

Instalación e introducción a R, Rstudio y R Commander

Grado en Ingeniería Química

Departamento de Matemáticas

Introducción

- R es un lenguaje de programación especialmente indicado para el análisis estadístico.
- R fue inicialmente diseñado por Robert Gentleman y Ross Ihaka, miembros del Dpto. de Estadística de la Universidad de Auckland, en Nueva Zelanda. Sin embargo, una de las grandes ventajas de R es que hoy en día es, en realidad, fruto del esfuerzo de miles de personas en todo el mundo que colaboran en su desarrollo.

Introducción

- R se considera la **versión libre** de otro programa propietario, llamado **S o S-Plus**, desarrollado por los Laboratorios Bell. Aunque las diferencias entre R y S son importantes, la mayoría del código escrito para S funciona en R sin modificaciones.
- El código de R está disponible como **software libre** bajo las condiciones de la licencia GNU-GPL. La página principal desde la que se puede acceder tanto a los archivos necesarios para su instalación como al resto de recursos del proyecto R es <http://www.r-project.org>.

Firefox

The R Project for Statistical Co...

http://www.r-project.org/

The R Project for Statistical Computing



About R
[What is R?](#)
[Contributors](#)
[Screenshots](#)
[What's new?](#)

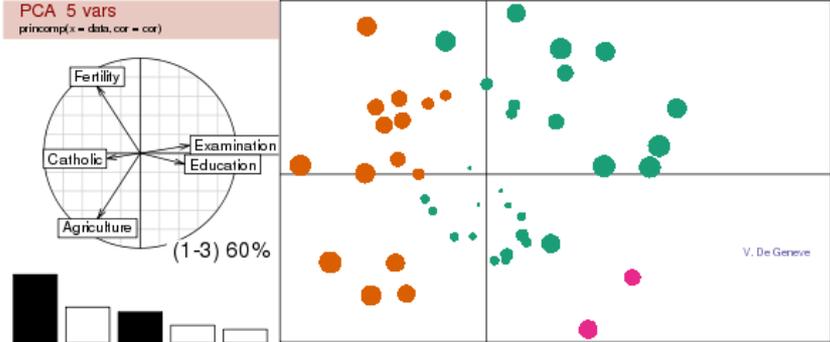
Download, Packages
[CRAN](#)

R Project
[Foundation](#)
[Members & Donors](#)
[Mailing Lists](#)
[Bug Tracking](#)
[Developer Page](#)
[Conferences](#)
[Search](#)

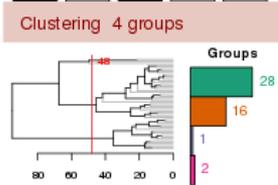
Documentation
[Manuals](#)
[FAQs](#)
[The R Journal](#)
[Wiki](#)
[Books](#)
[Certification](#)
[Other](#)

Misc
[Bioconductor](#)
[Related Projects](#)
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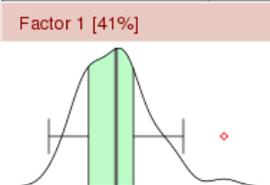
PCA 5 vars
princomp(x = data, cor = cor)



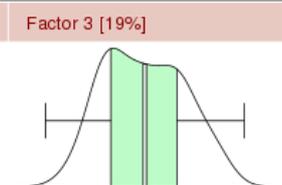
Clustering 4 groups



Factor 1 [41%]



Factor 3 [19%]



V. De Geneve

Getting Started:

- R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), visit your preferred [CRAN mirror](#).
- If you have questions about R like how to download and install software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

News:

R version 2.13.1 has been released on 2011-07-08. The source code is first available in this [directory](#), and eventually via all of CRAN. Binaries will arrive in due course (see download instructions above).

- [The R Journal Vol.3/1](#) is available
- The R Foundation has been awarded [fifteen slots for R projects](#) in the [Google Summer of Code 2011](#).
- [useR! 2011](#), will take place at the University of Warwick, Coventry, UK, August 16-18, 2011.

This server is hosted by the [Institute for Statistics and Mathematics](#) of the [WU Wien](#).

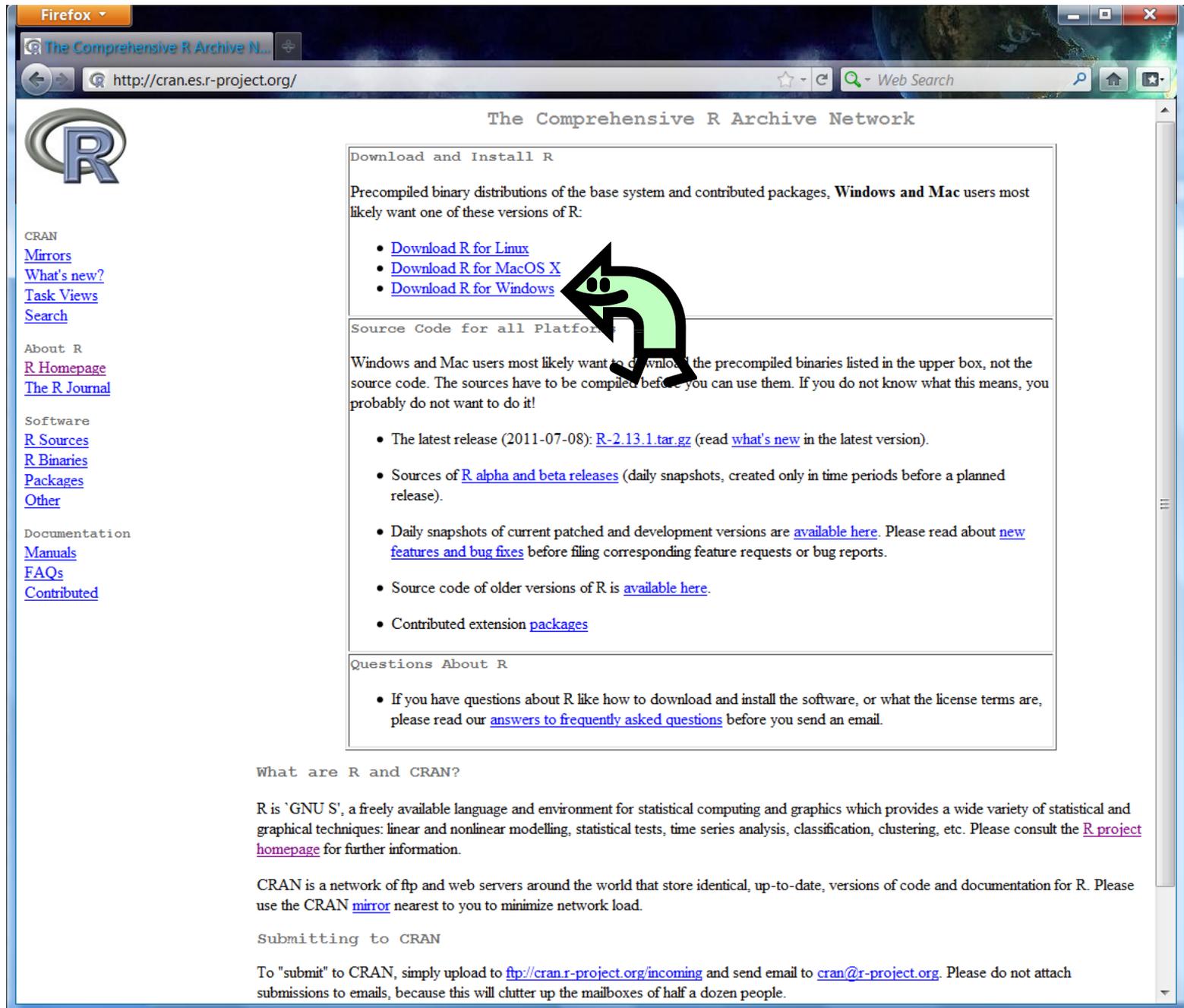
The screenshot shows the Firefox browser window displaying the R Project website. The address bar shows the URL <http://www.r-project.org/>. The page content is organized into several sections:

- About R:** [What is R?](#), [Contributors](#), [Screenshots](#), [What's new?](#)
- Download, Packages:** [CRAN](#)
- R Project:** [Foundation](#), [Members & Donors](#), [Mailing Lists](#), [Bug Tracking](#), [Developer Page](#), [Conferences](#), [Search](#)
- Documentation:** [Manuals](#), [FAQs](#), [The R Journal](#), [Wiki](#), [Books](#), [Certification](#), [Other](#)
- Misc:** [Bioconductor](#), [Related Projects](#), [User Groups](#), [Links](#)

The main content area lists various CRAN mirrors and their locations:

Location	URL	Host
New Zealand	http://cran-mirror.cs.uu.nl/	Utrecht University
Norway	http://cran.stat.auckland.ac.nz/	University of Auckland
Philippines	http://cran.uib.no/	University of Bergen
Poland	http://cran.stat.upd.edu.ph/	University of the Philippines and PREGINET
Russia	http://cran.privatejetscharter.net/	Privatejetscharter.net, Gdansk
Singapore	http://piotrkosoft.net/pub/mirrors/CRAN/	Piotrkosoft - Data Storage Center
Slovakia	http://r.meteo.uni.wroc.pl/	University of Wroclaw
Spain	http://cran.gis-lab.info/	GIS-Lab.info
South Africa	http://cran.stat.nus.edu.sg/	National University of Singapore
Sweden	http://cran.fyxm.net/	FYXM.net, Bratislava
Switzerland	http://cran.phphosts.org/	phphosts.org, Bratislava
Taiwan	http://cran.ru.ac.za/	Rhodes University
Thailand	http://cran.es.r-project.org/	Spanish National Research Network, Madrid
UK	http://ftp.sunet.se/pub/lang/CRAN/	Swedish University Computer Network, Uppsala
UK	http://stat.ethz.ch/CRAN/	ETH Zuerich
UK	http://cran.cs.pu.edu.tw/	Providence University, Taichung
UK	http://cran.csie.ntu.edu.tw/	National Taiwan University, Taipei
UK	http://cran.stat.tku.edu.tw/	Tamkang University, Taipei
UK	http://mirrors.psu.ac.th/pub/cran/	Prince of Songkla University, Hatyai
UK	http://www.stats.bris.ac.uk/R/	University of Bristol
UK	http://cran.ma.imperial.ac.uk/	Imperial College London
UK	http://star-www.st-andrews.ac.uk/cran/	St Andrews University

A green arrow with a stick figure points to the Swedish University Computer Network, Uppsala.



The screenshot shows a Firefox browser window with the address bar displaying `http://cran.es.r-project.org/`. The page title is "The Comprehensive R Archive Network". The main content area is titled "Download and Install R" and contains the following text:

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 MacOS X](#)
- [Download R for Windows](#)

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!

- The latest release (2011-07-08): [R-2.13.1.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.
- Source code of older versions of R is [available here](#).
- 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.

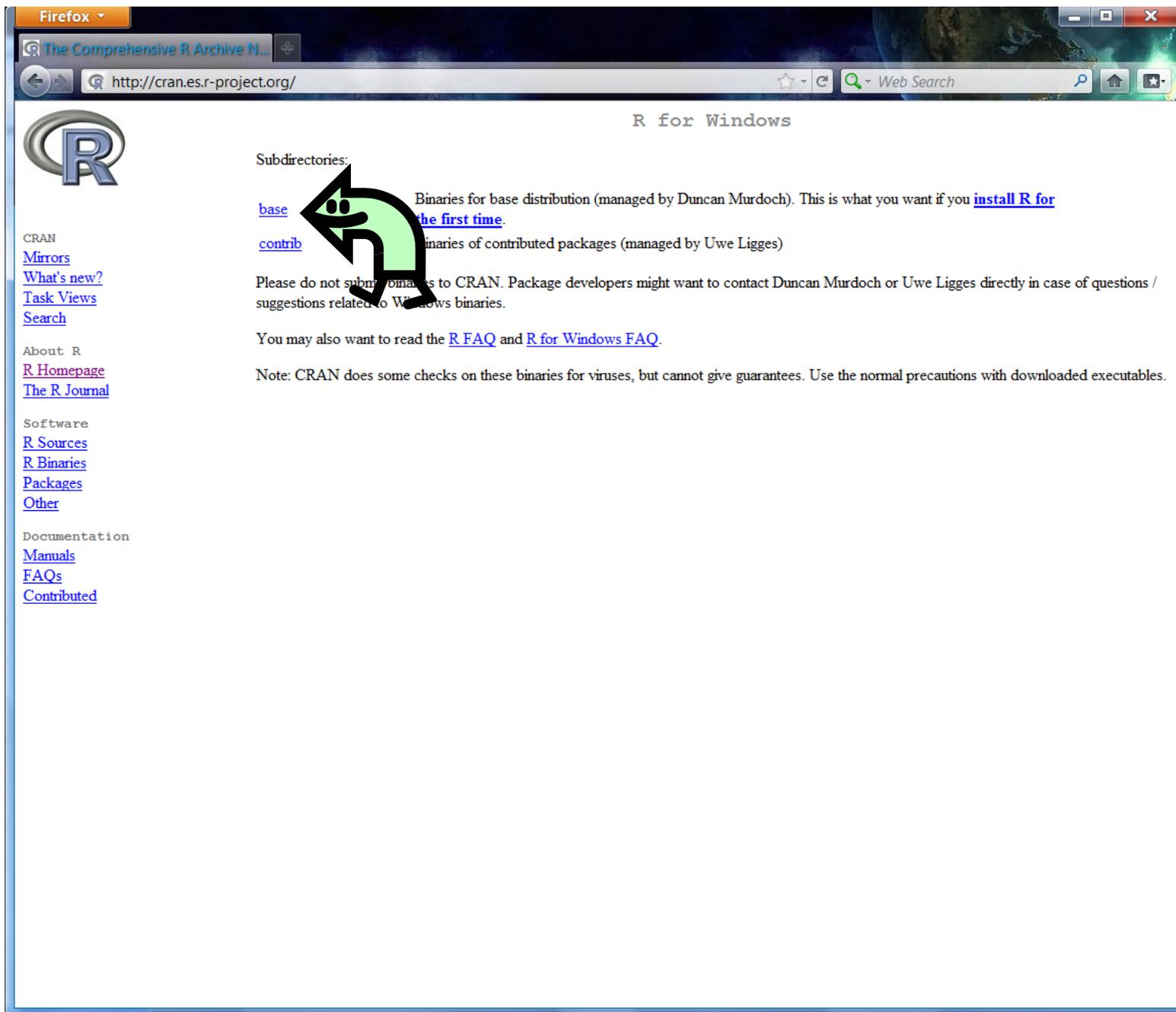
What are R and CRAN?

R is 'GNU S', a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modelling, statistical tests, time series analysis, classification, clustering, etc. Please consult the [R project homepage](#) for further information.

CRAN is a network of ftp and web servers around the world that store identical, up-to-date, versions of code and documentation for R. Please use the CRAN [mirror](#) nearest to you to minimize network load.

Submitting to CRAN

To "submit" to CRAN, simply upload to <ftp://cran.r-project.org/incoming> and send email to cran@r-project.org. Please do not attach submissions to emails, because this will clutter up the mailboxes of half a dozen people.



Firefox

The Comprehensive R Archive N...

http://cran.es.r-project.org/

Web Search

R for Windows

Subdirectories:

- [base](#) Binaries for base distribution (managed by Duncan Murdoch). This is what you want if you [install R for the first time](#).
- [contrib](#) Binaries of contributed packages (managed by Uwe Ligges)

Please do not submit binaries to CRAN. Package developers might want to contact Duncan Murdoch or Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

CRAN

- [Mirrors](#)
- [What's new?](#)
- [Task Views](#)
- [Search](#)

About R

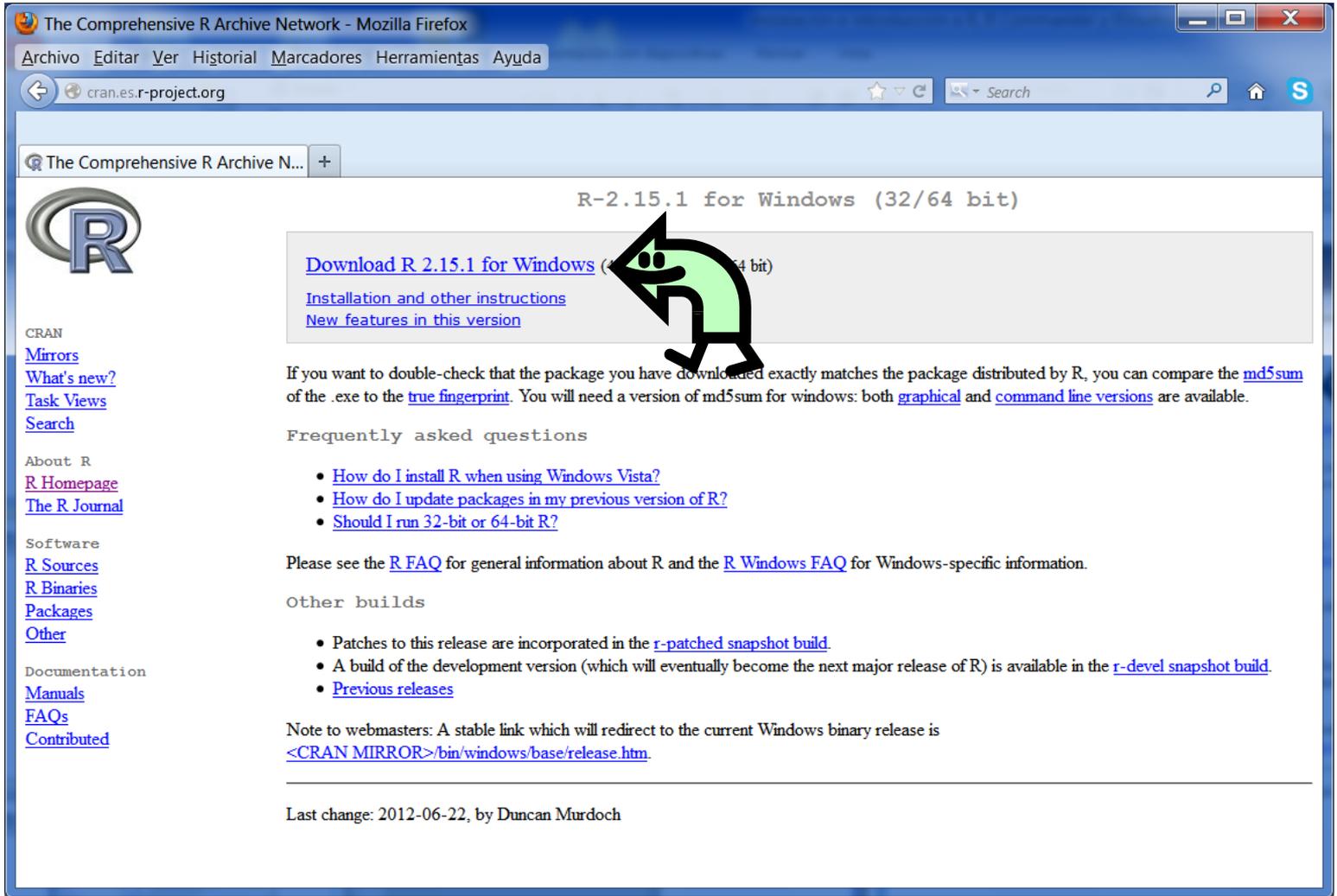
- [R Homepage](#)
- [The R Journal](#)

Software

- [R Sources](#)
- [R Binaries](#)
- [Packages](#)
- [Other](#)

Documentation

- [Manuals](#)
- [FAQs](#)
- [Contributed](#)



The screenshot shows a Mozilla Firefox browser window displaying the CRAN website for R-2.15.1 for Windows (32/64 bit). The browser's address bar shows the URL cran.es.r-project.org. The page content includes the R logo, navigation 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, Contributed), and the main content area for R-2.15.1 for Windows (32/64 bit). A green arrow points to the [Download R 2.15.1 for Windows](#) link. Below this link are links for [Installation and other instructions](#) and [New features in this version](#). The main text explains how to double-check the package and provides frequently asked questions. A note to webmasters is also present.

R-2.15.1 for Windows (32/64 bit)

[Download R 2.15.1 for Windows](#) (32/64 bit)

[Installation and other instructions](#)

[New features in this version](#)

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](#)

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: 2012-06-22, by Duncan Murdoch

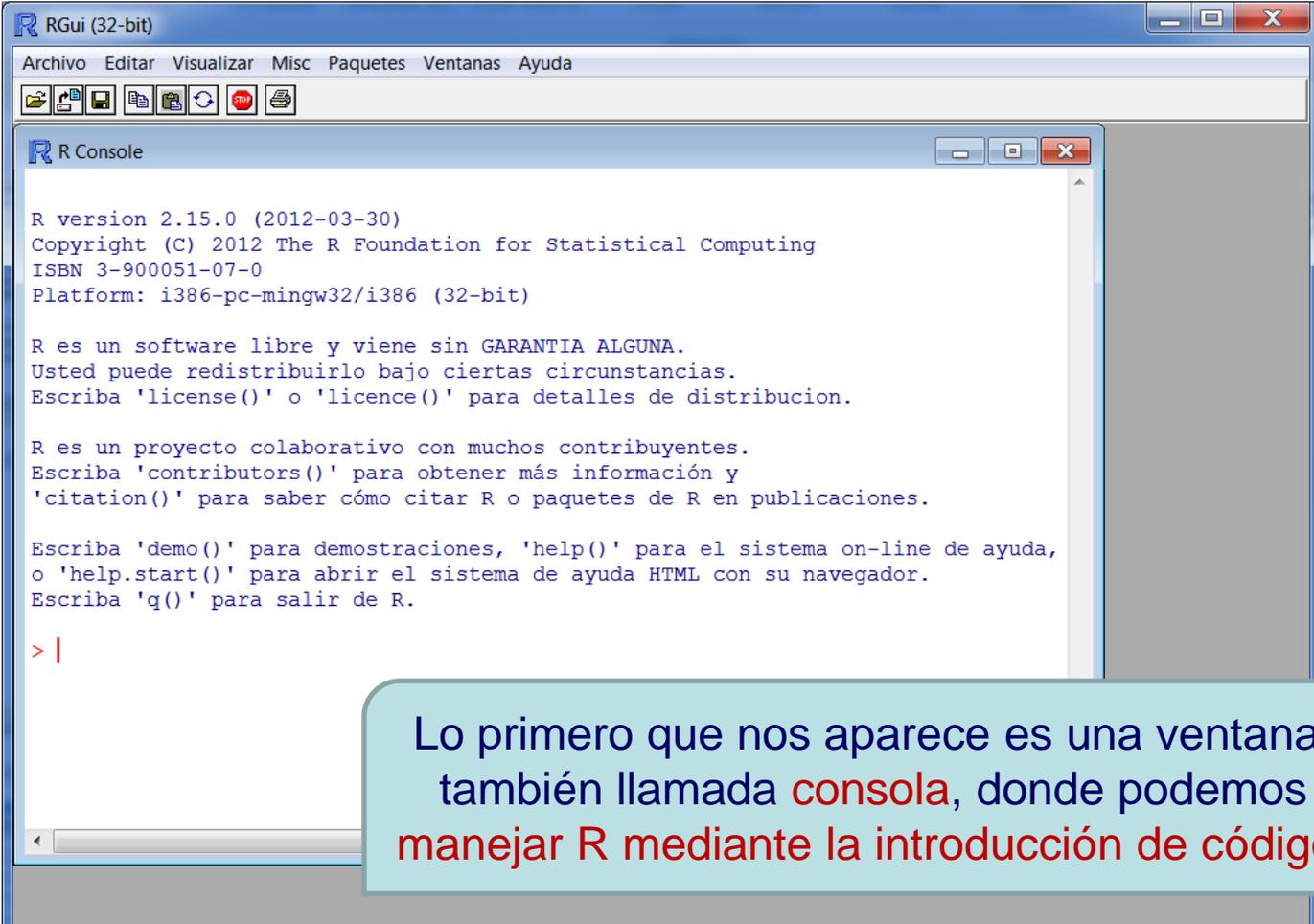
Es recomendable elegir siempre la última versión disponible.

