.fit(ocelot1.data, hcov="sex", timecov="blockt", mask=mmask, trace = FALSE)
109 predict(fit.0)
110
111 ## allowing sex-specific detection parameters
112 ## this leads to new estimate of sex ratio
113 ## permitindo detecção dos parâmetros específicos de sexo
114 fit.h2 <- secr.fit(ocelot1.data, hcov = "sex", timecov="blockt", mask = mmask, trace = FALSE,
115 model = list(g0 ~ h2, sigma ~ h2))
116 predict(fit.h2)
117
118 ## conditional likelihood (CL) fit of preceding model
119 ## estimate of sex ratio does not change
120 ## CL=FALSE, apresenta densidade (D)
121 fit.CL.h2 <- secr.fit(ocelot1.data, hcov = "sex", timecov="blockt", mask = mmask, trace = FALSE,
122 CL = FALSE, model = list(g0 ~ h2, sigma ~ h2))
123 predict(fit.CL.h2)
124
125 ## conditional likelihood fit of preceding model with timecovariates
126 ## estimate of sex ratio does not change
127 ## CL=FALSE, apresenta densidade (D)
128 ## Esforço influencia na função de detecção (g0 ~ h2 ~ blockt)
129 fit.TM.h2 <- secr.fit(ocelot1.data, hcov = "sex", timecov= "blockt", mask = mmask, trace = FALSE,
130 CL = FALSE, model = list(g0 ~ h2 ~ blockt, sigma ~ h2))
131 predict(fit.TM.h2)
132
133
134 ## Esforço influencia na escala espacial da função de detecção (sigma ~ h2 ~ blockt)
135 fit.sig.h2 <- secr.fit(ocelot1.data, hcov = "sex", timecov= "blockt", mask = mmask, trace = FALSE,
136 CL = FALSE, model = list(g0 ~ h2 , sigma ~ h2 ~ blockt))
137 predict(fit.sig.h2)
138
139 ## Esforço influencia na função de detecção e escala espacial(g0 ~ h2 ~ blockt, sigma ~ h2 ~ blockt)
140 fit.bl.h2 <- secr.fit(ocelot1.data, hcov = "sex", timecov= "blockt", mask = mmask, trace = FALSE,
141 CL = FALSE, model = list(g0 ~ h2 ~ blockt, sigma ~ h2 ~ blockt))
```

argumento da função

script

Localizar e definir o diretório de trabalho



The screenshot shows the R Help window for the 'getwd' and 'setwd' functions. The window title is 'R Help'. The menu bar includes 'R', 'File', 'Edit', 'Format', 'Workspace', 'Packages & Data', 'Misc', 'Window', and 'Help'. The status bar at the bottom shows system icons and the date/time: 'Sun 9:32 AM'. The main content area is titled 'Get or Set Working Directory'. It includes sections for 'Description', 'Usage', 'Arguments', 'Value', 'Note', 'See Also', and 'Examples'. The 'getwd' function is highlighted in a red box in the top left, and the 'setwd' function is highlighted in a red box in the 'Usage' section. The 'setwd' function is also highlighted in a red box in the 'Arguments' section. The 'setwd' function is also highlighted in a red box in the 'Value' section. The 'setwd' function is also highlighted in a red box in the 'Note' section. The 'setwd' function is also highlighted in a red box in the 'See Also' section. The 'setwd' function is also highlighted in a red box in the 'Examples' section.

getwd {base}

Get or Set Working Directory

Description

getwd returns an absolute filepath representing the current working directory of the R process; setwd(dir) is used to set the working directory to dir.

Usage

```
getwd()
setwd(dir)
```

Arguments

dir A character string: [tilde expansion](#) will be done.

Value

getwd returns a character string or NULL if the working directory is not available. On Windows the path returned will use / as the path separator and be encoded in UTF-8. The path will not have a trailing / unless it is the root directory (of a drive or share on Windows).

