

Programación en R

*Doctorado en Ciencias Biológicas
Facultad de Ciencias Exactas, Físicas y
Naturales*

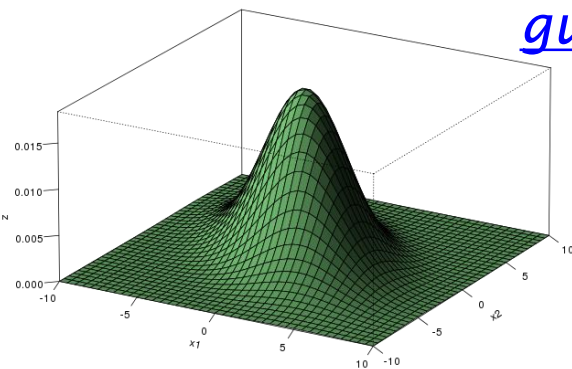
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Octubre de 2016



Lenguaje R

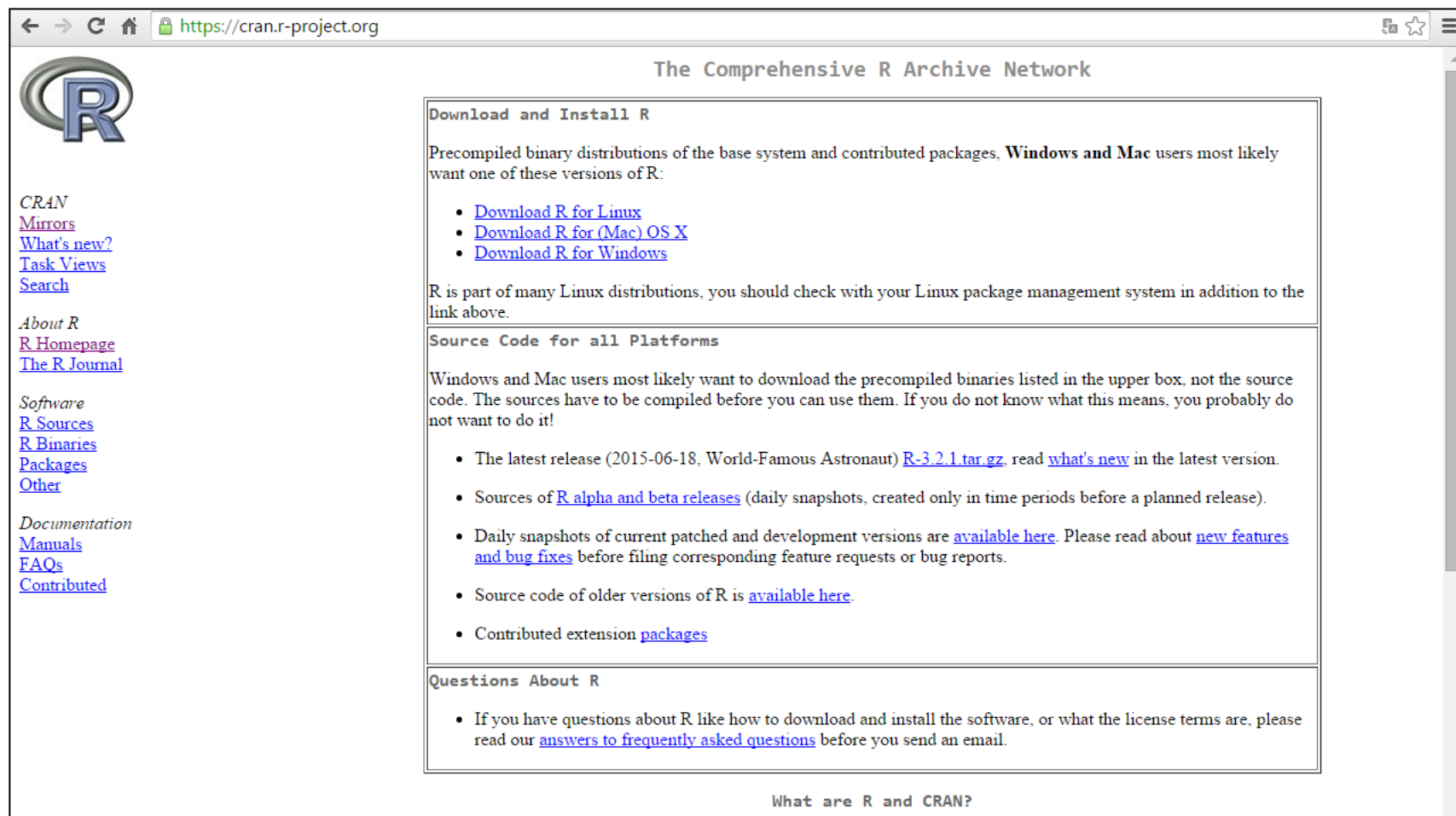
¿Por qué usamos R?