The screenshot shows a Mozilla Firefox browser window displaying the CRAN website for R-2.15.1 for Windows (32/64 bit). The browser's address bar shows 'cran.es.r-project.org'. The page content includes a navigation menu, a sidebar with links like 'Mirrors', 'What's new?', and 'Task Views', and a main content area with a 'Download R 2.15.1 for Windows' link. A dialog box titled 'Abriendo R-2.15.1-win.exe' is open, asking to save the file 'R-2.15.1-win.exe' (47.1 MB) from 'http://cran.es.r-project.org'. The dialog box has a 'Guardar archivo' button and a 'Cancelar' button. Two green arrows with faces point to the dialog box. The page footer indicates 'Last change: 2012-06-22, by Duncan Murdoch'.

Instalación de

- La instalación en sí con el archivo ejecutable es trivial.
- El único paso que es importante en ella es el momento de decidir si deseamos la instalación en arquitecturas de 32 o 64 bits: es aconsejable que, a no ser que deseemos un uso de R para cálculo intensivo, se instale la versión de 32 bits, ya que algunos paquetes aún no están disponibles en la versión de 64 bits.
- Una vez concluida la instalación, podemos ejecutar el programa desde cualquiera de los iconos que nos genera.

La consola y el editor de



The screenshot shows the RGui (32-bit) window with a menu bar (Archivo, Editar, Visualizar, Misc, Paquetes, Ventanas, Ayuda) and a toolbar. The R Console window is open, displaying the following text:

```
R version 2.15.0 (2012-03-30)
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribucion.

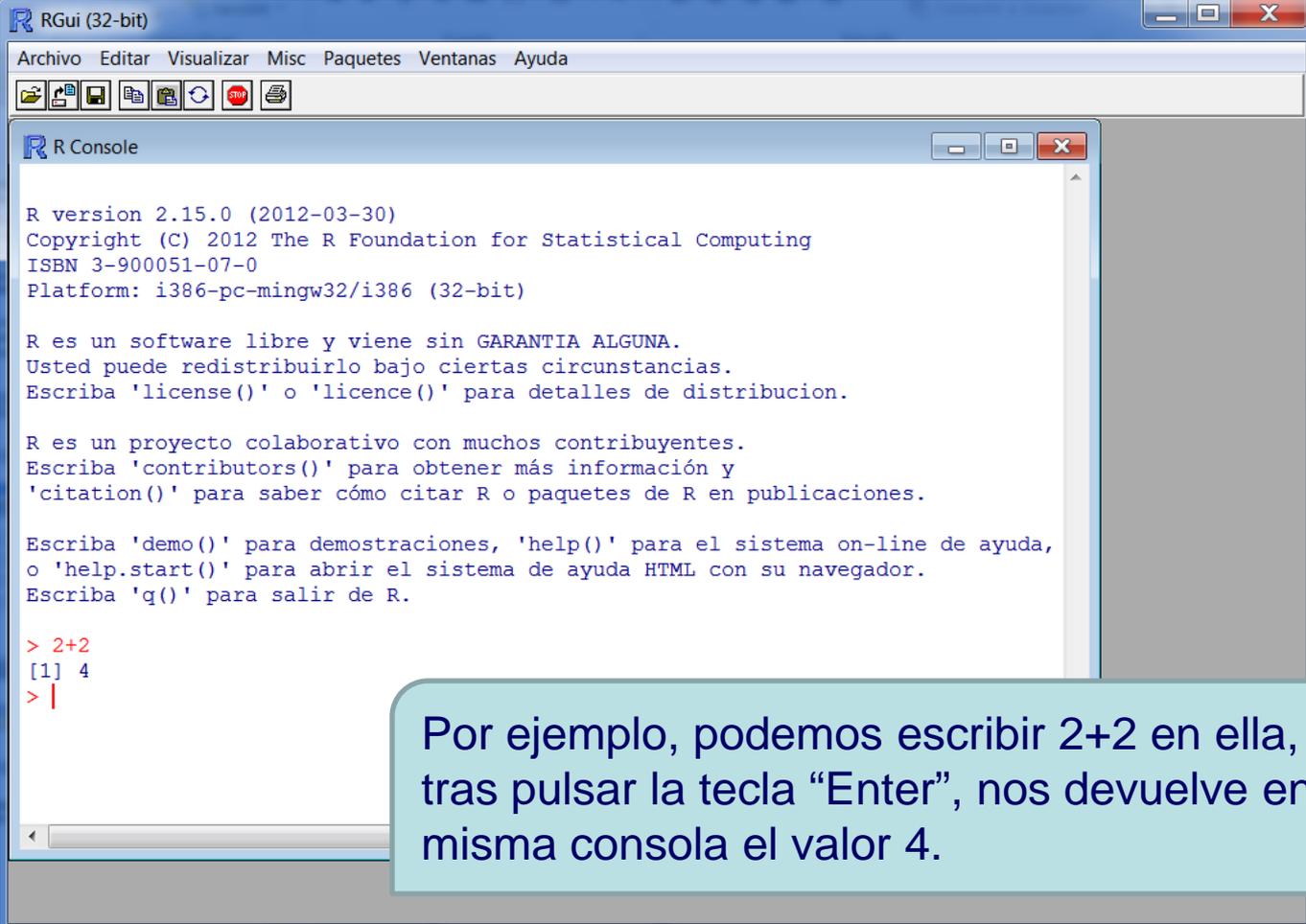
R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> |
```

Lo primero que nos aparece es una ventana, también llamada **consola**, donde podemos **manejar R mediante la introducción de código.**

La consola y el editor de



```
RGui (32-bit)
Archivo Editar Visualizar Misc Paquetes Ventanas Ayuda

R Console

R version 2.15.0 (2012-03-30)
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

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o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

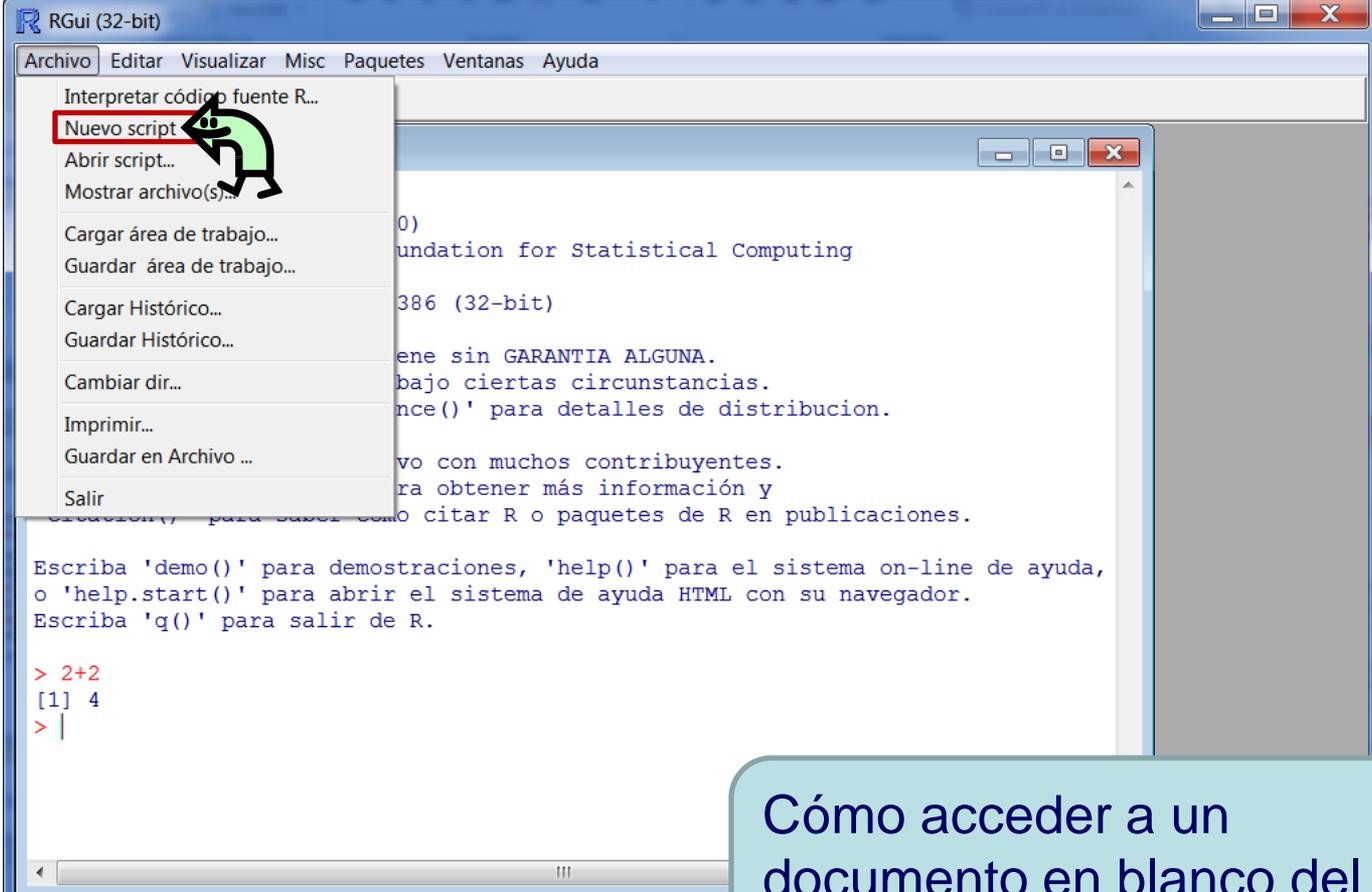
> 2+2
[1] 4
> |
```

Por ejemplo, podemos escribir $2+2$ en ella, y tras pulsar la tecla “Enter”, nos devuelve en la misma consola el valor 4.

La consola y el editor de

- Sin embargo, **ésta no es la manera más eficiente de trabajar en R.**
- A poco que estemos realizando un trabajo de mediana complejidad, **será muy útil manejar todas las entradas de código que solicitemos a R en un entorno donde podamos corregirlas, retocarlas, repetirlas, guardarlas para continuar el trabajo en otro momento, etc.**
- Ésta es la función del **editor de R.**

La consola y el editor de



RGui (32-bit)

Archivo Editar Visualizar Misc Paquetes Ventanas Ayuda

- Interpretar código fuente R...
- Nuevo script**
- Abrir script...
- Mostrar archivo(s)...
- Cargar área de trabajo...
- Guardar área de trabajo...
- Cargar Histórico...
- Guardar Histórico...
- Cambiar dir...
- Imprimir...
- Guardar en Archivo ...
- Salir

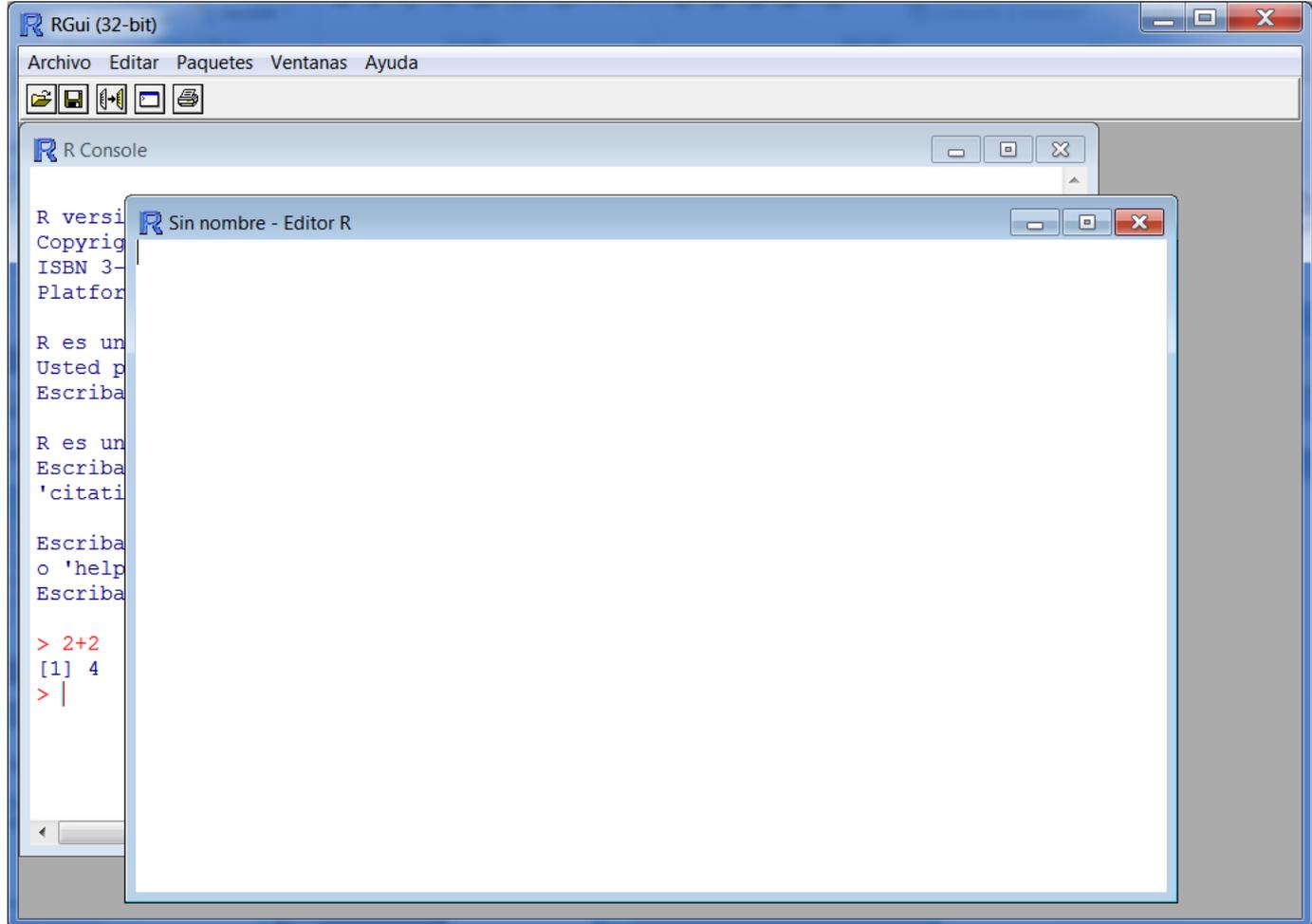
```
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386 (32-bit)
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bajo ciertas circunstancias.
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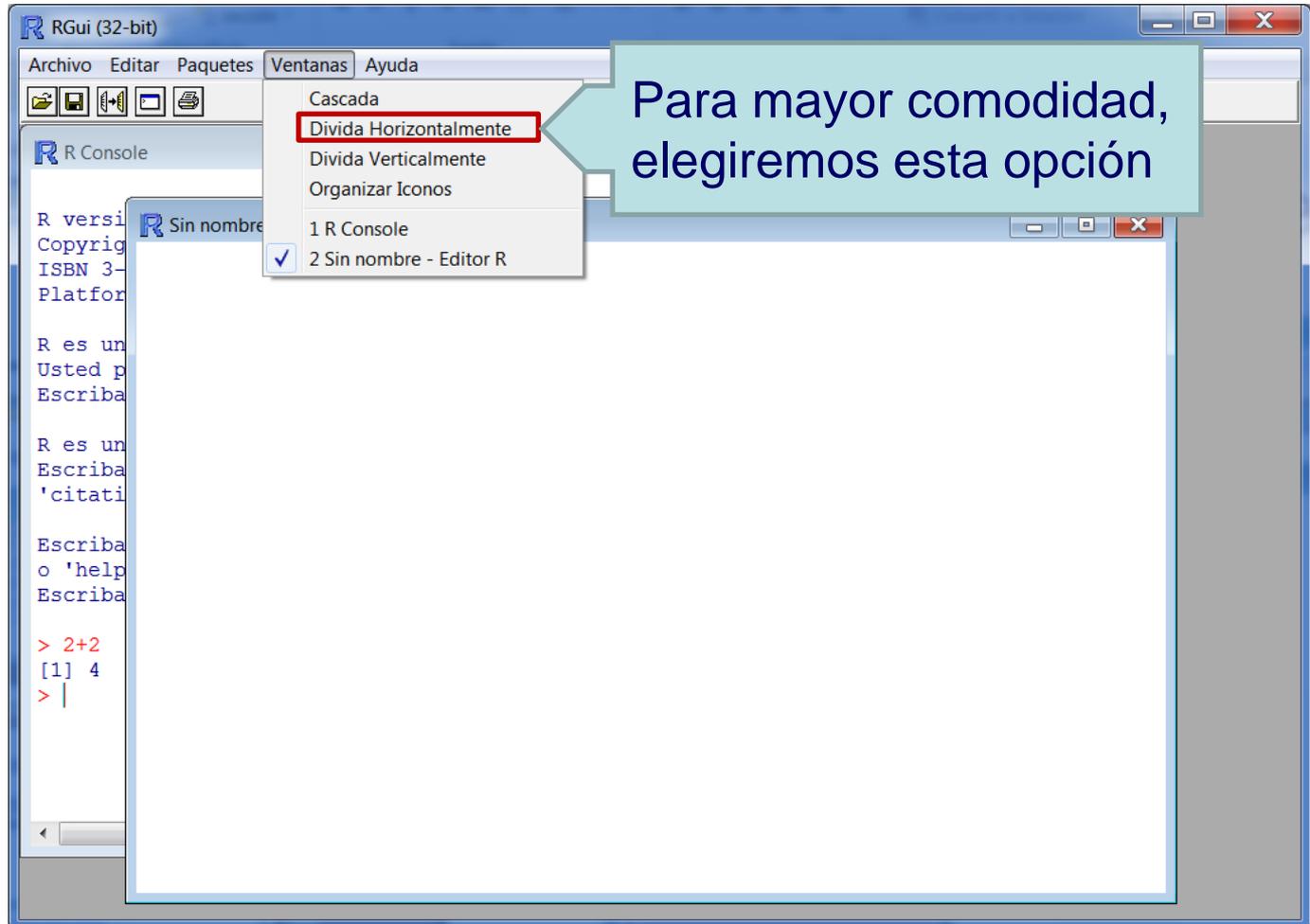
> 2+2
[1] 4
> |
```

Cómo acceder a un documento en blanco del editor, llamado **script**.