setwd returns the current directory before the change, invisibly and with the same conventions as getwd. It will give an error if it does not succeed (including if it is not implemented).

Note

Note that the return value is said to be **an** absolute filepath: there can be more than one representation of the path to a directory and on some OSes the value returned can differ after changing directories and changing back to the same directory (for example if symbolic links have been traversed).

See Also

[list.files](#) for the *contents* of a directory.

[normalizePath](#) for a 'canonical' path name.

Examples

```
(WD <- getwd())
if (!is.null(WD)) setwd(WD)
```

library {base}

R Documentation

Loading and Listing of Packages

Description

library and require load add-on packages.

Usage

```
library(package, help, pos = 2, lib.loc = NULL,
        character.only = FALSE, logical.return = FALSE,
        warn.conflicts = TRUE, quietly = FALSE,
        verbose = getOption("verbose"))

require(package, lib.loc = NULL, quietly = FALSE,
        warn.conflicts = TRUE,
        character.only = FALSE)
```

Arguments

package, help the name of a package, given as a [name](#) or literal character string, or a character string, depending on whether `character.only` is `FALSE` (default) or `TRUE`.

pos the position on the search list at which to attach the loaded package. Can also be the name of a position on the current search list as given by [search\(\)](#).

lib.loc a character vector describing the location of R library trees to search through, or `NULL`. The default value of `NULL` corresponds to all libraries currently known to [.libPaths\(\)](#). Non-existent library trees are silently ignored.

character.only a logical indicating whether `package` or `help` can be assumed to be character strings.

logical.return logical. If it is `TRUE`, `FALSE` or `TRUE` is returned to indicate success.

warn.conflicts logical. If `TRUE`, warnings are printed about [conflicts](#) from attaching the new package. A conflict is a function masking a function, or a non-function masking a non-function.

verbose a logical. If `TRUE`, additional diagnostics are printed.

quietly a logical. If `TRUE`, no message confirming package loading is printed, and most often, no errors/warnings are printed if package loading fails.

Details

`library(package)` and `require(package)` both load the package with name `package` and put it on the search list. `require` is designed for use inside other functions; it returns `FALSE` and gives a warning (rather than an error as `library()` does by default) if the package does not exist. Both functions check and update the list of currently loaded packages and do not reload a package which is already loaded. (If you want to reload such a package, call [detach\(unload = TRUE\)](#) or [unloadNamespace](#) first.) If you want to load a package without putting it on the search list, use [requireNamespace](#).

matrix {base}

R Documentation

Matrices

Description

`matrix` creates a matrix from the given set of values.

`as.matrix` attempts to turn its argument into a matrix.

`is.matrix` tests if its argument is a (strict) matrix.

Usage

```
matrix(data = NA, nrow = 1, ncol = 1, byrow = FALSE,
        dimnames = NULL)
```

```
as.matrix(x, ...)
## S3 method for class 'data.frame'
as.matrix(x, rownames.force = NA, ...)
```

```
is.matrix(x)
```

Arguments

data an optional data vector (including a list or [expression](#) vector). Non-atomic classed R objects are coerced by [as.vector](#) and all attributes discarded.

nrow the desired number of rows.

ncol the desired number of columns.

byrow logical. If FALSE (the default) the matrix is filled by columns, otherwise the matrix is filled by rows.