- Software libre y open-source desarrollado por Dr. Ross Ihaka y Dr. Robert Gentleman en 1992.
- Software estadístico, con numerosas funciones y rutinas incorporadas muy utilizado por investigadores de diversas áreas.
- Lenguaje de programación que permite crear nuevas funciones (programación funcional y orientado a objetos).
- Compila y corre en UNIX, Windows y MacOS.
- Implementación de un lenguaje de programación llamado S.
- Disponible en la red a través del Comprehensive R Archive Network (CRAN). <http://cran.r-project.org/>.
- R como entorno de cálculo y como lenguaje de programación.

¿Cómo se instala?

Sitio web: <http://www.r-project.org/>

CRAN - the Comprehensive R Archive Network



The screenshot shows the CRAN website in a web browser. The address bar displays <https://cran.r-project.org>. The page title is "The Comprehensive R Archive Network". On the left sidebar, there are links for "CRAN", "Mirrors", "What's new?", "Task Views", "Search", "About R", "R Homepage", "The R Journal", "Software", "R Sources", "R Binaries", "Packages", "Other", "Documentation", "Manuals", "FAQs", and "Contributed". The main content area is titled "Download and Install R" and contains the following text: "Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:". Below this text are three bullet points with links: "Download R for Linux", "Download R for (Mac) OS X", and "Download R for Windows". The text continues: "R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above." Below this is a section titled "Source Code for all Platforms" with the text: "Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!". This section contains four bullet points: "The latest release (2015-06-18, World-Famous Astronaut) [R-3.2.1.tar.gz](#), read [what's new](#) in the latest version.", "Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).", "Daily snapshots of current patched and development versions are [available here](#). Please read about [new features](#) and [bug fixes](#) before filing corresponding feature requests or bug reports.", and "Source code of older versions of R is [available here](#)". Below this is a section titled "Questions About R" with one bullet point: "If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email." At the bottom of the page, there is a link "What are R and CRAN?".

CRAN

[Mirrors](#)

[What's new?](#)

[Task Views](#)

[Search](#)

About R

[R Homepage](#)

[The R Journal](#)

Software

[R Sources](#)

[R Binaries](#)

[Packages](#)

[Other](#)

Documentation

[Manuals](#)

[FAQs](#)

[Contributed](#)

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

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- Contributed extension [packages](#)

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

What are R and CRAN?

¿Cómo se instala?

R for Windows

Subdirectories:

[base](#)

[contrib](#)

[Rtools](#)

Please do not submit bug
suggestions related to W

You may also want to re

Note: CRAN does some

Binaries for base distribution (managed by Duncan Murdoch). This is what you want to [install R for the first time](#).

Binaries of contributed packages (managed by Uwe Ligges). There is also information on [third party software](#) available for CRAN Windows services and corresponding environment and make variables.

Tools to build R and R packages (managed by Duncan Murdoch). This is what you want to build your own

R-3.2.1 for Windows (32/64 bit)

[Download R 3.2.1 for Windows](#) (62 megabytes, 32/64 bit)

[Installation and other instructions](#)

[New features in this version](#)

If you want to double-check that the package you have downloaded exactly matches the package distributed by R, you can compare the [md5sum](#) of the .exe to the [true fingerprint](#). You will need a version of md5sum for windows: both [graphical](#) and [command line versions](#) are available.

Frequently asked questions

- [How do I install R when using Windows Vista?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

Other builds

- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is [<CRAN MIRROR>/bin/windows/base/release.htm](#).

Last change: 2015-06-18, by Duncan Murdoch

¿Cómo se instala?