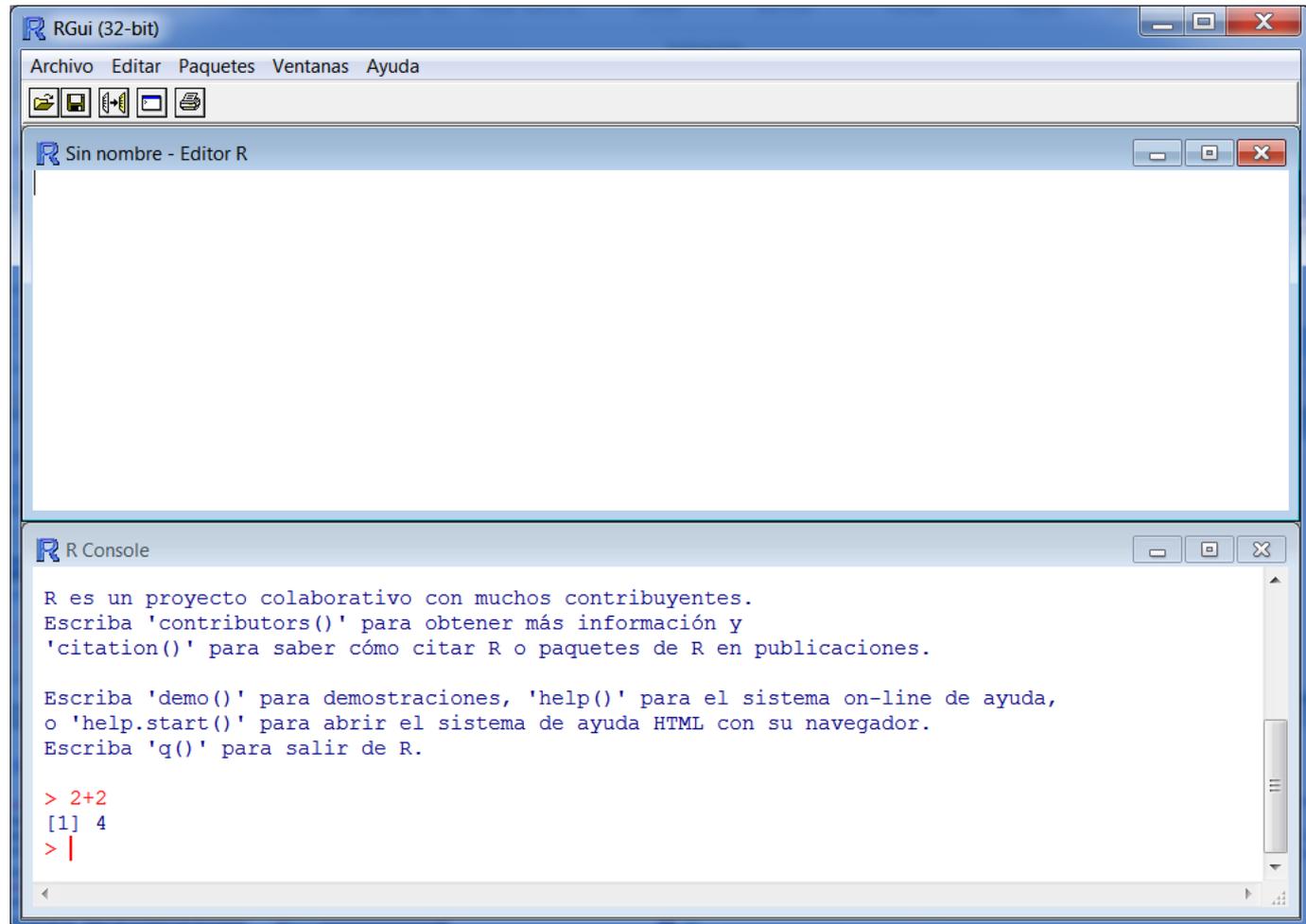
La consola y el editor de



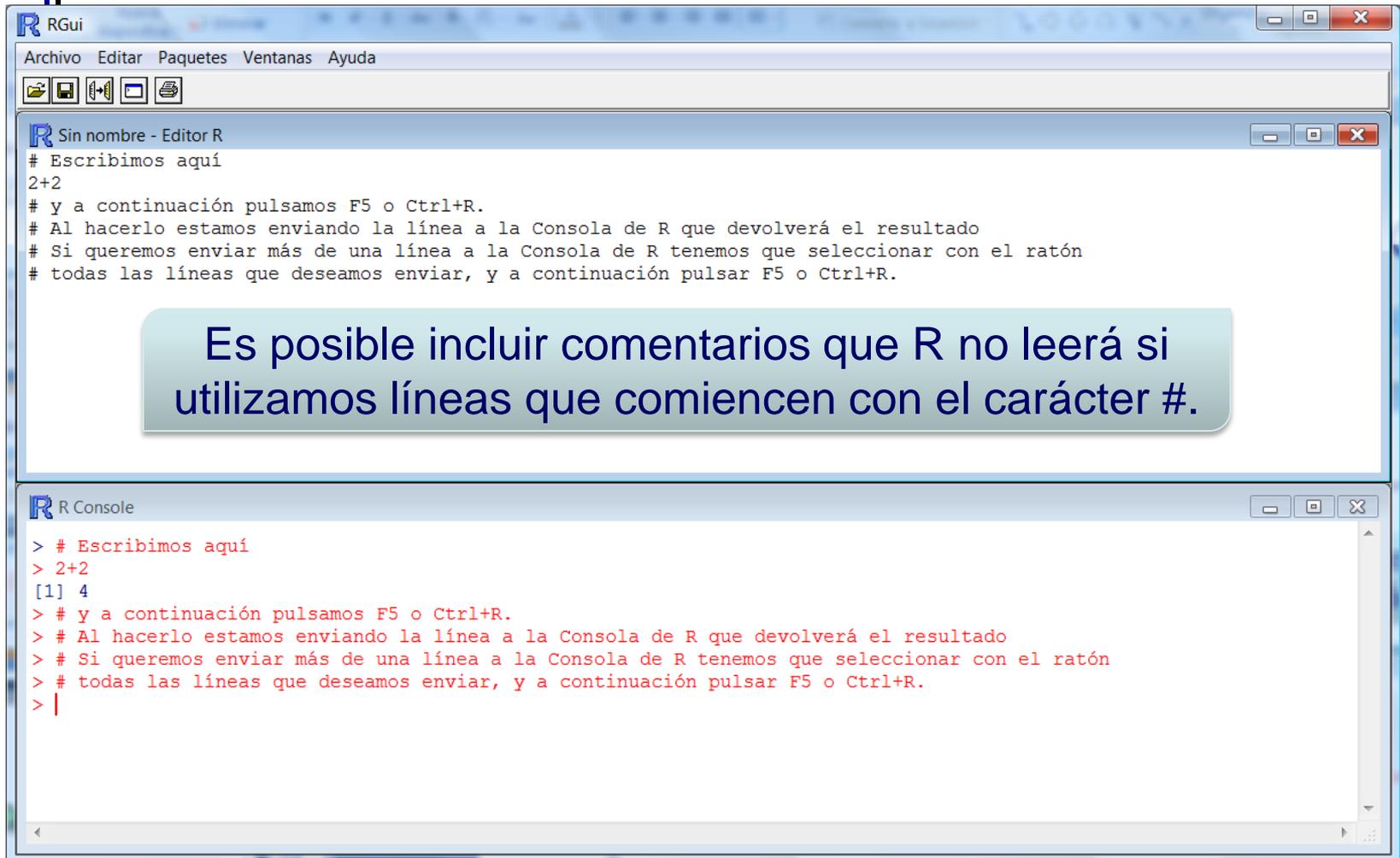
La consola y el editor de



La consola y el editor de



La consola y el editor de



The screenshot shows the RGui interface. The top window is the editor, titled "Sin nombre - Editor R". It contains the following text:

```
# Escribimos aquí  
2+2  
# y a continuación pulsamos F5 o Ctrl+R.  
# Al hacerlo estamos enviando la línea a la Consola de R que devolverá el resultado  
# Si queremos enviar más de una línea a la Consola de R tenemos que seleccionar con el ratón  
# todas las líneas que deseamos enviar, y a continuación pulsar F5 o Ctrl+R.
```

The bottom window is the R Console, titled "R Console". It shows the execution of the code from the editor:

```
> # Escribimos aquí  
> 2+2  
[1] 4  
> # y a continuación pulsamos F5 o Ctrl+R.  
> # Al hacerlo estamos enviando la línea a la Consola de R que devolverá el resultado  
> # Si queremos enviar más de una línea a la Consola de R tenemos que seleccionar con el ratón  
> # todas las líneas que deseamos enviar, y a continuación pulsar F5 o Ctrl+R.  
> |
```

Es posible incluir comentarios que R no leerá si utilizamos líneas que comiencen con el carácter #.

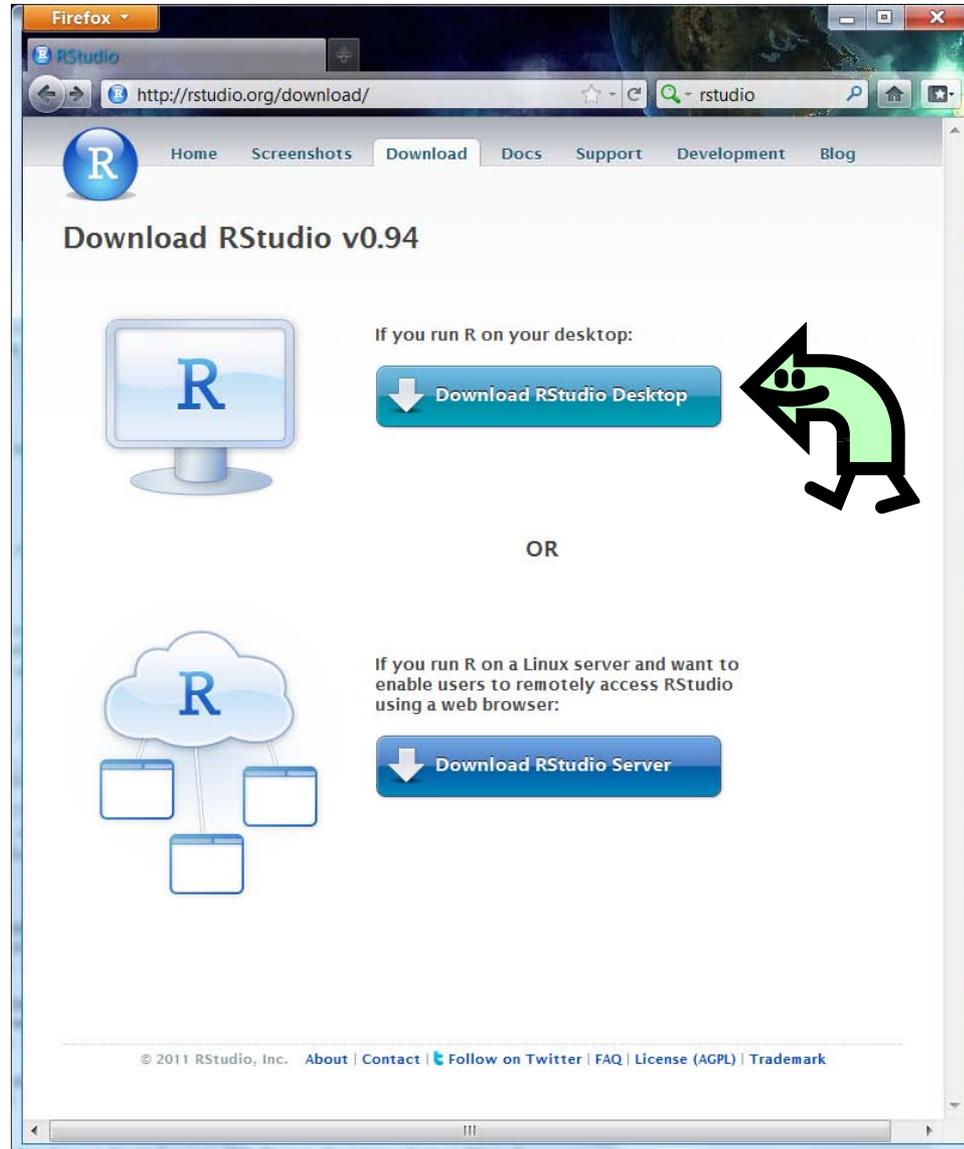
La consola y el editor de

- La **utilidad de un script o guión de trabajo** radica en que podemos modificar nuestras líneas de código con comodidad y guardarlas para el futuro.
- Para ello, utilizaremos la opción **Guardar** o **Guardar como ...** del menú **Archivo** de la consola.
- Evidentemente, después podremos recuperar el script previamente guardado mediante la opción **Abrir script ...** del mismo menú.

RStudio

- RStudio es un **entorno de desarrollo integrado (IDE)** para **R** que funciona con la versión estándar de R disponible en CRAN.
- Al igual que R, **RStudio es software libre**.
- El objetivo de sus creadores es desarrollar una herramienta potente que soporte los procedimientos y técnicas requeridas para realizar análisis de alta calidad y dignos de confianza.
- Al mismo tiempo, pretenden que RStudio sea tan **sencillo e intuitivo** como sea posible **para proporcionar un entorno amigable**, tanto para los ya experimentados como para los nuevos usuarios de R.

Instalación de RStudio



Firefox

RStudio

http://rstudio.org/download/

Home Screenshots **Download** Docs Support Development Blog

Download RStudio v0.94



If you run R on your desktop:

[Download RStudio Desktop](#)

OR

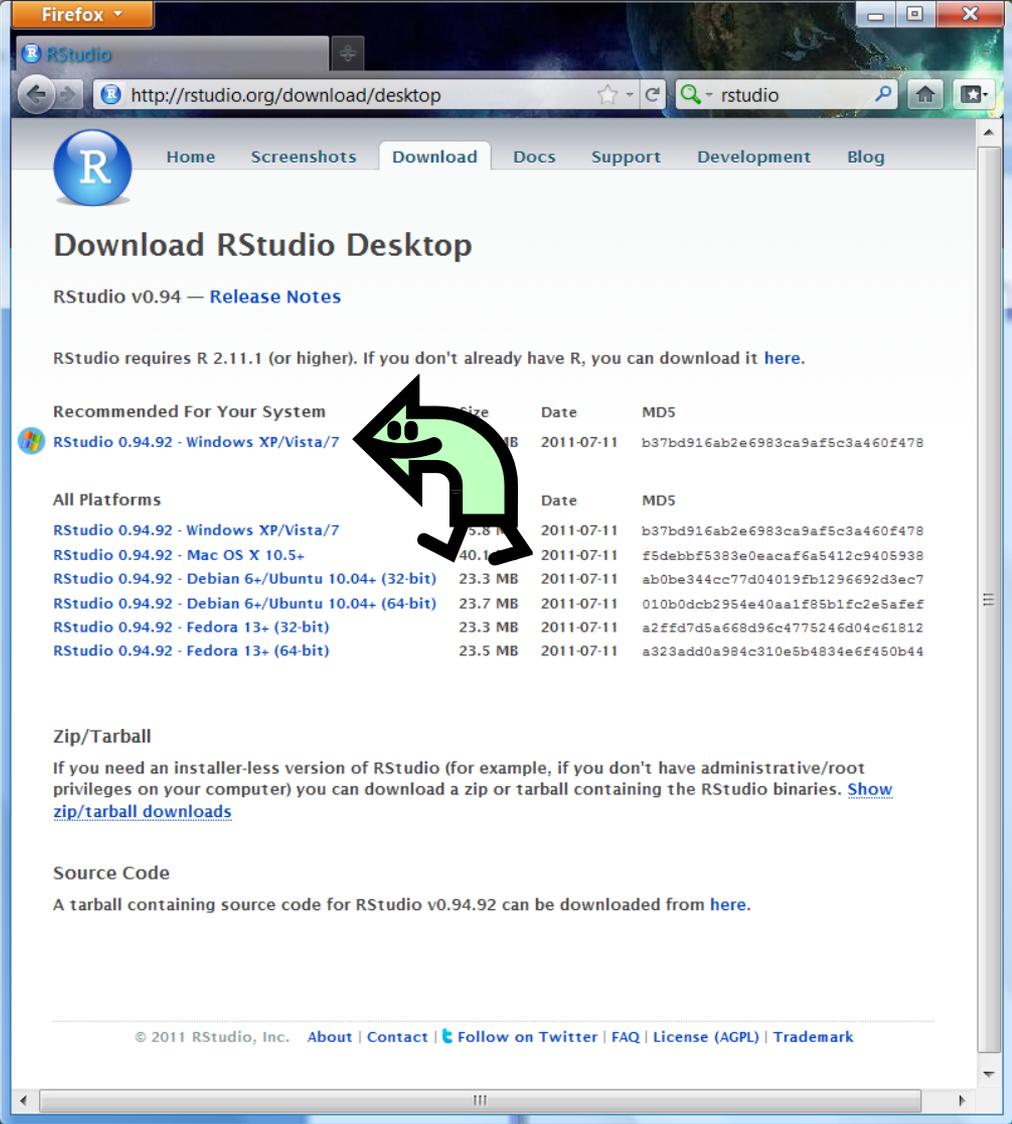


If you run R on a Linux server and want to enable users to remotely access RStudio using a web browser:

[Download RStudio Server](#)

© 2011 RStudio, Inc. [About](#) | [Contact](#) | [Follow on Twitter](#) | [FAQ](#) | [License \(AGPL\)](#) | [Trademark](#)

Instalación de RStudio



Firefox

RStudio

http://rstudio.org/download/desktop

Home Screenshots **Download** Docs Support Development Blog

Download RStudio Desktop

RStudio v0.94 — [Release Notes](#)

RStudio requires R 2.11.1 (or higher). If you don't already have R, you can download it [here](#).

Recommended For Your System

	Size	Date	MD5
 RStudio 0.94.92 - Windows XP/Vista/7	58.1 MB	2011-07-11	b37bd916ab2e6983ca9af5c3a460f478

All Platforms

	Size	Date	MD5
RStudio 0.94.92 - Windows XP/Vista/7	58.1 MB	2011-07-11	b37bd916ab2e6983ca9af5c3a460f478
RStudio 0.94.92 - Mac OS X 10.5+	40.1 MB	2011-07-11	f5debbf5383e0eaca6a5412c9405938
RStudio 0.94.92 - Debian 6+/Ubuntu 10.04+ (32-bit)	23.3 MB	2011-07-11	ab0be344cc77d04019fb1296692d3ec7
RStudio 0.94.92 - Debian 6+/Ubuntu 10.04+ (64-bit)	23.7 MB	2011-07-11	010b0dcb2954e40aa1f85b1fc2e5afef
RStudio 0.94.92 - Fedora 13+ (32-bit)	23.3 MB	2011-07-11	a2ffd7d5a668d96c4775246d04c61812
RStudio 0.94.92 - Fedora 13+ (64-bit)	23.5 MB	2011-07-11	a323add0a984c310e5b4834e6f450b44

Zip/Tarball

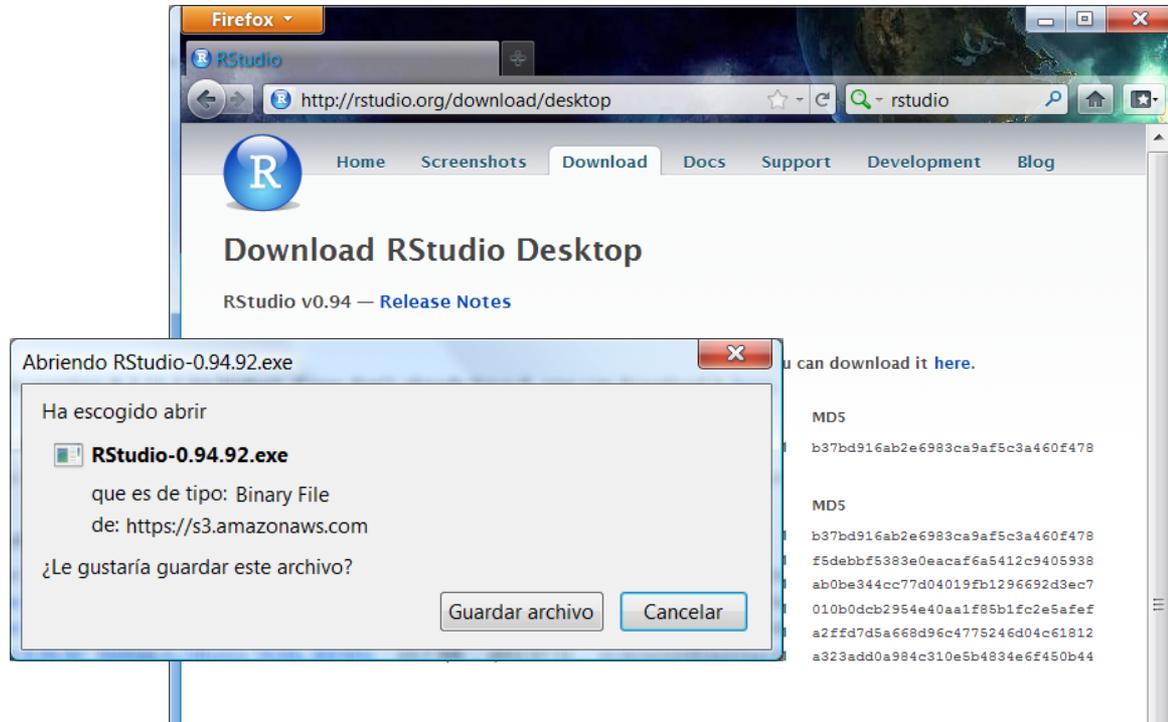
If you need an installer-less version of RStudio (for example, if you don't have administrative/root privileges on your computer) you can download a zip or tarball containing the RStudio binaries. [Show zip/tarball downloads](#)

Source Code

A tarball containing source code for RStudio v0.94.92 can be downloaded from [here](#).

© 2011 RStudio, Inc. [About](#) | [Contact](#) | [Follow on Twitter](#) | [FAQ](#) | [License \(AGPL\)](#) | [Trademark](#)

Instalación de RStudio



Abriendo RStudio-0.94.92.exe

Ha escogido abrir

 **RStudio-0.94.92.exe**
que es de tipo: Binary File
de: <https://s3.amazonaws.com>

¿Le gustaría guardar este archivo?

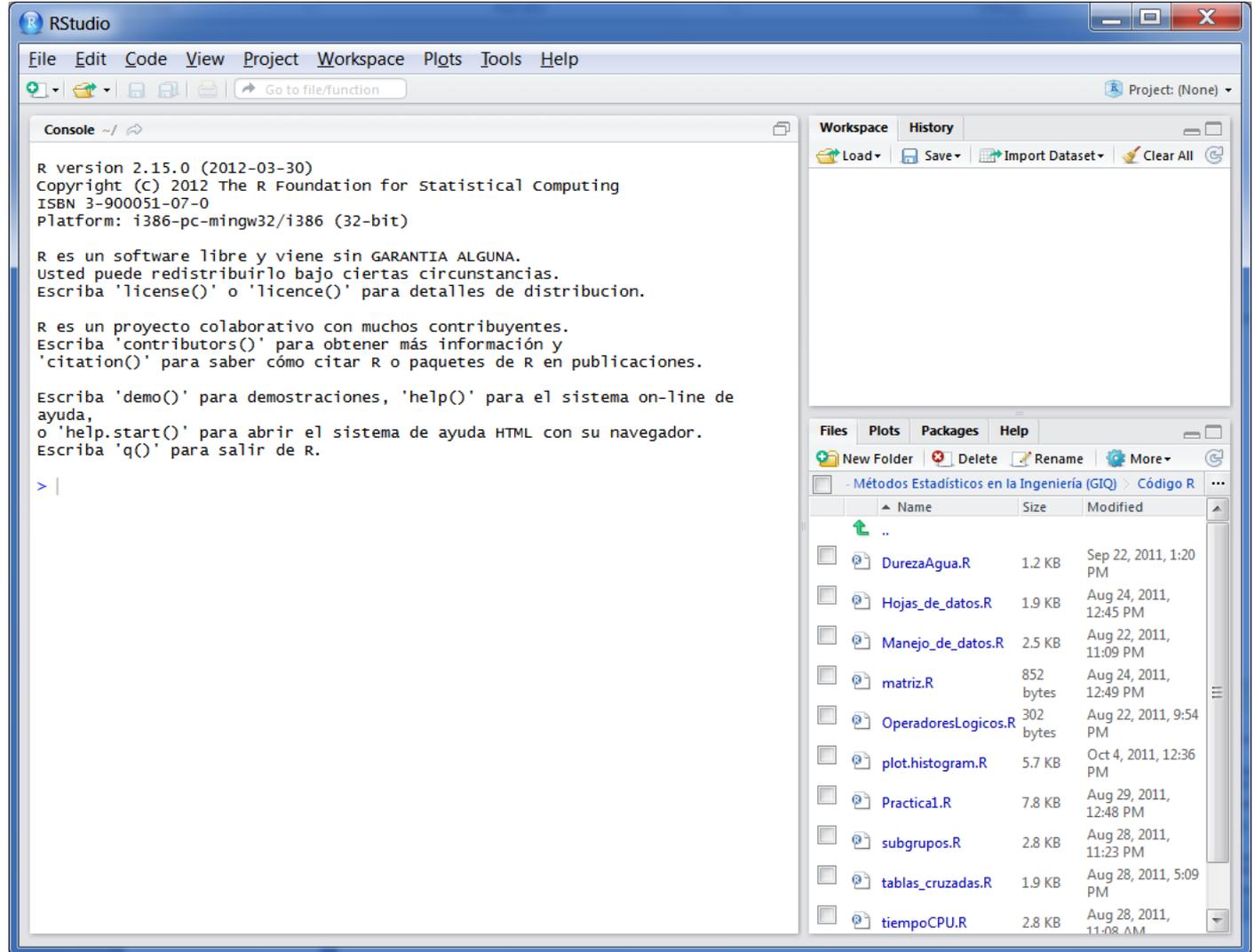
... can download it [here](#).

MDS
b37bd916ab2e6983ca9af5c3a460f478

MDS
b37bd916ab2e6983ca9af5c3a460f478
f5debbf5383e0eaca6a5412c9405938
ab0be344cc77d04019fb1296692d3ec7
010b0dcb2954e40aa1f85b1fc2e5afef
a2ffd7d5a668d96c4775246d04c61812
a323add0a984c310e5b4834e6f450b44

- La instalación en sí con el archivo ejecutable es trivial.
- Una vez concluida la instalación, podemos ejecutar el programa desde cualquiera de los iconos que nos genera.