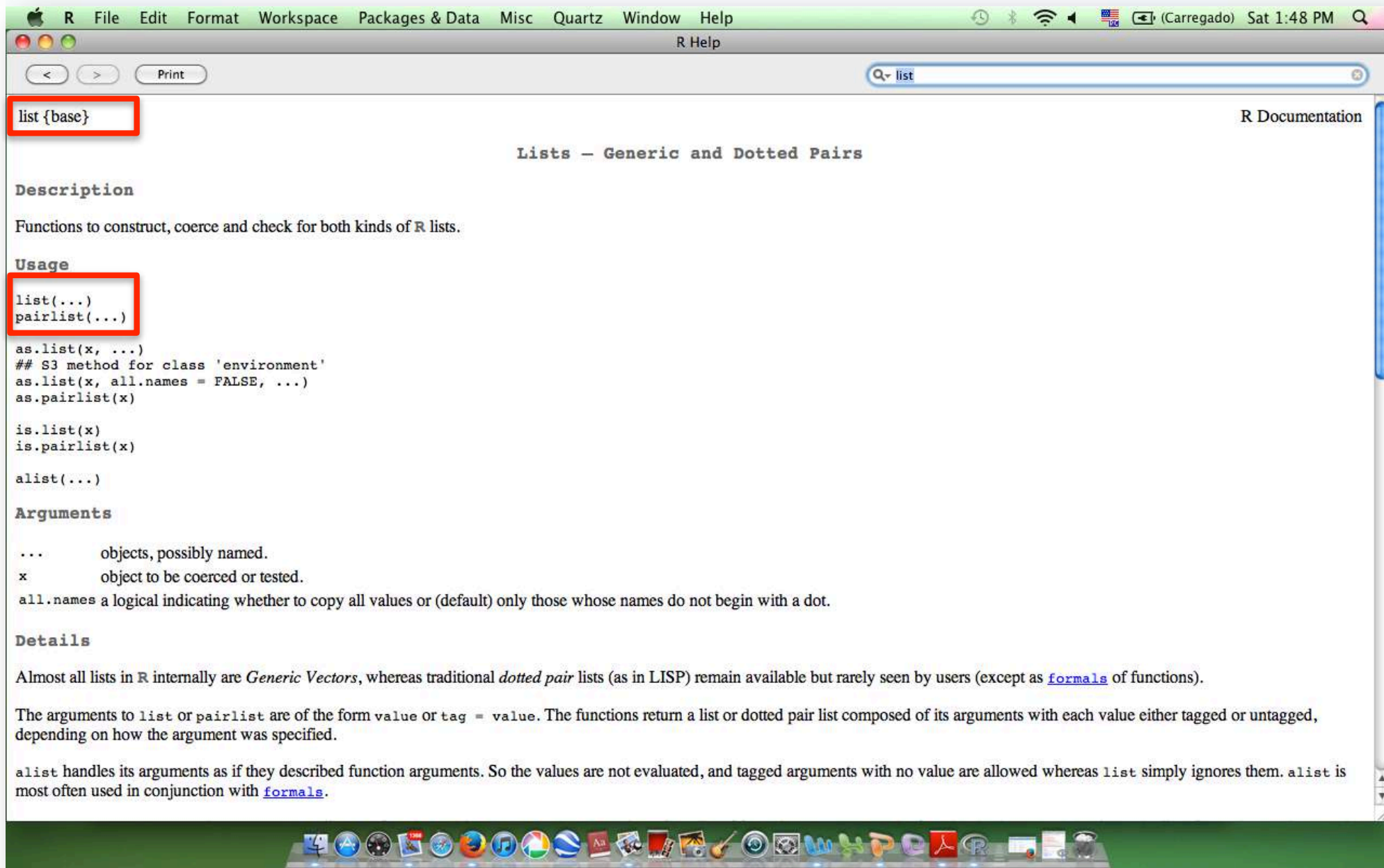
dimnames A [dimnames](#) attribute for the matrix: NULL or a list of length 2 giving the row and column names respectively. An empty list is treated as NULL, and a list of length one as row names. The list can be named, and the list names will be used as names for the dimensions.

x an R object.

... additional arguments to be passed to or from methods.

rownames.force logical indicating if the resulting matrix should have character (rather than NULL) [rownames](#). The default, NA, uses NULL rownames if the data frame has 'automatic' row.names or for a zero-row data frame.