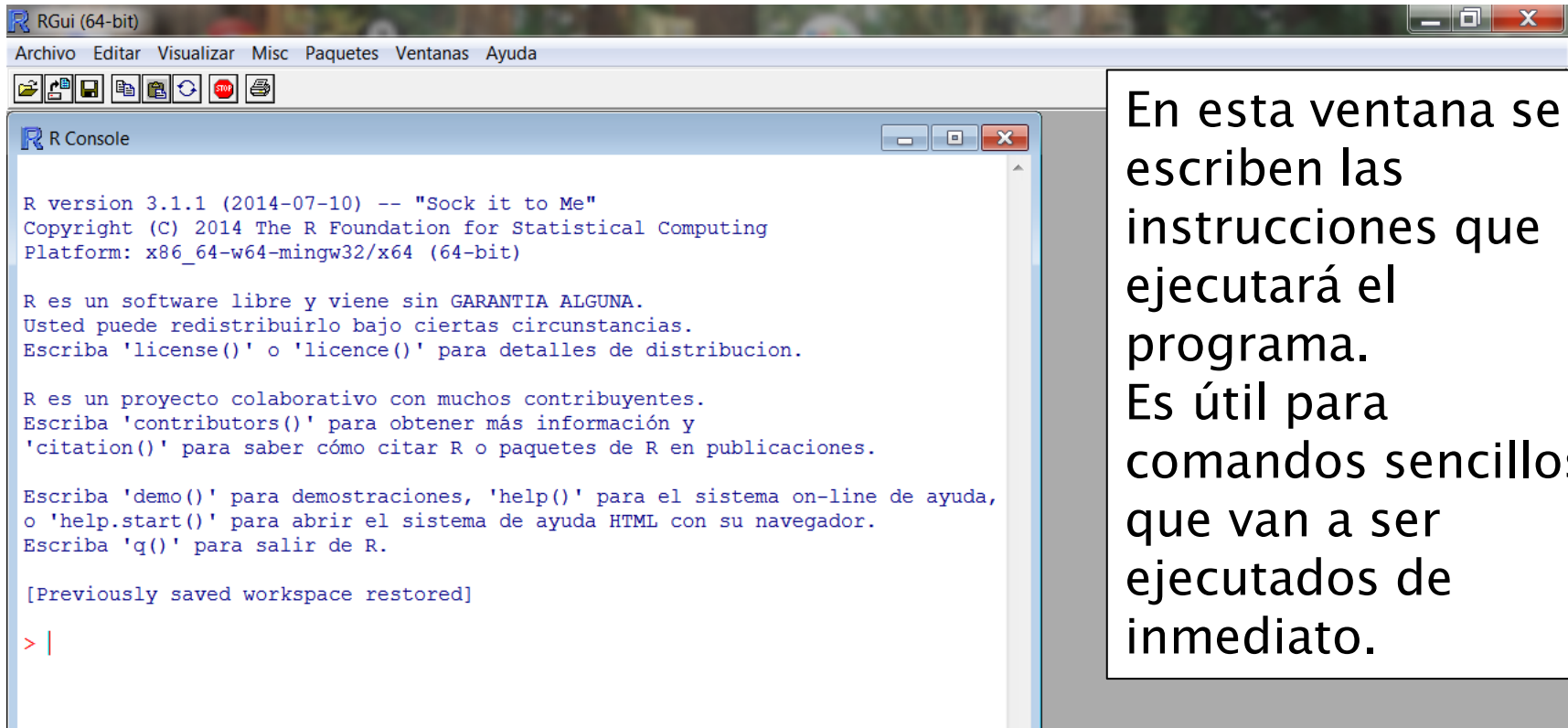
En el sitio web <http://www.r-project.org/>
CRAN - the Comprehensive R Archive Network

Utilizar un espejo (Mirror) cercano:
<http://mirror.fcaglp.unlp.edu.ar/CRAN/UNLaPlata>
<http://r.mirror.mendoza-conicet.gob.ar/CONICETMendoza>