Introducción a RStudio



The screenshot displays the RStudio environment. The top menu bar includes File, Edit, Code, View, Project, Workspace, Plots, Tools, and Help. The console window shows the R version 2.15.0 (2012-03-30) and provides instructions on how to use the help system. The workspace area is currently empty. The file explorer on the right shows a directory named 'Métodos Estadísticos en la Ingeniería (GIQ) > Código R' containing several R script files.

```
R version 2.15.0 (2012-03-30)
Copyright (c) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribución.

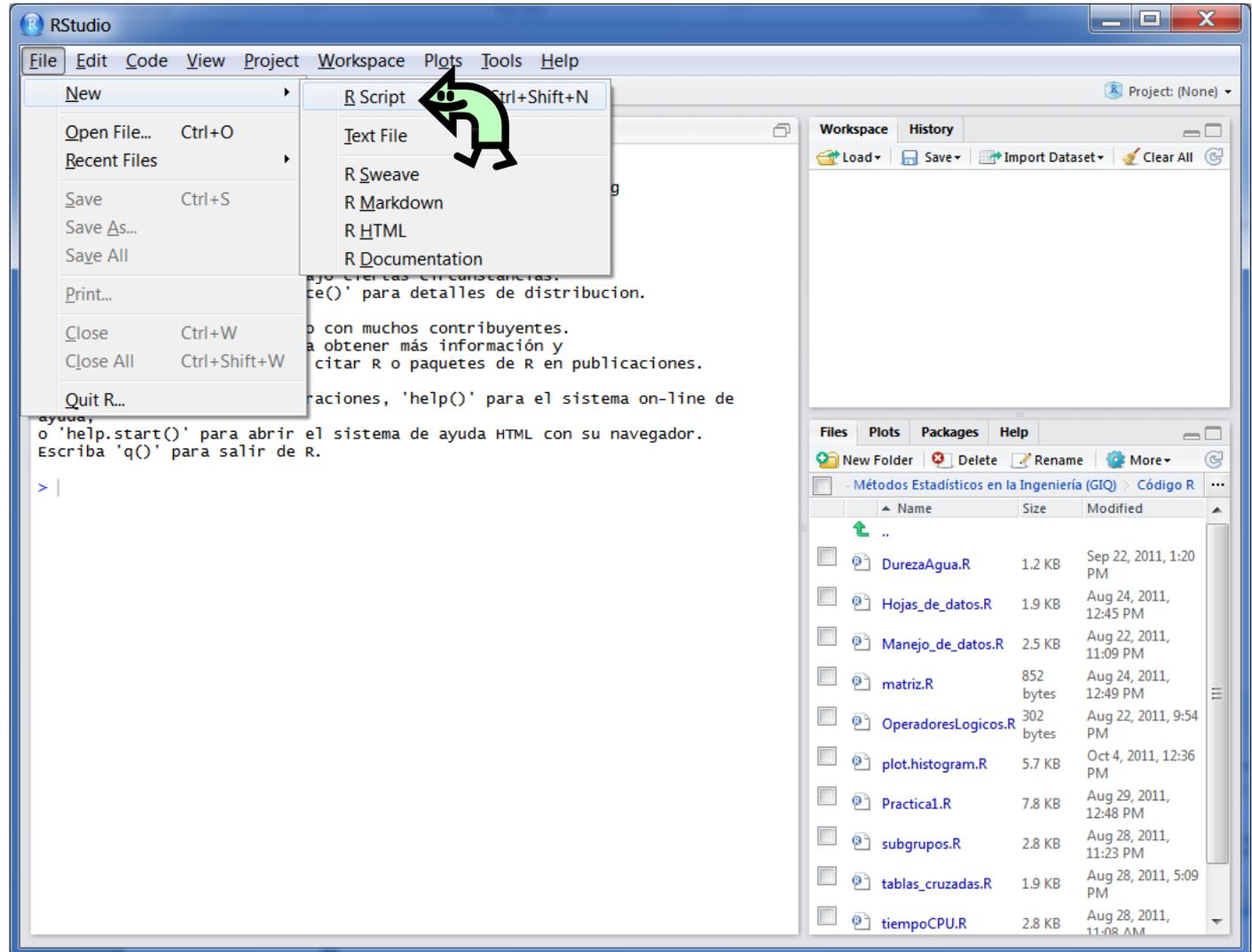
R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de
ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> |
```

Name	Size	Modified
..		
DurezaAgua.R	1.2 KB	Sep 22, 2011, 1:20 PM
Hojas_de_datos.R	1.9 KB	Aug 24, 2011, 12:45 PM
Manejo_de_datos.R	2.5 KB	Aug 22, 2011, 11:09 PM
matriz.R	852 bytes	Aug 24, 2011, 12:49 PM
OperadoresLogicos.R	302 bytes	Aug 22, 2011, 9:54 PM
plot.histogram.R	5.7 KB	Oct 4, 2011, 12:36 PM
Practical1.R	7.8 KB	Aug 29, 2011, 12:48 PM
subgrupos.R	2.8 KB	Aug 28, 2011, 11:23 PM
tablas_cruzadas.R	1.9 KB	Aug 28, 2011, 5:09 PM
tiempoCPU.R	2.8 KB	Aug 28, 2011, 11:08 AM

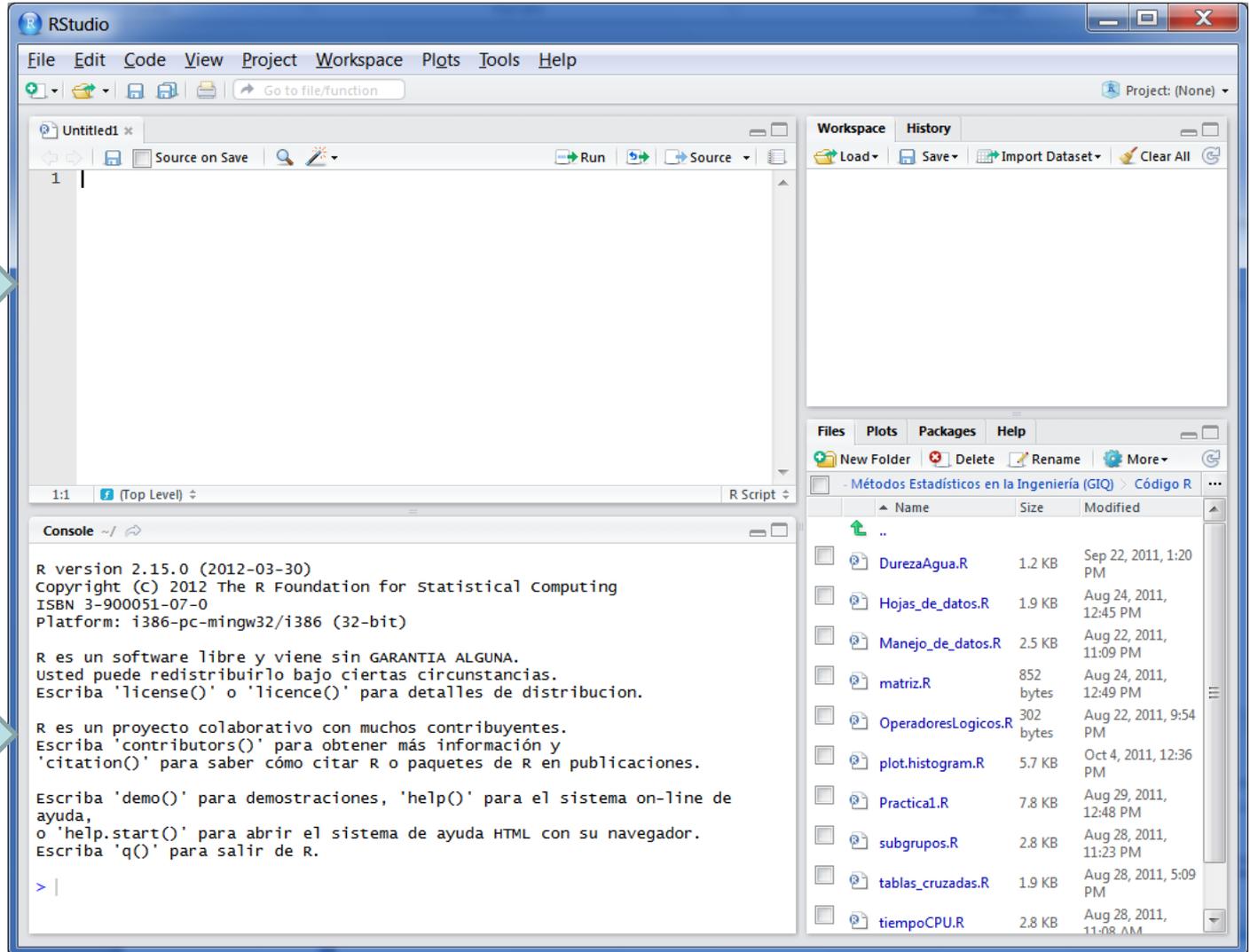
Introducción a RStudio



Introducción a RStudio

Editor

Consola

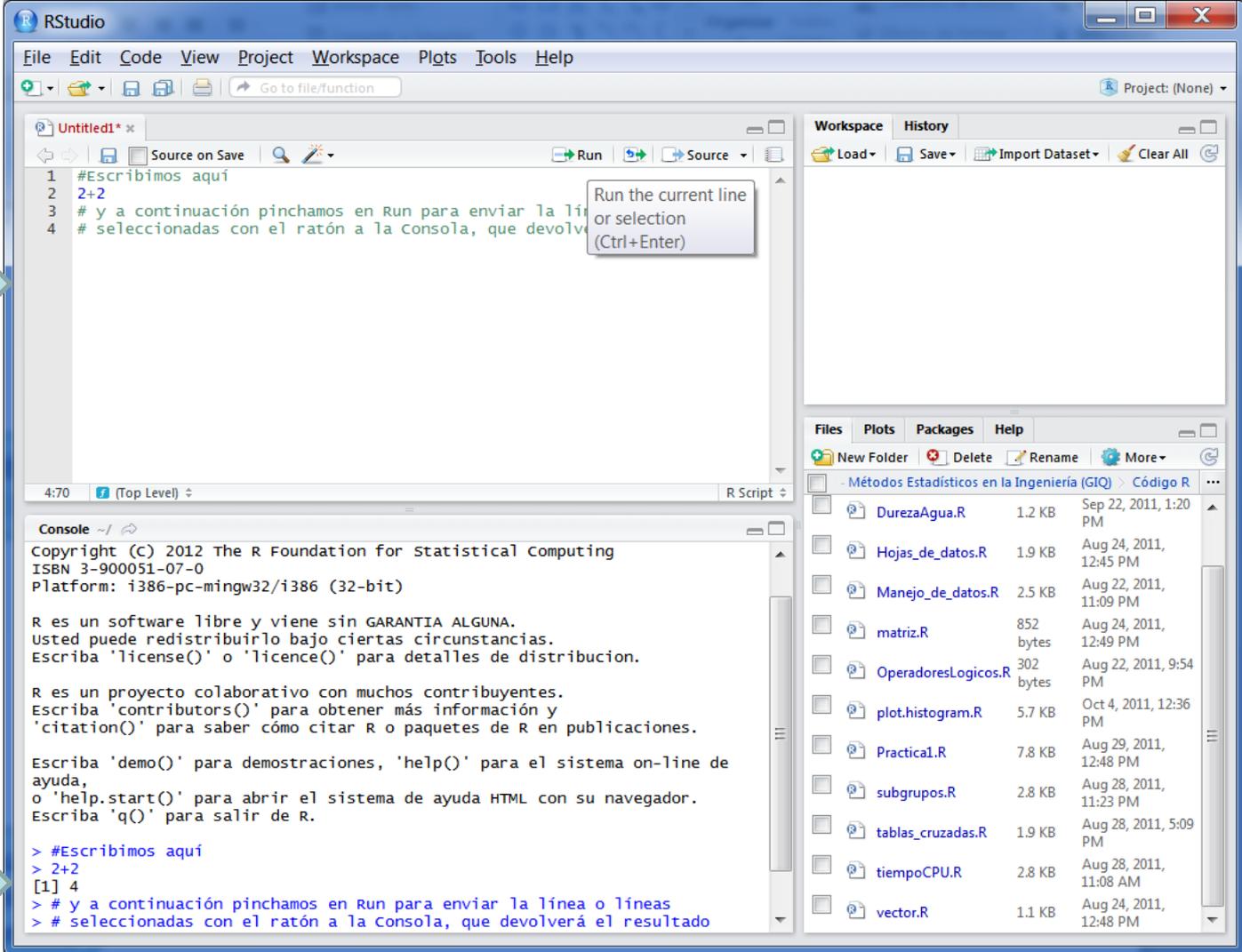


The screenshot displays the RStudio environment with the following components:

- Editor:** A text editor window titled "Untitled1" with a single line of code: "1 |".
- Console:** A terminal window showing the R version 2.15.0 (2012-03-30) and copyright information. It includes instructions for using R, such as "Escriba 'license()' o 'licence()' para detalles de distribución." and "Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda."
- Workspace:** A panel showing a list of files in the current workspace, including "DurezaAgua.R", "Hojas_de_datos.R", "Manejo_de_datos.R", "matriz.R", "OperadoresLogicos.R", "plot.histogram.R", "Practical1.R", "subgrupos.R", "tablas_cruzadas.R", and "tiempoCPU.R".

Introducción a RStudio

Escribimos
en el Editor



The screenshot shows the RStudio interface with the following components:

- Editor:** Contains R code:

```
1 #Escribimos aquí
2 2+2
3 # y a continuación pinchamos en Run para enviar la línea o líneas
4 # seleccionadas con el ratón a la consola, que devolverá el resultado
```
- Console:** Shows the R startup message and the execution of the code:

```
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
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Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

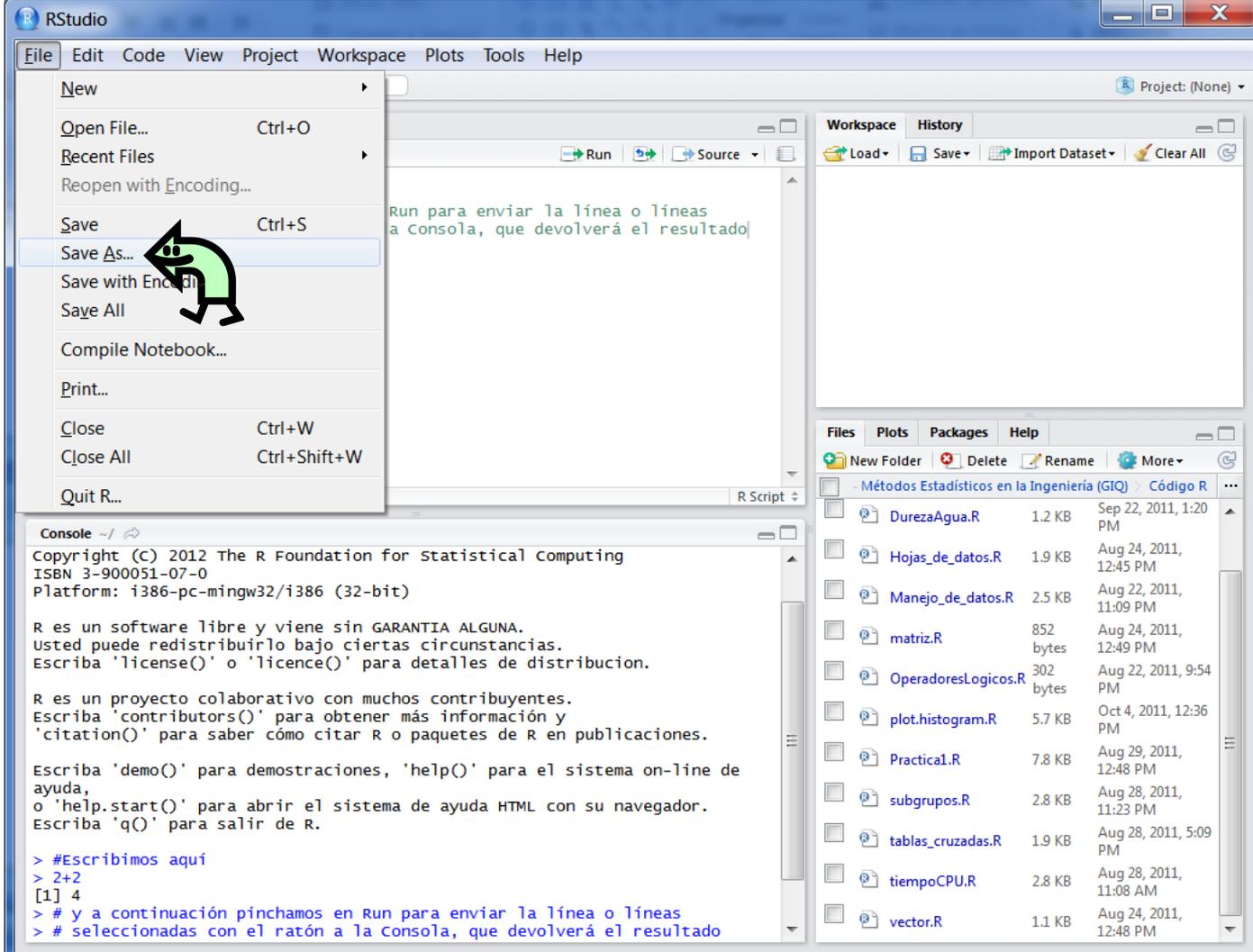
Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de
ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> #Escribimos aquí
> 2+2
[1] 4
> # y a continuación pinchamos en Run para enviar la línea o líneas
> # seleccionadas con el ratón a la consola, que devolverá el resultado
```
- File Browser:** Shows a list of files in the 'Código R' directory:

File Name	Size	Modified
DurezaAgua.R	1.2 KB	Sep 22, 2011, 1:20 PM
Hojas_de_datos.R	1.9 KB	Aug 24, 2011, 12:45 PM
Manejo_de_datos.R	2.5 KB	Aug 22, 2011, 11:09 PM
matriz.R	852 bytes	Aug 24, 2011, 12:49 PM
OperadoresLogicos.R	302 bytes	Aug 22, 2011, 9:54 PM
plot.histogram.R	5.7 KB	Oct 4, 2011, 12:36 PM
Practica1.R	7.8 KB	Aug 29, 2011, 12:48 PM
subgrupos.R	2.8 KB	Aug 28, 2011, 11:23 PM
tablas_cruzadas.R	1.9 KB	Aug 28, 2011, 5:09 PM
tiempoCPU.R	2.8 KB	Aug 28, 2011, 11:08 AM
vector.R	1.1 KB	Aug 24, 2011, 12:48 PM

El resultado
se vuelca en
la Consola

Introducción a RStudio



The screenshot displays the RStudio application window. The 'File' menu is open, and the 'Save As...' option is highlighted with a green arrow. The console window shows the following text:

```
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'licence()' o 'licence()' para detalles de distribución.

R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de
ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> #Escribimos aquí
> 2+2
[1] 4
> # y a continuación pinchamos en Run para enviar la línea o líneas
> # seleccionadas con el ratón a la consola, que devolverá el resultado
```

The workspace panel on the right shows a list of files in the 'Código R' directory:

File Name	Size	Modified
DurezaAgua.R	1.2 KB	Sep 22, 2011, 1:20 PM
Hojas_de_datos.R	1.9 KB	Aug 24, 2011, 12:45 PM
Manejo_de_datos.R	2.5 KB	Aug 22, 2011, 11:09 PM
matriz.R	852 bytes	Aug 24, 2011, 12:49 PM
OperadoresLogicos.R	302 bytes	Aug 22, 2011, 9:54 PM
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tiempoCPU.R	2.8 KB	Aug 28, 2011, 11:08 AM
vector.R	1.1 KB	Aug 24, 2011, 12:48 PM

Introducción a RStudio

El **Script** permite escribir, ejecutar y modificar nuestras líneas de código con comodidad y guardarlas para el futuro.