Details



Apple R File Edit Format Workspace Packages & Data Misc Quartz Window Help R Help

data.frame {base}

R Documentation

Data Frames

Description

This function creates data frames, tightly coupled collections of variables which share many of the properties of matrices and of lists, used as the fundamental data structure by most of R's modeling software.

Usage

```
data.frame(..., row.names = NULL, check.rows = FALSE,
           check.names = TRUE,
           stringsAsFactors = default.stringsAsFactors())
```

default.stringsAsFactors()

Arguments

...	these arguments are of either the form <code>value</code> or <code>tag = value</code> . Component names are created based on the tag (if present) or the deparsed argument itself.
<code>row.names</code>	NULL or a single integer or character string specifying a column to be used as row names, or a character or integer vector giving the row names for the data frame.
<code>check.rows</code>	if TRUE then the rows are checked for consistency of length and names.
<code>check.names</code>	logical. If TRUE then the names of the variables in the data frame are checked to ensure that they are syntactically valid variable names and are not duplicated. If necessary they are adjusted (by make.names) so that they are.
<code>stringsAsFactors</code>	logical: should character vectors be converted to factors? The 'factory-fresh' default is TRUE, but this can be changed by setting options(stringsAsFactors = FALSE) .

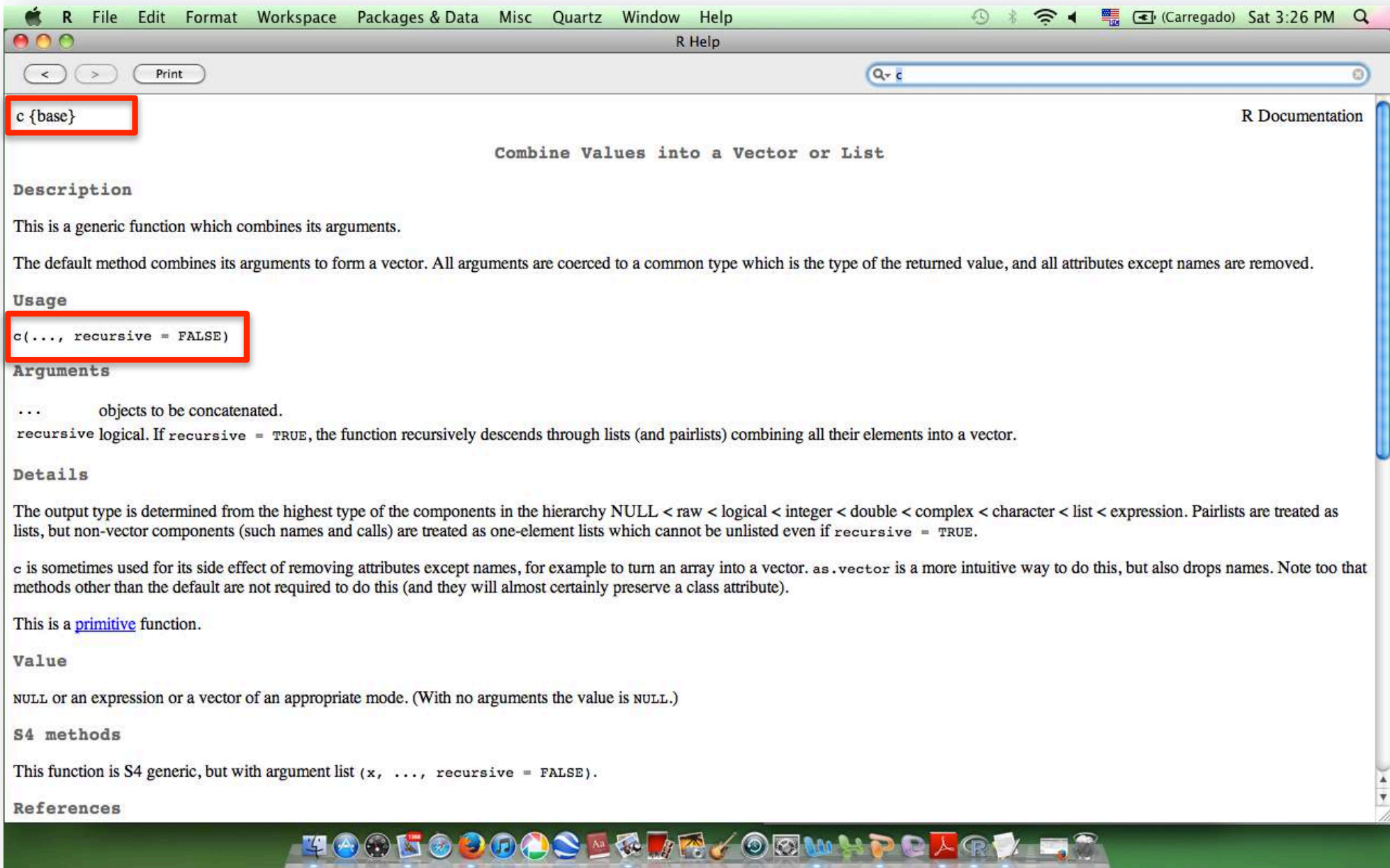
Details

A data frame is a list of variables of the same number of rows with unique row names, given class "data.frame". If no variables are included, the row names determine the number of rows.

The column names should be non-empty, and attempts to use empty names will have unsupported results. Duplicate column names are allowed, but you need to use `check.names = FALSE` for `data.frame` to generate such a data frame. However, not all operations on data frames will preserve duplicated column names: for example matrix-like subsetting will force column names in the result to be unique.