También puede instalarse RStudio como editor:
<http://www.rstudio.org/>

Inicio de sesión con R

Consola de R



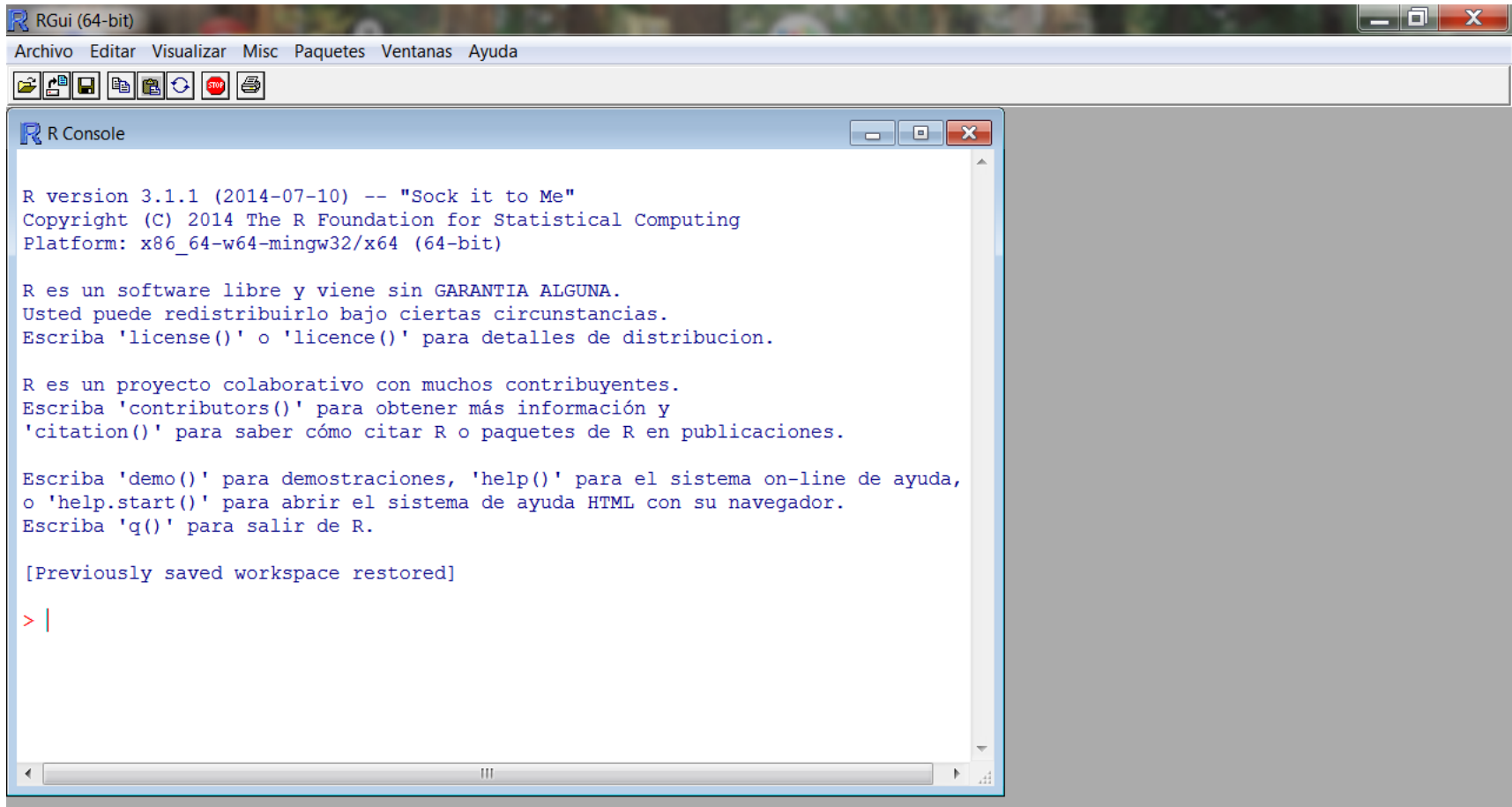
En esta ventana se escriben las instrucciones que ejecutará el programa. Es útil para comandos sencillos que van a ser ejecutados de inmediato.

El símbolo **>** (**'prompt'**) indica que el programa está listo para recibir instrucciones.

Es el punto de entrada para la comunicación con R.