The screenshot displays the RStudio environment. The main editor window shows a script named 'vector.R' with the following R code:

```
1 #Un vector en R puede contener una colección de números o
2 #de caracteres no numéricos
3 x<-c(1,3,5)
4 #Así podremos llamar al vector x en el futuro
5 x
6 #Observemos que se utiliza el operador asignación <- y no el operador =
7 #que se reserva para otro tipo de definiciones
8 #Observemos también que es la función de concatenación c()
9 #la que construye el vector.
10 #
11 #También es posible definir un vector de números consecutivos
12 y<-1:5
13 #proporciona
14 y
```

The console window below the script shows the execution output:

```
> #Un vector en R puede contener una colección de números o
> #de caracteres no numéricos
> x<-c(1,3,5)
> #Así podremos llamar al vector x en el futuro
> x
[1] 1 3 5
> #Observemos que se utiliza el operador asignación <- y no el operador =
> #que se reserva para otro tipo de definiciones
> #Observemos también que es la función de concatenación c()
> #la que construye el vector.
> #
> #También es posible definir un vector de números consecutivos
> y<-1:5
> #proporciona
> y
[1] 1 2 3 4 5
```

The right-hand side of the interface features a 'Workspace' pane showing the current environment:

Variable	Type
genero	character [2]
x	numeric [3]
y	integer [5]

Below the workspace is a 'Files' pane showing a directory structure:

- Métodos Estadísticos en la Ingeniería (GIQ) > Código R
 - DurezaAgua.R (1.2 KB, Sep 22, 2011, 1:20 PM)
 - Hojas_de_datos.R (1.9 KB, Aug 24, 2011, 12:45 PM)
 - Manejo_de_datos.R (2.5 KB, Aug 22, 2011, 11:09 PM)
 - matriz.R (852 bytes, Aug 24, 2011, 12:49 PM)
 - OperadoresLogicos.R (302 bytes, Aug 22, 2011, 9:54 PM)
 - plot.histogram.R (5.7 KB, Oct 4, 2011, 12:36 PM)
 - Practica1.R (7.8 KB, Aug 29, 2011, 12:48 PM)
 - subgrupos.R (2.8 KB, Aug 28, 2011, 11:23 PM)
 - tablas_cruzadas.R (1.9 KB, Aug 28, 2011, 5:09 PM)
 - tiempoCPU.R (2.8 KB, Aug 28, 2011, 11:08 AM)
 - vector.R (1.1 KB, Aug 24, 2011, 12:48 PM)

Introducción a RStudio

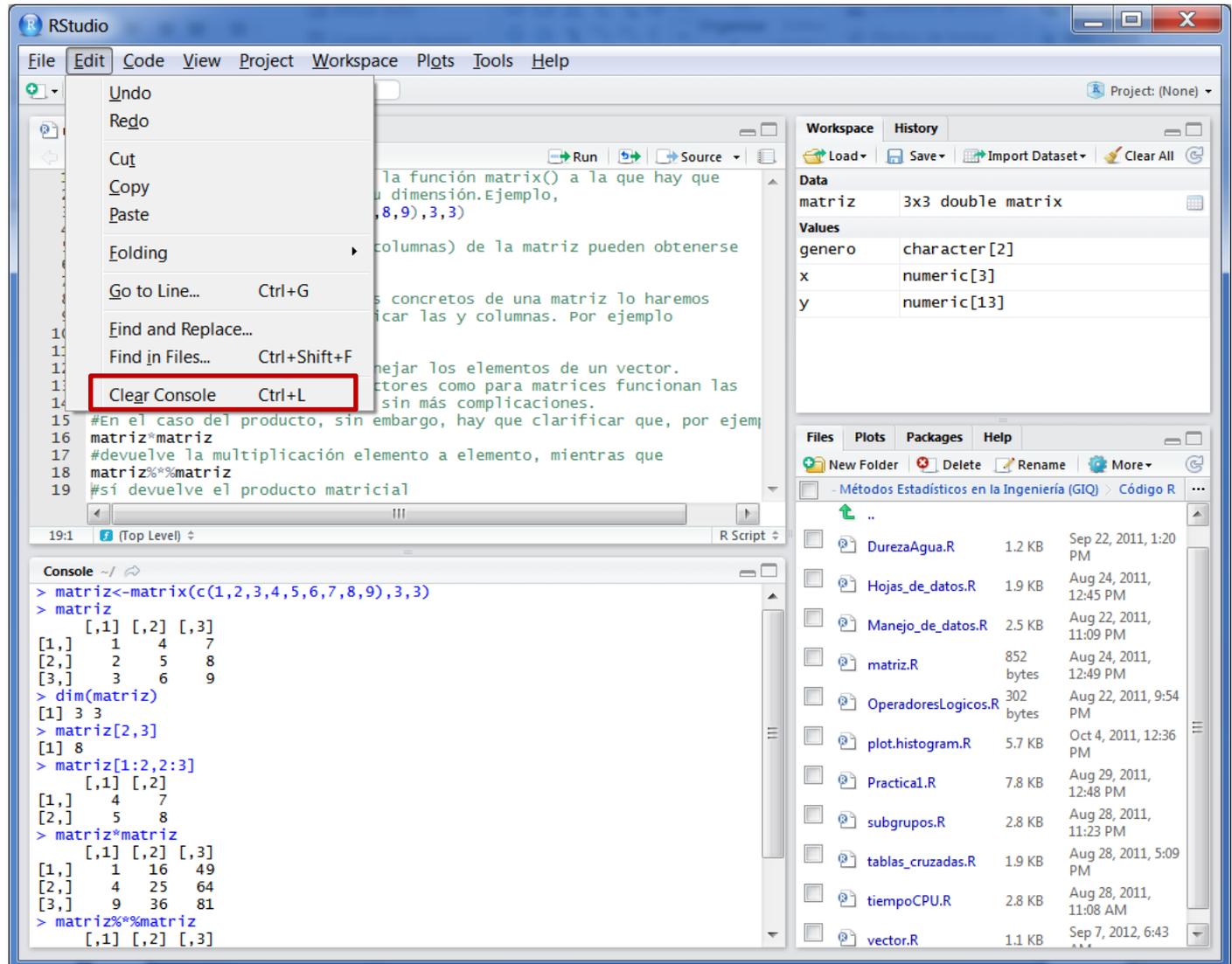
The screenshot displays the RStudio environment with the following components:

- Script Editor:** Contains R code for creating and manipulating a matrix. The code includes comments in Spanish and operations like `matrix()`, `dim()`, `matrix[2,3]`, `matrix[1:2,2:3]`, `matrix*matrix`, and `matrix%%matrix`.
- Console:** Shows the execution output of the code, including the matrix structure, dimensions, and the results of matrix multiplication and element-wise operations.
- Workspace:** Lists objects in memory: `matriz` (3x3 double matrix), `genero` (character[2]), `x` (numeric[3]), and `y` (numeric[13]).
- Files Panel:** Shows a directory listing of R scripts, with `matriz.R` highlighted.

```
1 #Una matriz se define mediante la función matrix() a la que hay que
2 #especificar sus elementos y su dimensión.Ejemplo,
3 matriz<-matrix(c(1,2,3,4,5,6,7,8,9),3,3)
4 matriz
5 #Las dimensiones (nº de las y columnas) de la matriz pueden obtenerse
6 #mediante la función dim().
7 dim(matriz)
8 #Si queremos llegar a elementos concretos de una matriz lo haremos
9 #utilizando corchetes para indicar las y columnas. Por ejemplo
10 matriz[2,3]
11 matriz[1:2,2:3]
12 #Esa misma sintaxis permite manejar los elementos de un vector.
13 #Por otra parte, tanto para vectores como para matrices funcionan las
14 #operaciones suma y diferencia sin más complicaciones.
15 #En el caso del producto, sin embargo, hay que clarificar que, por ejem
16 matriz*matriz
17 #devuelve la multiplicación elemento a elemento, mientras que
18 matriz%%matriz
19 #sí devuelve el producto matricial
```

```
> matriz<-matrix(c(1,2,3,4,5,6,7,8,9),3,3)
> matriz
      [,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
> dim(matriz)
[1] 3 3
> matriz[2,3]
[1] 8
> matriz[1:2,2:3]
      [,1] [,2]
[1,]    4    7
[2,]    5    8
> matriz*matriz
      [,1] [,2] [,3]
[1,]    1   16   49
[2,]    4   25   64
[3,]    9   36   81
> matriz%%matriz
      [,1] [,2] [,3]
```

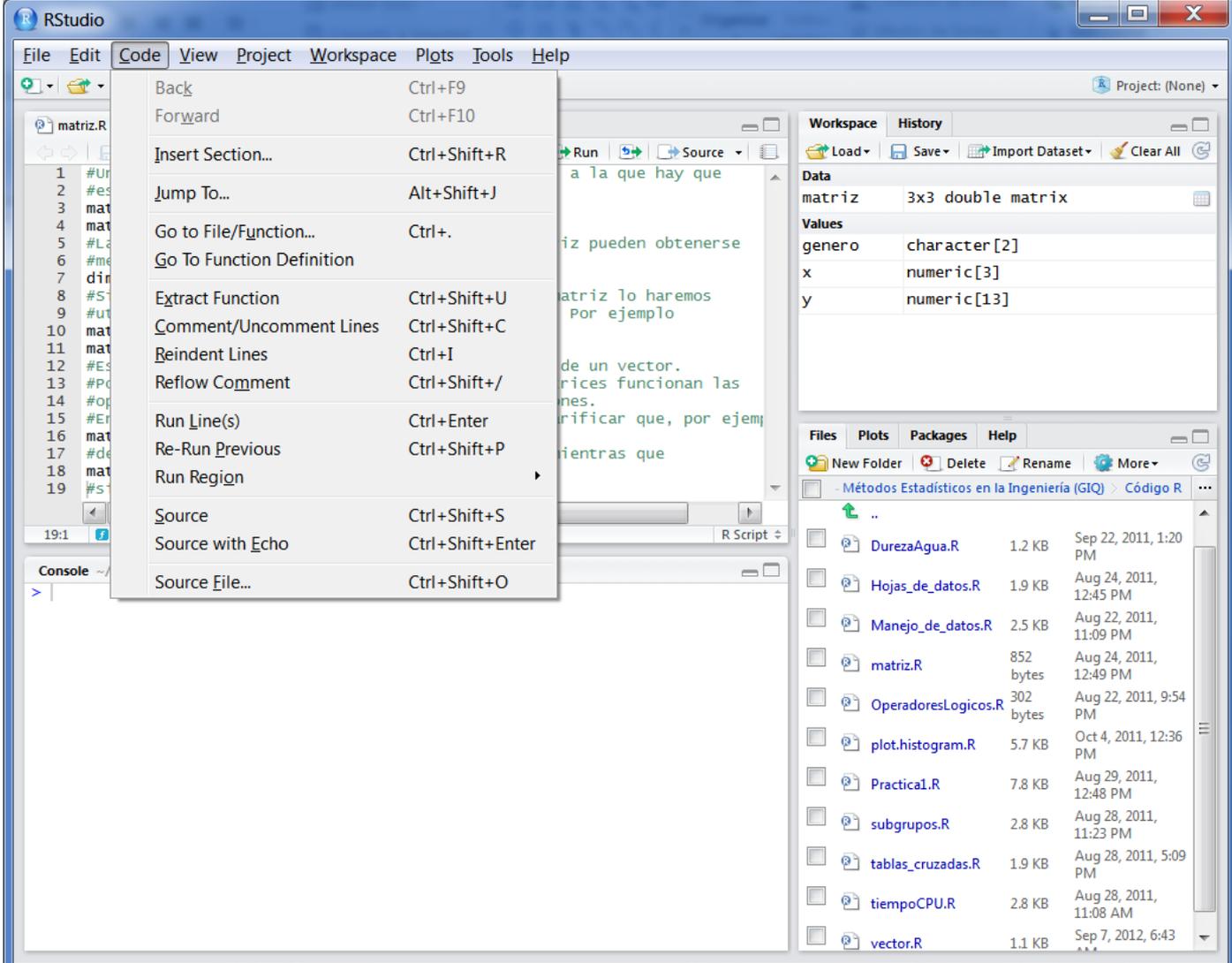
Introducción a RStudio



The screenshot displays the RStudio environment with the 'Edit' menu open. The 'Clear Console' option is highlighted with a red box. The console window shows the execution of R code for creating and manipulating a matrix.

```
> matriz<-matrix(c(1,2,3,4,5,6,7,8,9),3,3)
> matriz
      [,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
> dim(matriz)
[1] 3 3
> matriz[2,3]
[1] 8
> matriz[1:2,2:3]
      [,1] [,2]
[1,]    4    7
[2,]    5    8
> matriz*matriz
      [,1] [,2] [,3]
[1,]    1   16   49
[2,]    4   25   64
[3,]    9   36   81
> matriz%%matriz
      [,1] [,2] [,3]
```

Introducción a RStudio

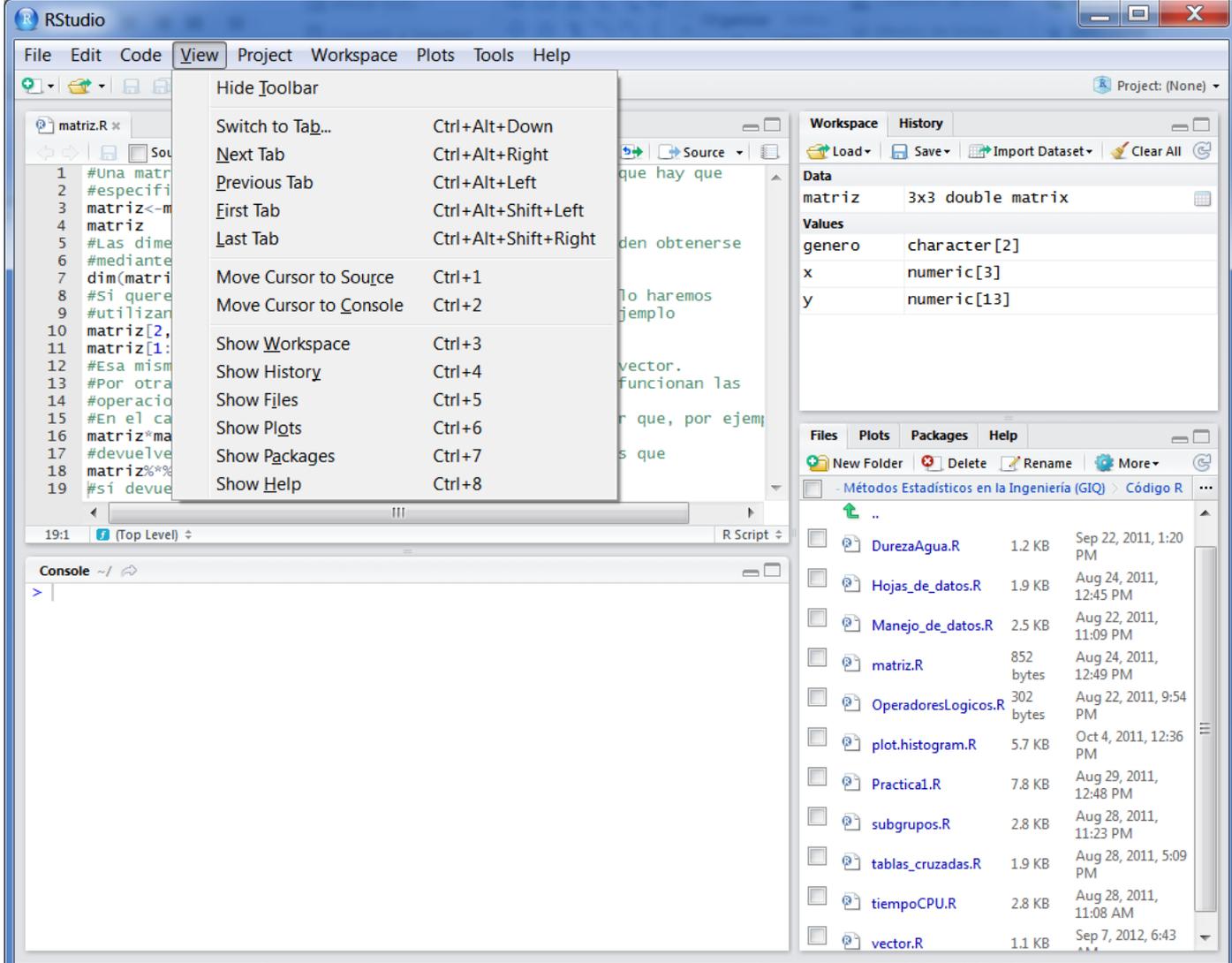


The screenshot shows the RStudio interface with the 'Code' menu open. The menu items and their keyboard shortcuts are as follows:

Menu Item	Keyboard Shortcut
Back	Ctrl+F9
Forward	Ctrl+F10
Insert Section...	Ctrl+Shift+R
Jump To...	Alt+Shift+J
Go to File/Function...	Ctrl+.
Go To Function Definition	
Extract Function	Ctrl+Shift+U
Comment/Uncomment Lines	Ctrl+Shift+C
Reindent Lines	Ctrl+I
Reflow Comment	Ctrl+Shift+/'
Run Line(s)	Ctrl+Enter
Re-Run Previous	Ctrl+Shift+P
Run Region	
Source	Ctrl+Shift+S
Source with Echo	Ctrl+Shift+Enter
Source File...	Ctrl+Shift+O

The background shows the RStudio workspace with a script editor containing R code, a console at the bottom, and a file explorer on the right side showing a list of files in the current project.

Introducción a RStudio

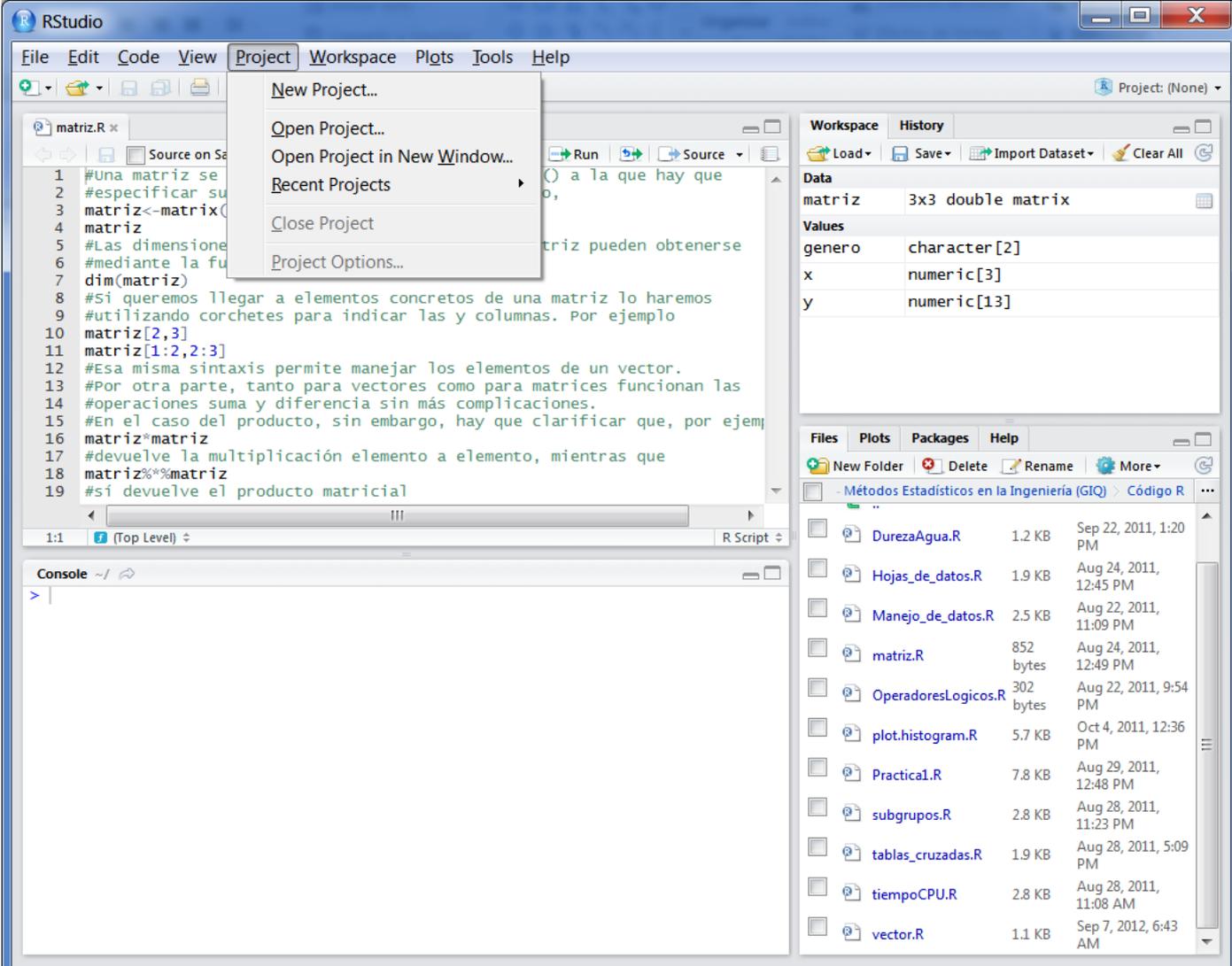


The screenshot displays the RStudio environment with the 'View' menu open. The menu items and their corresponding keyboard shortcuts are as follows:

Menu Item	Keyboard Shortcut
Hide <u>T</u> oolbar	
Switch to Tab...	Ctrl+Alt+Down
<u>N</u> ext Tab	Ctrl+Alt+Right
<u>P</u> revious Tab	Ctrl+Alt+Left
<u>F</u> irst Tab	Ctrl+Alt+Shift+Left
<u>L</u> ast Tab	Ctrl+Alt+Shift+Right
M <u>o</u> ve Cursor to <u>S</u> ource	Ctrl+1
M <u>o</u> ve Cursor to <u>C</u> onsole	Ctrl+2
Show <u>W</u> orkspace	Ctrl+3
Show <u>H</u> istory	Ctrl+4
Show <u>F</u> iles	Ctrl+5
Show <u>P</u> lots	Ctrl+6
Show <u>P</u> ackages	Ctrl+7
Show <u>H</u> elp	Ctrl+8

The background shows the RStudio interface with a script editor on the left containing R code, a console at the bottom, and a file browser on the right displaying a list of R files in a directory named 'Código R'.

Introducción a RStudio



The screenshot displays the RStudio environment with the following components:

- Script Editor:** Contains R code for creating and manipulating a matrix. The code includes comments in Spanish and R functions like `matrix()`, `dim()`, and `matriz[1:2,2:3]`.
- Project Menu:** A dropdown menu is open, showing options: `New Project...`, `Open Project...`, `Open Project in New Window...`, `Recent Projects`, `Close Project`, and `Project Options...`.
- Workspace:** Shows a table of objects in the current session:

Data	History
matriz	3x3 double matrix
Values	
genero	character [2]
x	numeric [3]
y	numeric [13]
- Files Panel:** Lists files in the project directory, including `DurezaAgua.R`, `Hojas_de_datos.R`, `Manejo_de_datos.R`, `matriz.R`, `OperadoresLogicos.R`, `plot.histogram.R`, `Practica1.R`, `subgrupos.R`, `tablas_cruzadas.R`, `tiempoCPU.R`, and `vector.R`.
- Console:** Shows the prompt `>` and is currently empty.