`data.frame` converts each of its arguments to a data frame by calling [as.data.frame](#)(`optional = TRUE`). As that is a generic function, methods can be written to change the behaviour of arguments according to their classes: R comes with many such methods. Character variables passed to `data.frame` are converted to factor columns unless protected by `I` or argument `stringsAsFactors` is false. If a list or data frame or matrix is passed to `data.frame` it is as if each component or column had been passed as a separate argument (except for matrices of class "matrix" and those protected by `I`).

Concatenar para formar vetores



The screenshot shows the R Help window for the `c` function. The window title is "R Help". The menu bar includes "R", "File", "Edit", "Format", "Workspace", "Packages & Data", "Misc", "Quartz", "Window", and "Help". The status bar at the bottom shows system icons and the date/time "Sat 3:26 PM".

The main content area is titled "Combine Values into a Vector or List". It includes sections for "Description", "Usage", "Arguments", "Details", "Value", "S4 methods", and "References".

c {base}

Combine Values into a Vector or List

Description

This is a generic function which combines its arguments.

The default method combines its arguments to form a vector. All arguments are coerced to a common type which is the type of the returned value, and all attributes except names are removed.

Usage

```
c(..., recursive = FALSE)
```

Arguments

... objects to be concatenated.

recursive logical. If `recursive = TRUE`, the function recursively descends through lists (and pairlists) combining all their elements into a vector.

Details

The output type is determined from the highest type of the components in the hierarchy `NULL < raw < logical < integer < double < complex < character < list < expression`. Pairlists are treated as lists, but non-vector components (such names and calls) are treated as one-element lists which cannot be unlisted even if `recursive = TRUE`.

`c` is sometimes used for its side effect of removing attributes except names, for example to turn an array into a vector. `as.vector` is a more intuitive way to do this, but also drops names. Note too that methods other than the default are not required to do this (and they will almost certainly preserve a class attribute).

This is a [primitive](#) function.