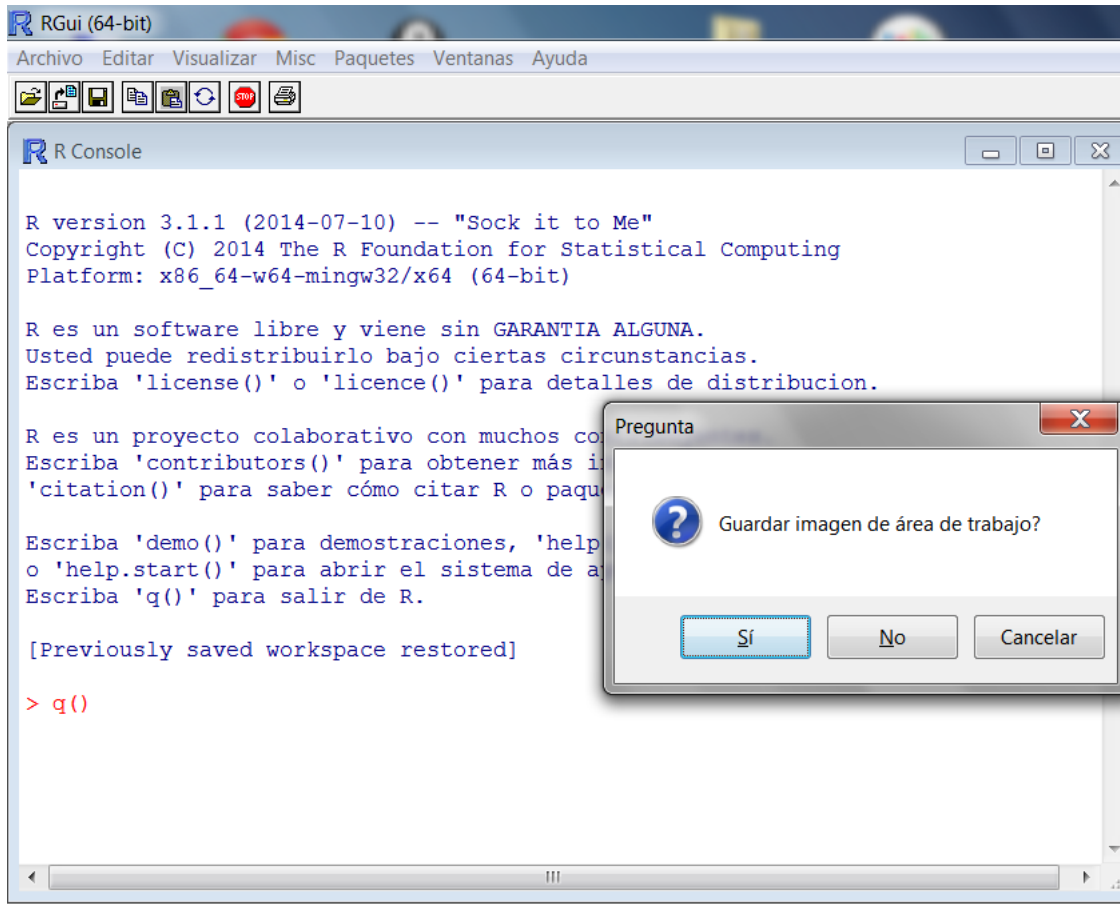
Pueden escribirse expresiones, R las evalúa y retorna la salida.

Espacio de trabajo (workspace)



R mantiene un registro de todos los comandos y de todos los objetos creados.

¿Cómo salir de R?



Se usa el comando `q()`. R pregunta si se quiere salvar el workspace (contiene los objetos que se crean durante una sesión).

Ayuda en R

Ayuda en R

- ✓ Extensa documentación disponible en línea sobre funciones y conjuntos de datos.

- ✓ Comandos

- > `help(nbre_funcion)`

- abre una ventana que describe el uso de la función que aparezca como argumento, o las características del conjunto de datos, si es el caso.

- > `?nbre_funcion`

- ✓ Para obtener ayuda sobre caracteres no convencionales es necesario usar el último formato:

- > `? '*'`

Por defecto, la función `help` sólo busca en los paquetes que están cargados en memoria (la opción `try.all.packages` permite buscar en todos)

Ayuda en R

Otras funciones que resultan útiles:

```
> help.search("texto")
```

abre una ventana donde aparecer una lista de todas las funciones que o tienen texto como alias o esta palabra aparece en su título.

Una manera alternativa de obtener ayuda es ejecutar el comando

```
> help.start()
```

La función `example()` ejecuta los ejemplos disponibles de la función escrita argumento.

```
> example(nbre_funcion)
```

Ayuda en R

Otras funciones que resultan útiles:

```
> apropos("mean")
```

Lista todas las funciones en cuyo nombre aparezca la palabra escrita como argumento.

```
> apropos("mean")  
[1] ".colMeans"      ".rowMeans"      "colMeans"      "kmeans"  
[5] "mean"           "mean.Date"      "mean.default"  "mean.difftime"  
[9] "mean.POSIXct"   "mean.POSIXlt"   "rowMeans"      "weighted.mean"
```

Palabras reservadas en R

Palabras reservadas

Reserved {base}

Reserved Words in R

Description

The reserved words in **R**'s parser are

if else repeat while function for in next break

TRUE FALSE NULL Inf NaN NA NA_integer_ NA_real_ NA_complex_ NA_character_

*Muchas
gracias*