Introducción a RStudio

The screenshot displays the RStudio environment. The main window is titled 'RStudio' and contains several panes:

- Source Editor:** Shows an R script named 'matriz.R' with the following code:

```
1 #Una matriz se define n
2 #especificar sus elemer
3 matriz<-matrix(c(1,2,3,
4 matriz
5 #Las dimensiones (nº de
6 #mediante la función di
7 dim(matriz)
8 #Si queremos llegar a elementos concretos de una matriz lo haremos
9 #utilizando corchetes para indicar las y columnas. Por ejemplo
10 matriz[2,3]
11 matriz[1:2,2:3]
12 #Esa misma sintaxis permite manejar los elementos de un vector.
13 #Por otra parte, tanto para vectores como para matrices funcionan las
14 #operaciones suma y diferencia sin más complicaciones.
15 #En el caso del producto, sin embargo, hay que clarificar que, por ejem
16 matriz*matriz
17 #devuelve la multiplicación elemento a elemento, mientras que
18 matriz%%matriz
19 #sí devuelve el producto matricial
```
- Console:** Shows the prompt '> |'.
- Workspace:** Displays a table of objects in the current workspace:

Data	
matriz	3x3 double matrix
Values	
genero	character[2]
x	numeric[3]
y	numeric[13]
- Files:** Shows a file browser with a list of R scripts:

File Name	Size	Modified
DurezaAgua.R	1.2 KB	Sep 22, 2011, 1:20 PM
Hojas_de_datos.R	1.9 KB	Aug 24, 2011, 12:45 PM
Manejo_de_datos.R	2.5 KB	Aug 22, 2011, 11:09 PM
matriz.R	852 bytes	Aug 24, 2011, 12:49 PM
OperadoresLogicos.R	302 bytes	Aug 22, 2011, 9:54 PM
plot.histogram.R	5.7 KB	Oct 4, 2011, 12:36 PM
Practica1.R	7.8 KB	Aug 29, 2011, 12:48 PM
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tablas_cruzadas.R	1.9 KB	Aug 28, 2011, 5:09 PM
tiempoCPU.R	2.8 KB	Aug 28, 2011, 11:08 AM
vector.R	1.1 KB	Sep 7, 2012, 6:43 AM

Introducción a RStudio

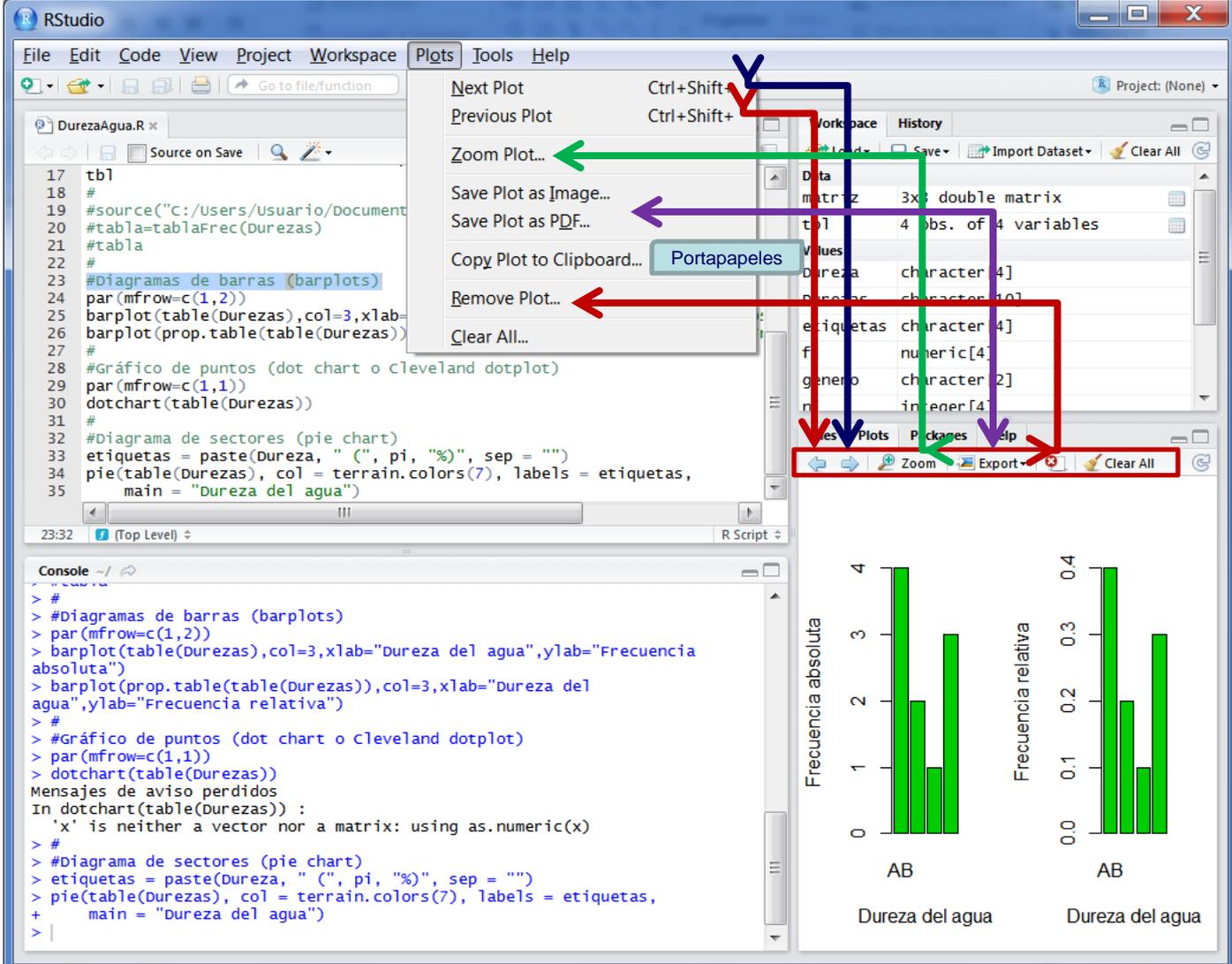
The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains R code for data analysis and visualization. The code includes comments in Spanish and uses functions like `barplot`, `dotchart`, and `pie`.
- Console:** Shows the execution output of the code, including a warning message: `Mensajes de aviso perdidos` and `In dotchart(table(Durezas)) : 'x' is neither a vector nor a matrix: using as.numeric(x)`.
- Workspace:** Lists the objects in the environment: `matriz` (3x3 double matrix), `tbl` (4 obs. of 4 variables), `Dureza` (character [4]), `Durezas` (character [10]), `etiquetas` (character [4]), `fi` (numeric [4]), `genero` (character [2]), and `ni` (integer [4]).
- Plots:** Displays a pie chart titled "Dureza del agua" with four segments: AB (40%), AD (20%), AED (10%), and AMD (30%).

```
17 tbl
18 #
19 #source("C:/Users/Usuario/Documents/R/MisFunciones.R")
20 #tabla=tablaFrec(Durezas)
21 #tabla
22 #
23 #Diagramas de barras (barplots)
24 par(mfrow=c(1,2))
25 barplot(table(Durezas),col=3,xlab="Dureza del agua",ylab="Frecuencia ab:
26 barplot(prop.table(table(Durezas)),col=3,xlab="Dureza del agua",ylab="F
27 #
28 #Gráfico de puntos (dot chart o Cleveland dotplot)
29 par(mfrow=c(1,1))
30 dotchart(table(Durezas))
31 #
32 #Diagrama de sectores (pie chart)
33 etiquetas = paste(Dureza, " (", pi, "%)", sep = "")
34 pie(table(Durezas), col = terrain.colors(7), labels = etiquetas,
35      main = "Dureza del agua")
```

```
> #
> #Diagramas de barras (barplots)
> par(mfrow=c(1,2))
> barplot(table(Durezas),col=3,xlab="dureza del agua",ylab="Frecuencia
  absoluta")
> barplot(prop.table(table(Durezas)),col=3,xlab="dureza del
  agua",ylab="Frecuencia relativa")
> #
> #Gráfico de puntos (dot chart o Cleveland dotplot)
> par(mfrow=c(1,1))
> dotchart(table(Durezas))
Mensajes de aviso perdidos
In dotchart(table(Durezas)) :
  'x' is neither a vector nor a matrix: using as.numeric(x)
> #
> #Diagrama de sectores (pie chart)
> etiquetas = paste(Dureza, " (", pi, "%)", sep = "")
> pie(table(Durezas), col = terrain.colors(7), labels = etiquetas,
+     main = "Dureza del agua")
> |
```

Introducción a RStudio



The screenshot shows the RStudio interface with the 'Plots' menu open. The menu options are: Next Plot (Ctrl+Shift+V), Previous Plot (Ctrl+Shift+), Zoom Plot..., Save Plot as Image..., Save Plot as PDF..., Copy Plot to Clipboard... (labeled 'Portapapeles'), Remove Plot..., and Clear All... The 'Plots' panel at the bottom right contains buttons for Zoom, Export, and Clear All. The console shows the execution of R code for creating barplots and a pie chart.

```

17 tbl
18 #
19 #source("C:/Users/Usuario/Document
20 #tabla=tablaFrec(Durezas)
21 #tabla
22 #
23 #Diagramas de barras (barplots)
24 par(mfrow=c(1,2))
25 barplot(table(Durezas),col=3,xlab=
26 barplot(prop.table(table(Durezas))
27 #
28 #Gráfico de puntos (dot chart o Cleveland dotplot)
29 par(mfrow=c(1,1))
30 dotchart(table(Durezas))
31 #
32 #Diagrama de sectores (pie chart)
33 etiquetas = paste(Dureza, " (", pi, "%)", sep = "")
34 pie(table(Durezas), col = terrain.colors(7), labels = etiquetas,
35     main = "Dureza del agua")
  
```

```

> #
> #Diagramas de barras (barplots)
> par(mfrow=c(1,2))
> barplot(table(Durezas),col=3,xlab="Dureza del agua",ylab="Frecuencia
absoluta")
> barplot(prop.table(table(Durezas)),col=3,xlab="Dureza del
agua",ylab="Frecuencia relativa")
> #
> #Gráfico de puntos (dot chart o Cleveland dotplot)
> par(mfrow=c(1,1))
> dotchart(table(Durezas))
Mensajes de aviso perdidos
In dotchart(table(Durezas)) :
'x' is neither a vector nor a matrix: using as.numeric(x)
> #
> #Diagrama de sectores (pie chart)
> etiquetas = paste(Dureza, " (", pi, "%)", sep = "")
> pie(table(Durezas), col = terrain.colors(7), labels = etiquetas,
+     main = "Dureza del agua")
  
```

The 'Plots' panel displays two barplots side-by-side. The left plot is titled 'Frecuencia absoluta' and the right plot is titled 'Frecuencia relativa'. Both plots have 'Dureza del agua' on the x-axis and 'AB' as a label. The y-axis for the absolute frequency plot ranges from 0 to 4, and for the relative frequency plot, it ranges from 0.0 to 0.4.

Introducción a RStudio

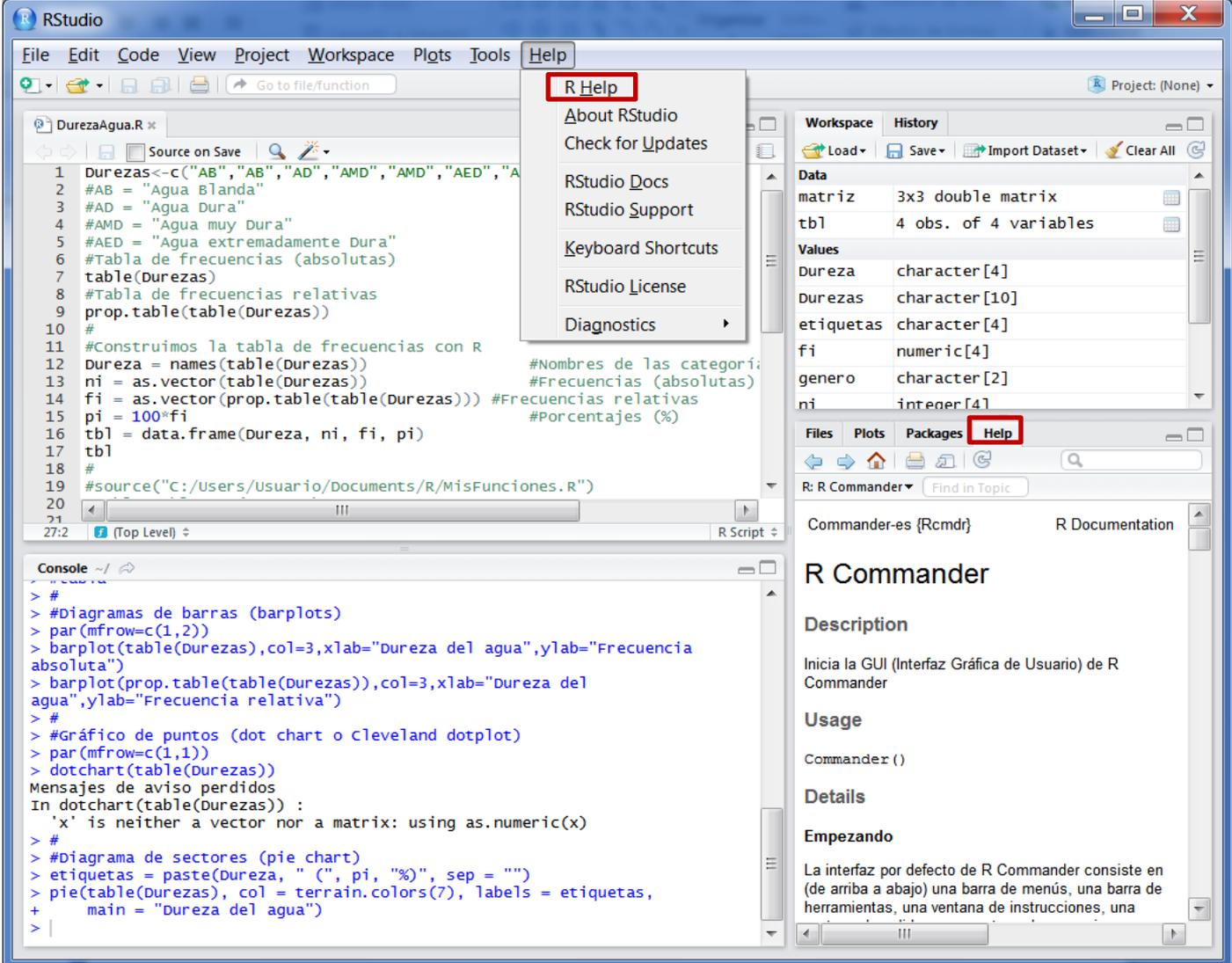
The screenshot displays the RStudio environment. The main editor window shows an R script named 'DurezaAgua.R' with the following code:

```
1 Durezas<-c("AB", "AB", "AD", "AMD", "AMD", "A")
2 #AB = "Agua Blanda"
3 #AD = "Agua Dura"
4 #AMD = "Agua muy Dura"
5 #AED = "Agua extremadamente Dura"
6 #Tabla de frecuencias (absolutas)
7 table(Durezas)
8 #Tabla de frecuencias relativas
9 prop.table(table(Durezas))
10 #
11 #Construimos la tabla de frecuencias con R
12 Dureza = names(table(Durezas)) #Nombres de las categori
13 ni = as.vector(table(Durezas)) #Frecuencias (absolutas)
14 fi = as.vector(prop.table(table(Durezas))) #Frecuencias relativas
15 pi = 100*fi #Porcentajes (%)
16 tbl = data.frame(Dureza, ni, fi, pi)
17 tbl
18 #
19 #source("C:/Users/Usuario/Documents/R/MisFunciones.R")
20
21
22:2 (Top Level) ↓
```

The console window shows the execution of the script, including commands for barplots, dot charts, and pie charts. A warning message is displayed: 'x' is neither a vector nor a matrix: using as.numeric(x).

The 'Tools' menu is open, highlighting 'Install Packages...' and 'Check for Package Updates...'. The 'Packages' pane on the right shows a list of installed and available packages, including 'abind', 'agricolae', 'aplpack', 'binom', 'boot', 'car', 'class', 'cluster', 'codetools', 'colorspace', and 'compiler'.

Introducción a RStudio



The screenshot displays the RStudio environment with the following components:

- Script Editor:** Contains R code for creating a data frame and generating various plots (barplots, dot chart, pie chart).
- Console:** Shows the execution output, including messages about lost warnings and a warning about the 'x' variable in the dotchart function.
- Help Pane:** The 'R Help' menu is open, listing options like 'About RStudio', 'Check for Updates', 'RStudio Docs', 'RStudio Support', 'Keyboard Shortcuts', 'RStudio License', and 'Diagnostics'. The 'Help' tab in the pane is also highlighted.
- Workspace:** Lists variables: 'matriz' (3x3 double matrix), 'tbl' (4 obs. of 4 variables), and 'Values' (Dureza, Durezas, etiquetas, fi, genero, ni).
- R Commander:** The 'R Commander' window is open, showing the 'Description' and 'Usage' sections.

```
1 Durezas<-c("AB","AB","AD","AMD","AMD","AED","A
2 #AB = "Agua Blanda"
3 #AD = "Agua Dura"
4 #AMD = "Agua muy Dura"
5 #AED = "Agua extremadamente Dura"
6 #Tabla de frecuencias (absolutas)
7 table(Durezas)
8 #Tabla de frecuencias relativas
9 prop.table(table(Durezas))
10 #
11 #Construimos la tabla de frecuencias con R
12 Dureza = names(table(Durezas)) #Nombres de las categorí
13 ni = as.vector(table(Durezas)) #Frecuencias (absolutas)
14 fi = as.vector(prop.table(table(Durezas))) #Frecuencias relativas
15 pi = 100*fi #Porcentajes (%)
16 tbl = data.frame(Dureza, ni, fi, pi)
17 tbl
18 #
19 #source("C:/Users/Usuario/Documents/R/MisFunciones.R")
20
27:2 (Top Level) ↓ R Script ↓
```

```
> #
> #Diagramas de barras (barplots)
> par(mfrow=c(1,2))
> barplot(table(Durezas),col=3,xlab="Dureza del agua",ylab="Frecuencia
absoluta")
> barplot(prop.table(table(Durezas)),col=3,xlab="Dureza del
agua",ylab="Frecuencia relativa")
> #
> #Gráfico de puntos (dot chart o Cleveland dotplot)
> par(mfrow=c(1,1))
> dotchart(table(Durezas))
Mensajes de aviso perdidos
In dotchart(table(Durezas)) :
'x' is neither a vector nor a matrix: using as.numeric(x)
> #
> #Diagrama de sectores (pie chart)
> etiquetas = paste(Dureza, " (", pi, "%)", sep = "")
> pie(table(Durezas), col = terrain.colors(7), labels = etiquetas,
+ main = "Dureza del agua")
> |
```

R Commander

Description

Inicia la GUI (Interfaz Gráfica de Usuario) de R Commander

Usage

Commander ()

Details

Empezando

La interfaz por defecto de R Commander consiste en (de arriba a abajo) una barra de menús, una barra de herramientas, una ventana de instrucciones, una

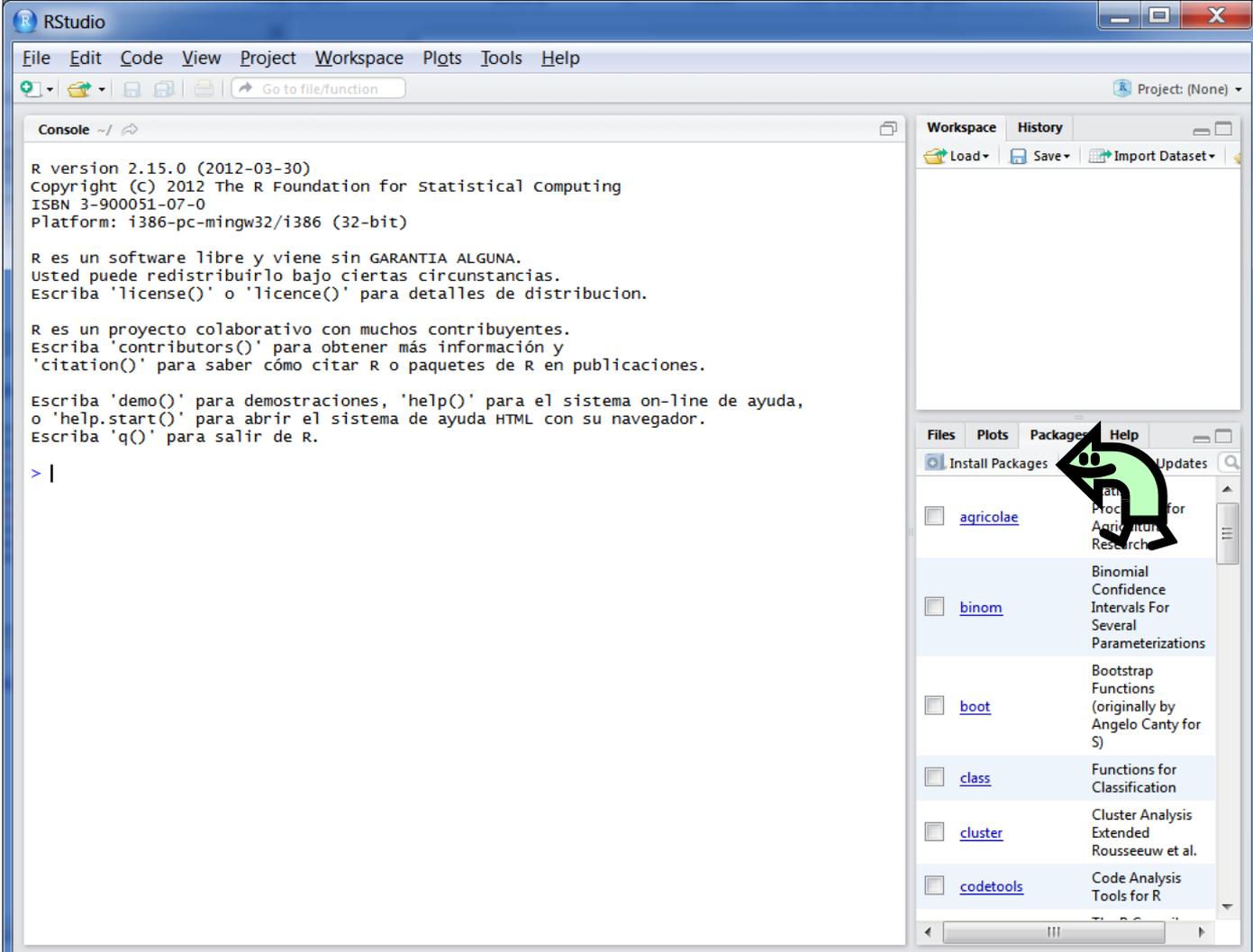
Instalación de R Commander

- **R Commander** es una **interfaz tipo ventana** que cubre la mayor parte de los análisis estadísticos más habituales en unos menús desplegados.
- Podemos decir que **es una manera de manejar R sin necesidad de aprender su código o casi nada de él**, lo cual lo hace bastante práctico cuando se está aprendiendo a usarlo.

Instalación de R Commander

- Además, una de las funcionalidades que podríamos destacar como más afortunadas de **R Commander** es que, a pesar de que permite estos atajos mediante sus menús para no utilizar el código de R, **escribe el código de las operaciones realizadas en una ventana de sintaxis o ventana de instrucciones**, de manera que siempre lo veremos en la pantalla y podremos, poco a poco, ir aprendiéndolo, casi sin darnos cuenta.

Instalación de R Commander



The screenshot shows the RStudio application window. The console on the left displays the R startup message and instructions. The Packages pane on the right shows a list of installed and available packages. A green arrow points to the 'Install Packages' button in the Packages pane.