Value

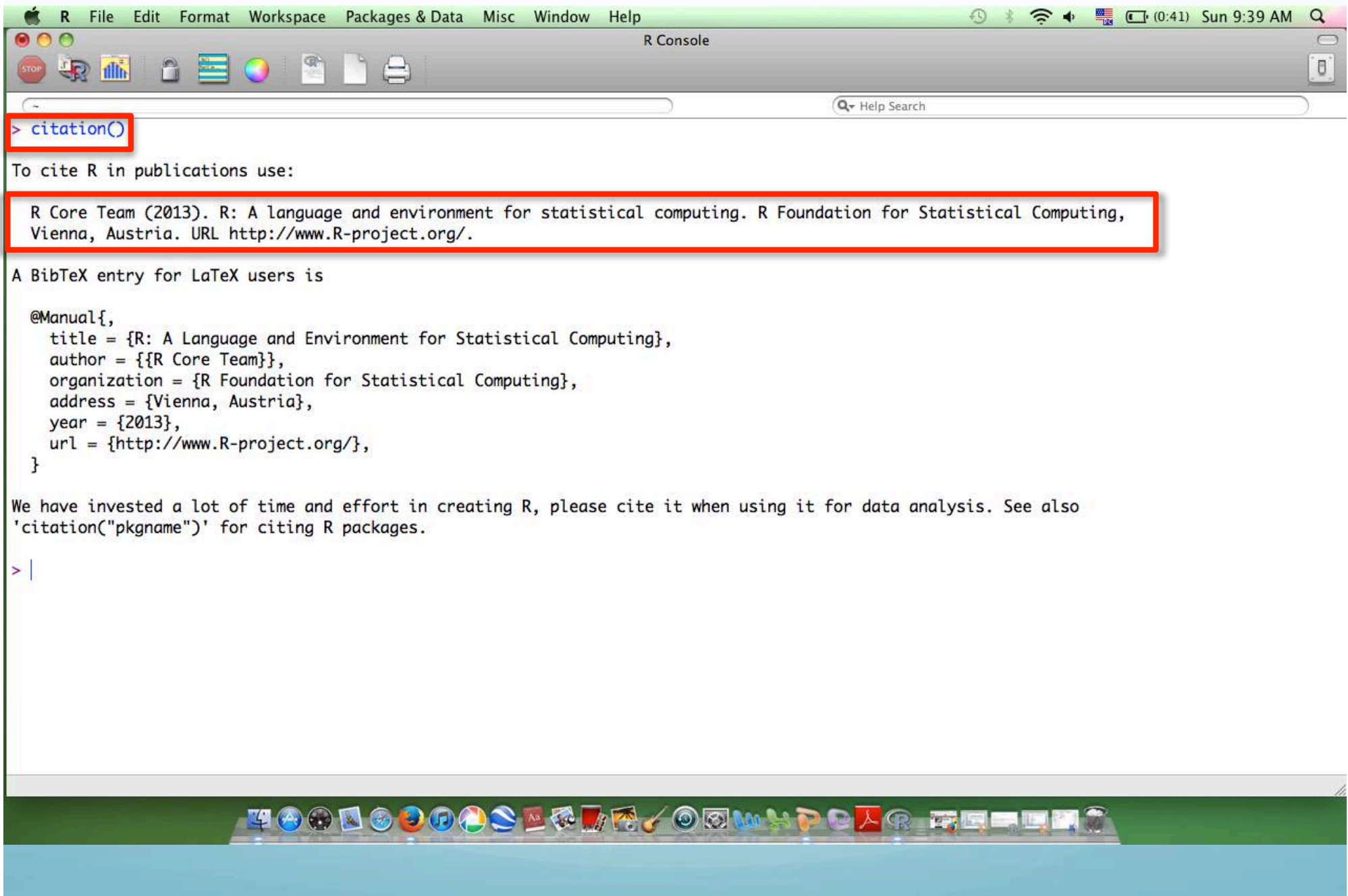
`NULL` or an expression or a vector of an appropriate mode. (With no arguments the value is `NULL`.)

S4 methods

This function is S4 generic, but with argument list `(x, ..., recursive = FALSE)`.

References

Como citar o R em publicações?