Console

```
R version 2.15.0 (2012-03-30)
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribución.

R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> |
```

Workspace **History**

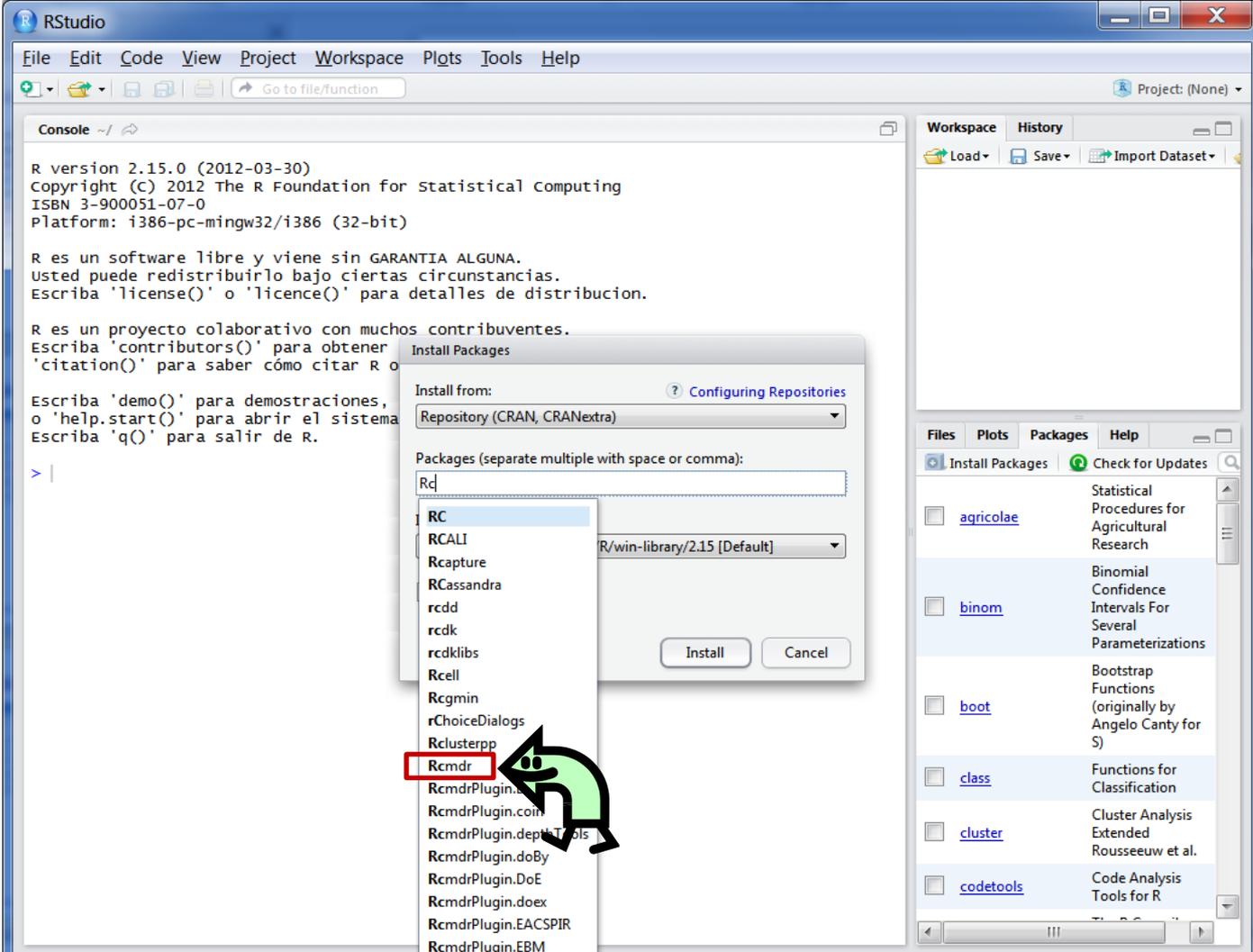
Load Save Import Dataset

Files **Plots** **Packages** **Help**

Install Packages Updates

Package Name	Description
<input type="checkbox"/> agricolae	Mathematical Procedures for Agricultural Research
<input type="checkbox"/> binom	Binomial Confidence Intervals For Several Parameterizations
<input type="checkbox"/> boot	Bootstrap Functions (originally by Angelo Canty for S)
<input type="checkbox"/> class	Functions for Classification
<input type="checkbox"/> cluster	Cluster Analysis Extended Rousseeuw et al.
<input type="checkbox"/> codetools	Code Analysis Tools for R

Instalación de R Commander



The screenshot shows the RStudio interface with the R console displaying the version and license information. An "Install Packages" dialog box is open, showing the search results for the package "Rcmdr". The package is highlighted in the list, and a green arrow points to it. The dialog box also shows the repository "Repository (CRAN, CRANextra)" and the installation path "R/win-library/2.15 [Default]".

R version 2.15.0 (2012-03-30)
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

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Escriba 'contributors()' para obtener
'citation()' para saber cómo citar R.

Escriba 'demo()' para demostraciones,
o 'help.start()' para abrir el sistema
Escriba 'q()' para salir de R.

> |

Install Packages

Install from: Configuring Repositories
Repository (CRAN, CRANextra)

Packages (separate multiple with space or comma):
Rcmdr

R/win-library/2.15 [Default]

Install Cancel

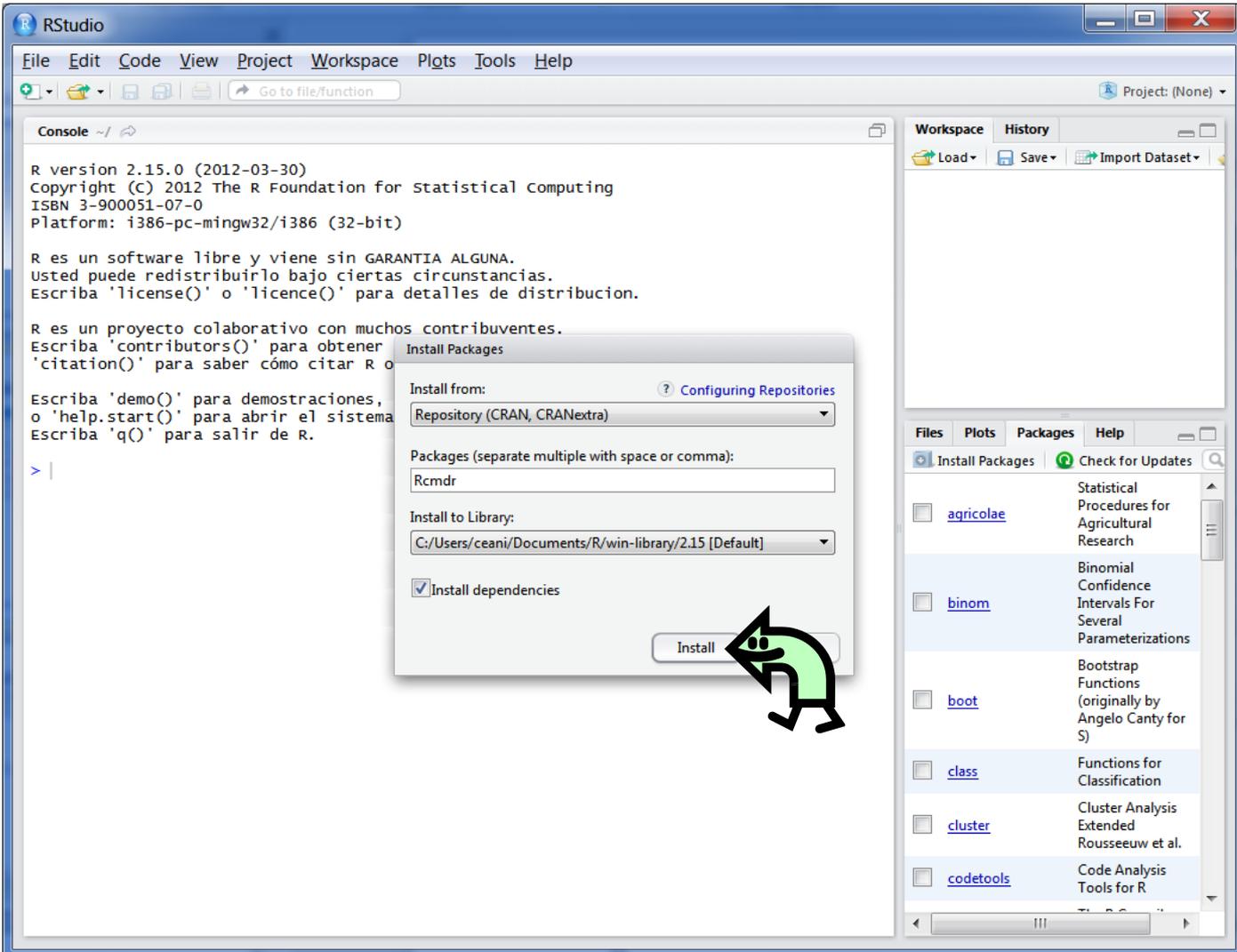
RC
RCALI
Rcapture
RCassandra
rcdd
rcdk
rcdklibs
Rcell
Rcgmin
rChoiceDialogs
Rclusterpp
Rcmdr
RcmdrPlugin.EBM

Workspace History
Load Save Import Dataset

Files Plots Packages Help
Install Packages Check for Updates

Package	Description
<input type="checkbox"/> agricolae	Statistical Procedures for Agricultural Research
<input type="checkbox"/> binom	Binomial Confidence Intervals For Several Parameterizations
<input type="checkbox"/> boot	Bootstrap Functions (originally by Angelo Canty for S)
<input type="checkbox"/> class	Functions for Classification
<input type="checkbox"/> cluster	Cluster Analysis Extended Rousseeuw et al.
<input type="checkbox"/> codetools	Code Analysis Tools for R

Instalación de R Commander

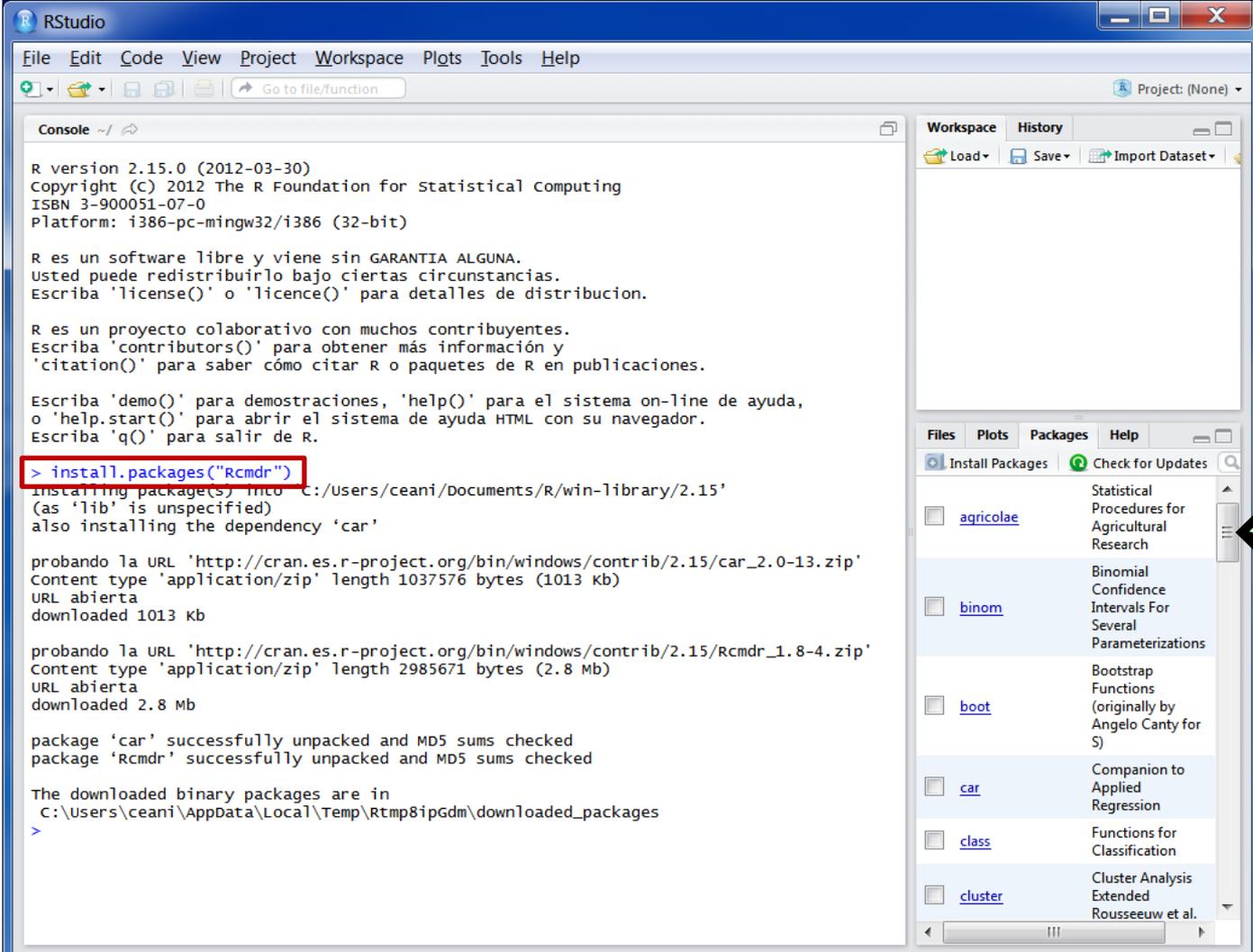


The screenshot shows the RStudio interface with the 'Install Packages' dialog box open. The console displays the R version information and instructions. The dialog box shows the following details:

- Install from:** Repository (CRAN, CRANextra)
- Packages (separate multiple with space or comma):** Rcmdr
- Install to Library:** C:/Users/ceani/Documents/R/win-library/2.15 [Default]
- Install dependencies

A green arrow with a stick figure points to the 'Install' button in the dialog box. The right-hand pane shows a list of installed packages, including agricolae, binom, boot, class, cluster, and codetools.

Instalación de R Commander



```
RStudio
File Edit Code View Project Workspace Plots Tools Help
Go to file/function
Project: (None)
Workspace History
Load Save Import Dataset
Files Plots Packages Help
Install Packages Check for Updates
aqricolae Statistical Procedures for Agricultural Research
binom Binomial Confidence Intervals For Several Parameterizations
boot Bootstrap Functions (originally by Angelo Canty for S)
car Companion to Applied Regression
class Functions for Classification
cluster Cluster Analysis Extended Rousseeuw et al.
> install.packages("Rcmdr")
Installing package(s) into 'C:/Users/ceani/Documents/R/win-library/2.15'
(as 'lib' is unspecified)
also installing the dependency 'car'

probando la URL 'http://cran.es.r-project.org/bin/windows/contrib/2.15/car_2.0-13.zip'
Content type 'application/zip' length 1037576 bytes (1013 kb)
URL abierta
downloaded 1013 kb

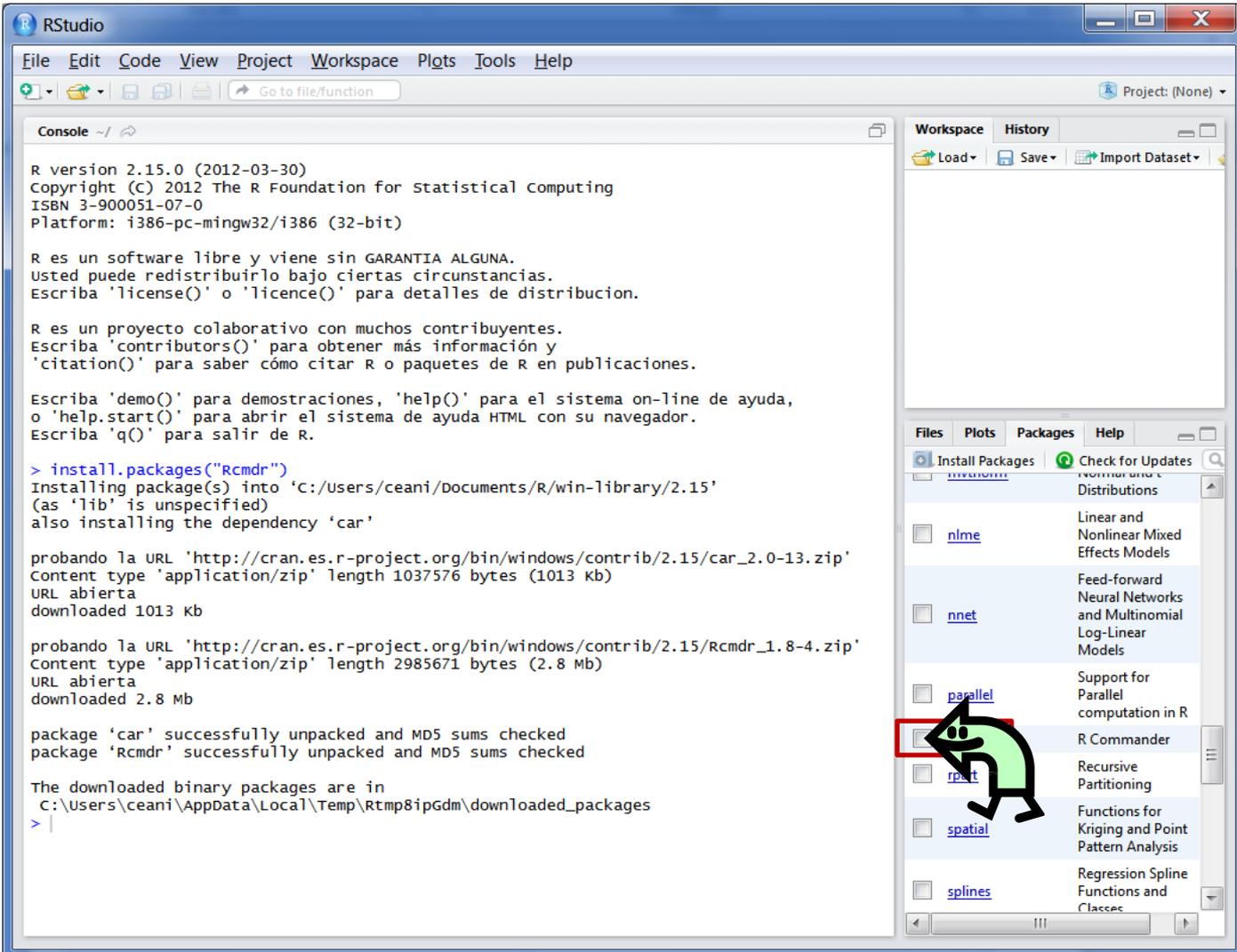
probando la URL 'http://cran.es.r-project.org/bin/windows/contrib/2.15/Rcmdr_1.8-4.zip'
Content type 'application/zip' length 2985671 bytes (2.8 Mb)
URL abierta
downloaded 2.8 Mb

package 'car' successfully unpacked and MD5 sums checked
package 'Rcmdr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
>
```



Instalación de R Commander



RStudio

File Edit Code View Project Workspace Plots Tools Help

Go to file/function

Project: (None)

Workspace History

Load Save Import Dataset

Files Plots Packages Help

Install Packages Check for Updates

Distributions

<input type="checkbox"/>	nlme	Linear and Nonlinear Mixed Effects Models
<input type="checkbox"/>	nnet	Feed-forward Neural Networks and Multinomial Log-Linear Models
<input type="checkbox"/>	parallel	Support for Parallel computation in R
<input checked="" type="checkbox"/>	Rcmdr	R Commander
<input type="checkbox"/>	rpart	Recursive Partitioning
<input type="checkbox"/>	spatial	Functions for Kriging and Point Pattern Analysis
<input type="checkbox"/>	splines	Regression Spline Functions and Classes

```
R version 2.15.0 (2012-03-30)
Copyright (c) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

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'citation()' para saber cómo citar R o paquetes de R en publicaciones.

Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> install.packages("Rcmdr")
Installing package(s) into 'C:/Users/ceani/Documents/R/win-library/2.15'
(as 'lib' is unspecified)
also installing the dependency 'car'

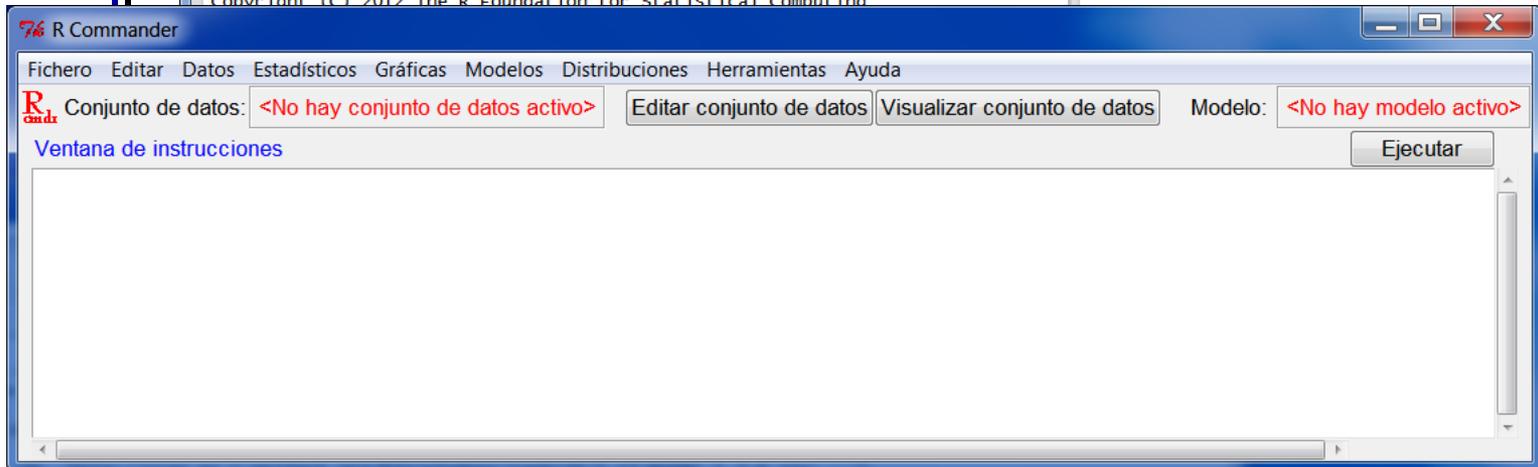
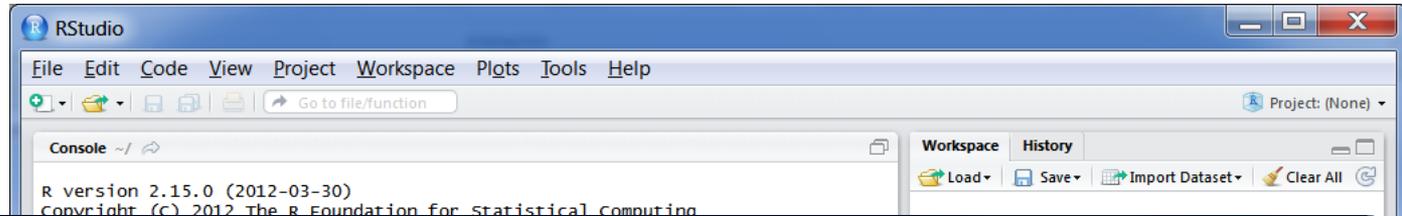
probando la URL 'http://cran.es.r-project.org/bin/windows/contrib/2.15/car_2.0-13.zip'
Content type 'application/zip' length 1037576 bytes (1013 kb)
URL abierta
downloaded 1013 Kb

probando la URL 'http://cran.es.r-project.org/bin/windows/contrib/2.15/Rcmdr_1.8-4.zip'
Content type 'application/zip' length 2985671 bytes (2.8 Mb)
URL abierta
downloaded 2.8 Mb

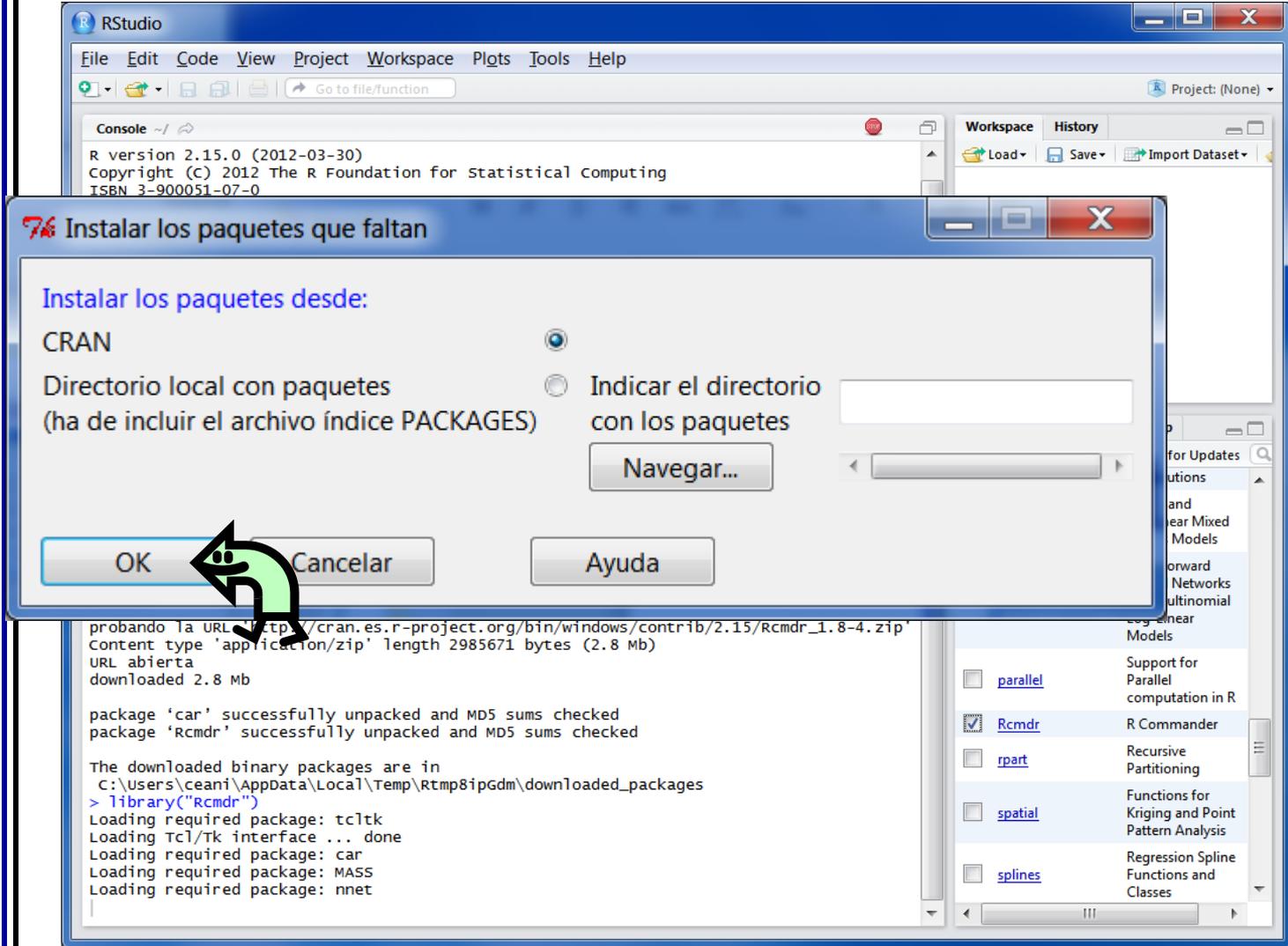
package 'car' successfully unpacked and MD5 sums checked
package 'Rcmdr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
> |
```

Instalación de R Commander



Instalación de R Commander



RStudio

File Edit Code View Project Workspace Plots Tools Help

Go to file/function

Project: (None)

Workspace History

Load Save Import Dataset

Console ~/\

R version 2.15.0 (2012-03-30)
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0

76 Instalar los paquetes que faltan

Instalar los paquetes desde:

CRAN

Directorio local con paquetes (ha de incluir el archivo índice PACKAGES) Indicar el directorio con los paquetes

Navegar...