The screenshot shows the R Console window on a Mac. The menu bar at the top includes Apple, R, File, Edit, Format, Workspace, Packages & Data, Misc, Window, and Help. The title bar says "R Console". Below the menu bar is a toolbar with icons for stopping, R logo, plot, lock, flags, color wheel, file, and printer. A search bar labeled "Help Search" is on the right. The console input shows `> citation()` with a red box around it. The output text is as follows:

```
> citation()
To cite R in publications use:

R Core Team (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing,
Vienna, Austria. URL http://www.R-project.org/.

A BibTeX entry for LaTeX users is

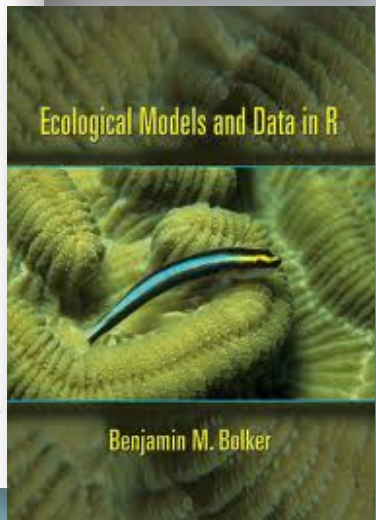
@Manual{,
  title = {R: A Language and Environment for Statistical Computing},
  author = {{R Core Team}},
  organization = {R Foundation for Statistical Computing},
  address = {Vienna, Austria},
  year = {2013},
  url = {http://www.R-project.org/},
}
```

Below the BibTeX entry, the text reads: "We have invested a lot of time and effort in creating R, please cite it when using it for data analysis. See also 'citation("pkgname")' for citing R packages." The console ends with a prompt `> |`.

Resumo dos procedimentos gráficos no R

Predictors	Response	Plot choices
single categorical	single categorical	table, barplot, dotchart, barchart [L], dotplot [L]
multiple categorical	single categorical	as above, plus mosaicplot, small multiples (par(mfrow)/par(mfcol) or lattice plots), sizeplot [plotrix] or 3D histogram [scatterplot3d, rgl]
circular	categorical	rose.diag [CircStats]
circular	continuous	polar.plot [plotrix]
none	compositional	barplot(..., beside=FALSE), barchart(..., stack=TRUE) [L], ternaryplot [vcd], triax.plot [plotrix]
single categorical	multiple continuous	stars
none or single categorical	single continuous	boxplot, bwplot [L], violin plots (bwplot(..., panel=panel.violin) [L], vioplot [vioplot], stripplot [L], barplot2 [gplot] for error bars
continuous+categorical	single continuous	scatterplot (plot, xyplot [L]) with categories indicated by plotting symbols (pch), color (col), size (cex) or (in lattice) groups argument
single continuous	single continuous	plot, xyplot [L]; lowess, supsmu, smooth.spline for curves; plotCI [gplots or plotrix] for error bars
multiple continuous	multiple continuous	conditioning plots (coplot or lattice plots), 3D scatter- or lollipop plots (cloud [L], scatterplot3d [scatterplot3d] or plot3d [rgl])
continuous (time or 1D space)	continuous	plot/xyplot with type="l" or type="b"
continuous (2D space)	continuous	image, contour, persp, kde2d [MASS], wireframe [L], surface3d [rgl], maps package, maptools package, sp package

Table 2.1 Summary of graphical procedures. Square brackets denote functions in packages; [L] denotes functions in the lattice package.



Wiki com updates e erratas

The screenshot shows a Firefox browser window displaying the 'Ecological Models and Data in R' wiki page. The browser's address bar shows 'emdbolker.wikidot.com'. The page has a dark header with the title 'Ecological Models and Data' and a search bar. A left sidebar contains navigation links like 'Welcome page', 'Frequently asked questions', and 'Errata'. The main content area features a title 'Ecological Models and Data in R' and two green buttons: 'Data Model' and 'Data Modeling'. Below these is a box that says 'apply for membership to edit this site'. A small image of a green frog is shown next to the text 'Benjamin M. Bolker'. A list of updates and errata follows, including links to various publications and reviews.

Firefox File Edit View History Bookmarks Tools Window Help

yagouarouni - Yahoo! Mail Outlook.com - francescap... USP Mail: Entrada Ecological Models and Dat...

emdbolker.wikidot.com benjamin bolker

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How to join this site?
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Recent changes
List all pages
Page Tags
Site Manager

Page tags
ecology

Add a new page
new page

Ecological Models and Data in R

Data Model Data Modeling

Chitika | Opt out?

apply for membership to edit this site

Ecological Models and Data in R

Benjamin M. Bolker

- [miscellaneous thoughts](#) (a pseudo-blog/catch-all space)
- [errata](#) (not too many I hope)
- [answers to frequently asked questions](#)
- clarifications or extensions of discussions in the book, etc.. I am starting out by posting (in the [chapters](#) section) (1) notes that I took as I went through the proofs about things I wished I'd said but didn't have room for or couldn't change (2) points that people have made in e-mail since then.
- [Courses](#) around the world offered on these topics
- [Worked examples](#) of various sorts
- [To do list](#): things I intend to get around to
- EMD in R in the [Princeton University Press catalog](#)
- EMD in R on [amazon.com](#)
- [Reviews](#)¹
 - Robert Gramacy in *The American Statistician*, August 2009, Vol. 63, No. 3 281 doi:10.1198/tast.2009.br633 ([PDF](#))
 - Rachel Fewster in *Biometrics* 65, 660-673 June 2009 doi:10.1111/j.1541-0420.2009.01247_11.x ([PDF](#))
 - Daniel Bunker in *Ecology*, 90(8), 2009, pp. 2333-2334 ([PDF](#))
 - Carsten Dormann in *Basic and Applied Ecology* 10 (2009) 487, doi:10.1016/j.baae.2009.01.001 ([PDF](#))
 - Matthew Aiello-Lammens in *Quarterly Review of Biology*, 84, 288 (2009), doi:10.1086/644667 ([PDF](#))
 - Pavle Mladenović in [MathSciNet reviews](#)
 - B. Hanowell's [Evolutionary Modeling Survival Kit](#) blog entry says:

<<http://emdbolker.wikidot.com/>>

Firefox File Edit View History Bookmarks Tools Window Help

ecologia.ib.usp.br/bie5782/doku.php?id=bie5782:dezmanda


Entrar

ECOR Using R

Alterações recentes Gerenciador de mídias Índice

Visitou: Apresentação • Os 10 Mandamentos do R

Índice



Curso 2014

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- Atividades Preparatórias
- Os 10 Mandamentos do R


Material de Apoio

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Área dos Alunos

- Wiki Alunos
- Trabalho Final
- Postar Exercícios

Os 10 Mandamentos do R



- 1º - Utilizarás o R para tuas análises bem como para a manipulação de teus dados(não mais o Excel);
- 2º - Nunca digitarás o código no console;
- 3º - Salvarás seus scripts e não se preocuparás com o .RData;
- 4º - Sempre concatenarás;
- 5º - Jamais esquecerás dos parênteses das funções;
- 6º - Conferirás o diretório de trabalho e os dados após a importação, antes de enlouqueceres;
- 7º - Usarás o help antes de perguntares e não culparás o R por teus erros;
- 8º - Não esmorecerás após as primeiras noites em claRo e jamais amaldiçoarás o R por tuas faltas de vírgulas;
- 9º - Lembrarás das aspas dos caracteres;
- 10º - Não cobiçarás e aperfeiçoarás os códigos alheios e nunca ocultarás o código e a autoria original;

— ✉ Alexandre Adalardo de Oliveira 2014/03/20 11:17

<<http://ecologia.ib.usp.br/bie5782/doku.php?id=bie5782:dezmanda>>