OK Cancel Ayuda

```
probando la URL 'http://cran.es.r-project.org/bin/windows/contrib/2.15/Rcmdr_1.8-4.zip'
Content type 'application/zip' length 2985671 bytes (2.8 Mb)
URL abierta
downloaded 2.8 Mb

package 'car' successfully unpacked and MD5 sums checked
package 'Rcmdr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
> library("Rcmdr")
Loading required package: tcltk
Loading Tcl/Tk interface ... done
Loading required package: car
Loading required package: MASS
Loading required package: nnet
```

parallel Support for Parallel computation in R

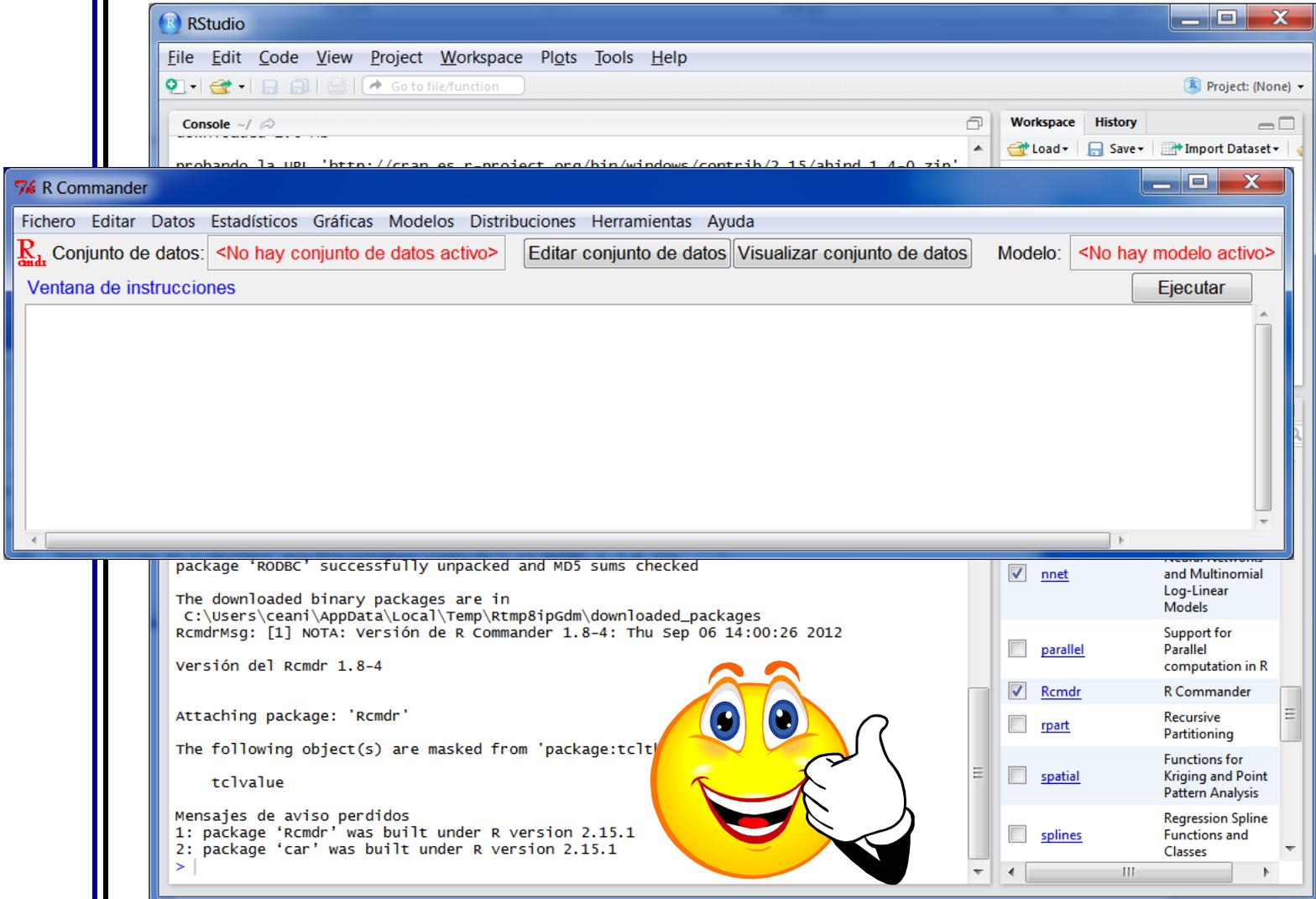
Rcmdr R Commander

rpart Recursive Partitioning

spatial Functions for Kriging and Point Pattern Analysis

splines Regression Spline Functions and Classes

Instalación de R Commander



The image shows two overlapping windows from the R environment. The background window is RStudio, and the foreground window is R Commander.

R Commander Window:

- Menu: Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, Ayuda
- Status: Conjunto de datos: <No hay conjunto de datos activo> | Modelo: <No hay modelo activo>
- Buttons: Editar conjunto de datos, Visualizar conjunto de datos, Ejecutar
- Text: Ventana de instrucciones

RStudio Console Output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':
  tclvalue

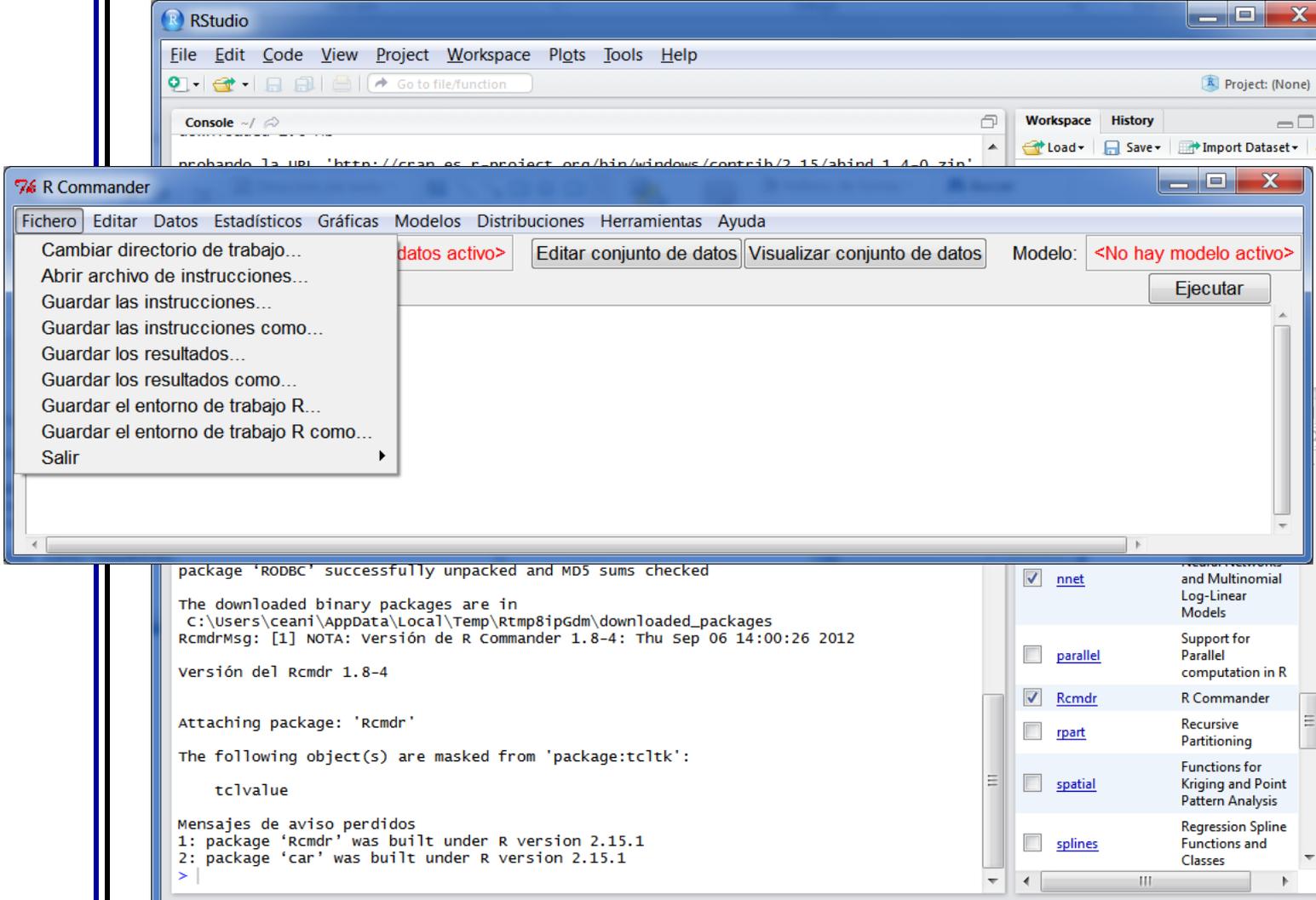
Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

Package List:

Package Name	Description
<input checked="" type="checkbox"/> nnet	Neural Networks and Multinomial Log-Linear Models
<input type="checkbox"/> parallel	Support for Parallel computation in R
<input checked="" type="checkbox"/> Rcmdr	R Commander
<input type="checkbox"/> rpart	Recursive Partitioning
<input type="checkbox"/> spatial	Functions for Kriging and Point Pattern Analysis
<input type="checkbox"/> splines	Regression Spline Functions and Classes



Interfaz R Commander



The image shows the R Commander interface. The top window is RStudio, and the foreground window is R Commander. The R Commander window has a menu bar with options: Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, Ayuda. A dropdown menu is open under 'Fichero', listing options like 'Cambiar directorio de trabajo...', 'Abrir archivo de instrucciones...', 'Guardar las instrucciones...', 'Guardar los resultados...', 'Guardar los resultados como...', 'Guardar el entorno de trabajo R...', 'Guardar el entorno de trabajo R como...', and 'Salir'. The main area shows a console with the following text:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

On the right side, there is a list of installed packages with checkboxes:

- [nnet](#) Neural Networks and Multinomial Log-Linear Models
- [parallel](#) Support for Parallel computation in R
- [Rcmdr](#) R Commander
- [rpart](#) Recursive Partitioning
- [spatial](#) Functions for Kriging and Point Pattern Analysis
- [splines](#) Regression Spline Functions and Classes

Interfaz R Commander

The image displays the R Commander interface, which is a graphical user interface for the R programming language. The main window is titled "R Commander" and features a menu bar with options: Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, and Ayuda. Below the menu bar, there are several buttons: "Cortar y conjunto de datos activo>", "Editar conjunto de datos", "Visualizar conjunto de datos", and "Modelo: <No hay modelo activo>". A large "Ejecutar" button is also present. A context menu is open over the "Editar" menu item, listing options: Cortar, Copiar, Pegar, Borrar, Buscar..., Seleccionar todo, Deshacer, Rehacer, and Limpiar ventana.

The console window at the bottom shows the following output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

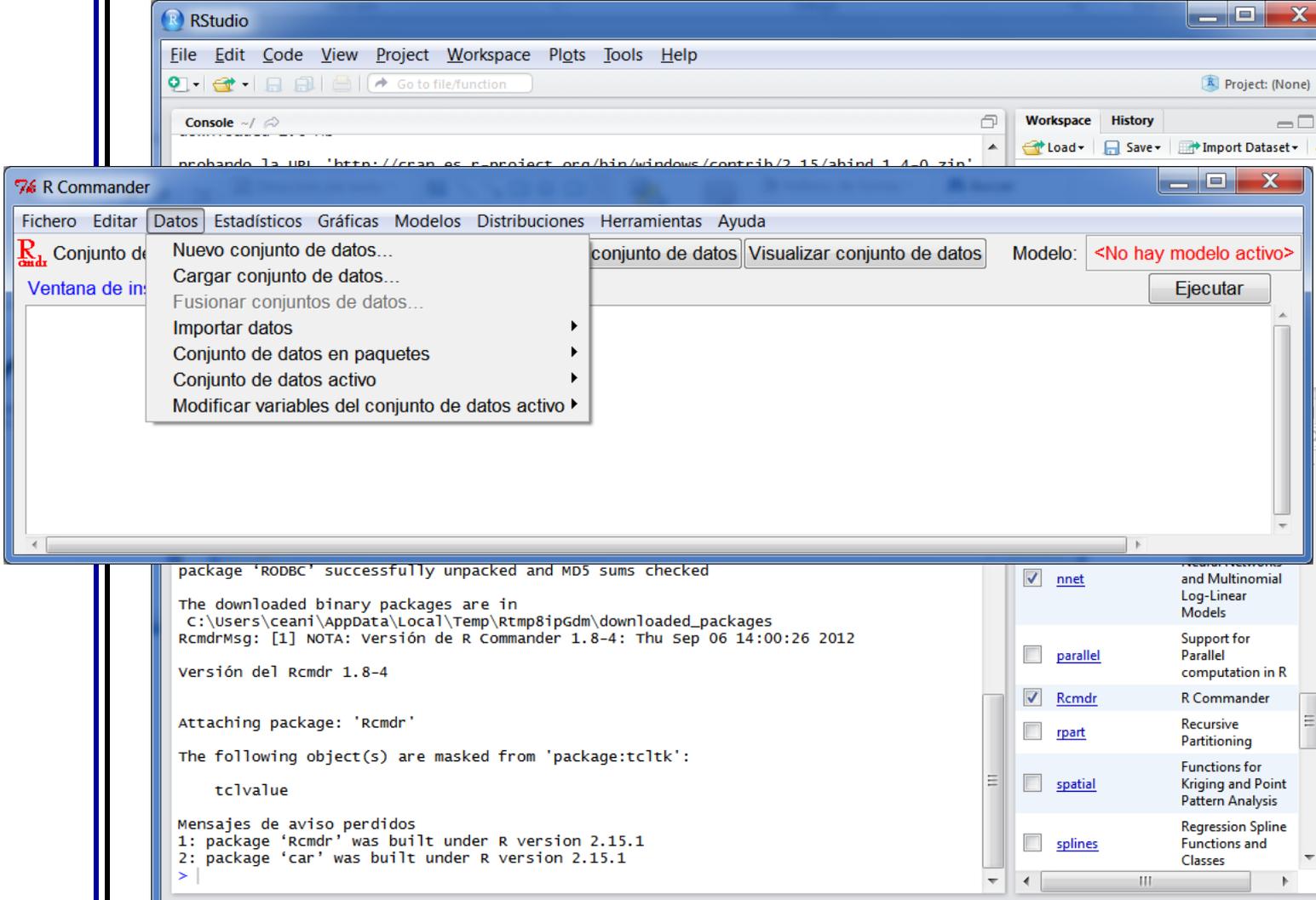
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

On the right side of the console, there is a list of installed packages with checkboxes:

- [nnet](#) Neural Networks and Multinomial Log-Linear Models
- [parallel](#) Support for Parallel computation in R
- [Rcmdr](#) R Commander
- [rpart](#) Recursive Partitioning
- [spatial](#) Functions for Kriging and Point Pattern Analysis
- [splines](#) Regression Spline Functions and Classes

Interfaz R Commander



The image shows the R Commander interface. The 'Datos' menu is open, displaying options for data management. The console window shows the output of the R Commander installation process.

R Commander Menu Options:

- Nuevo conjunto de datos...
- Cargar conjunto de datos...
- Fusionar conjuntos de datos...
- Importar datos
- Conjunto de datos en paquetes
- Conjunto de datos activo
- Modificar variables del conjunto de datos activo

Console Output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

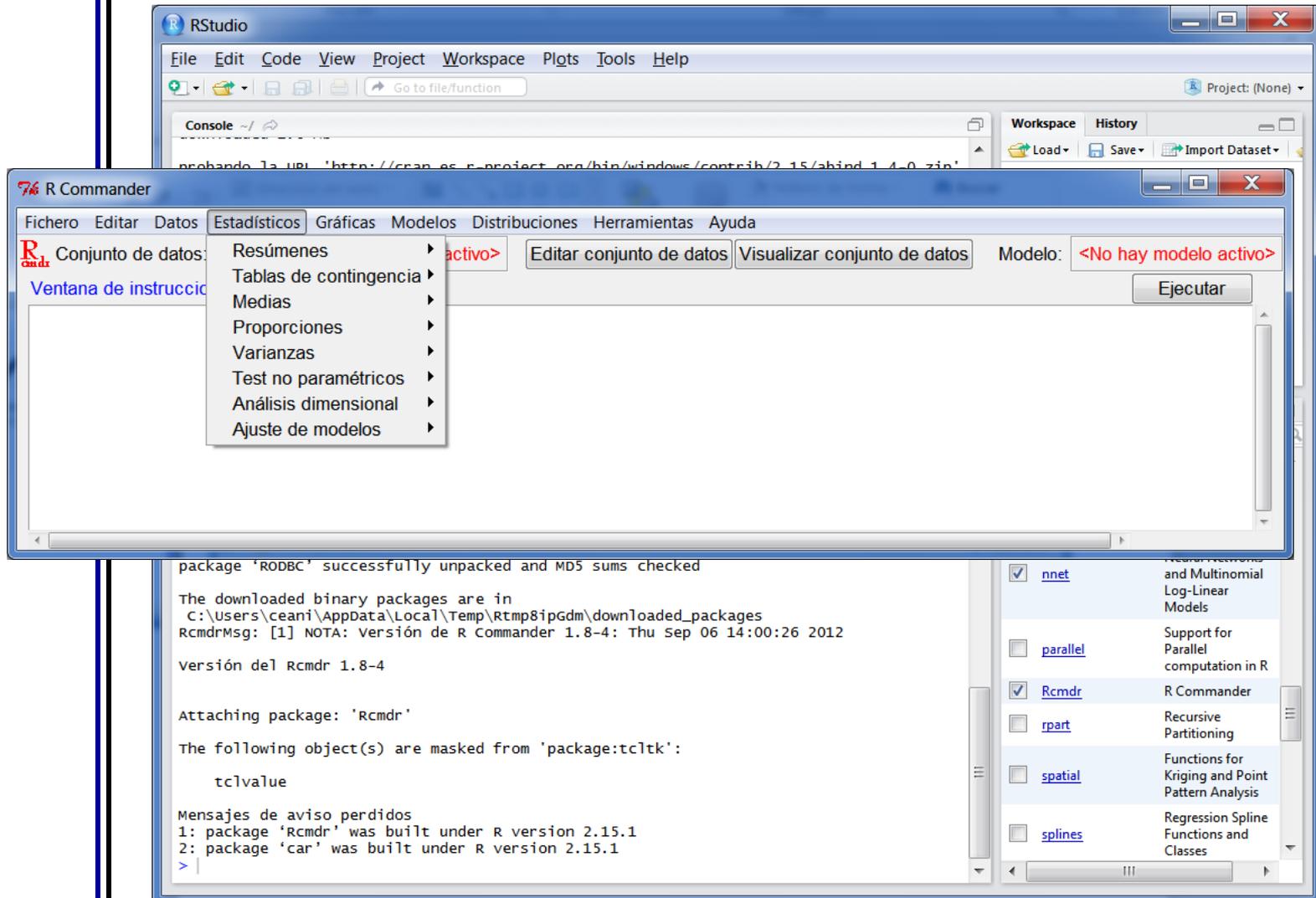
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

Package List:

Package	Description
<input checked="" type="checkbox"/> nnet	Neural Networks and Multinomial Log-Linear Models
<input type="checkbox"/> parallel	Support for Parallel computation in R
<input checked="" type="checkbox"/> Rcmdr	R Commander
<input type="checkbox"/> rpart	Recursive Partitioning
<input type="checkbox"/> spatial	Functions for Kriging and Point Pattern Analysis
<input type="checkbox"/> splines	Regression Spline Functions and Classes

Interfaz R Commander



The image shows two overlapping windows from the RStudio environment. The background window is RStudio, and the foreground window is R Commander.

R Commander Window:

- Menu:** Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, Ayuda.
- Buttons:** Conjunto de datos: activo>, Editar conjunto de datos, Visualizar conjunto de datos, Modelo: <No hay modelo activo>, Ejecutar.
- Dropdown Menu (under 'Estadísticos'):**
 - Resúmenes
 - Tablas de contingencia
 - Medias
 - Proporciones
 - Varianzas
 - Test no paramétricos
 - Análisis dimensional
 - Ajuste de modelos

Console Output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

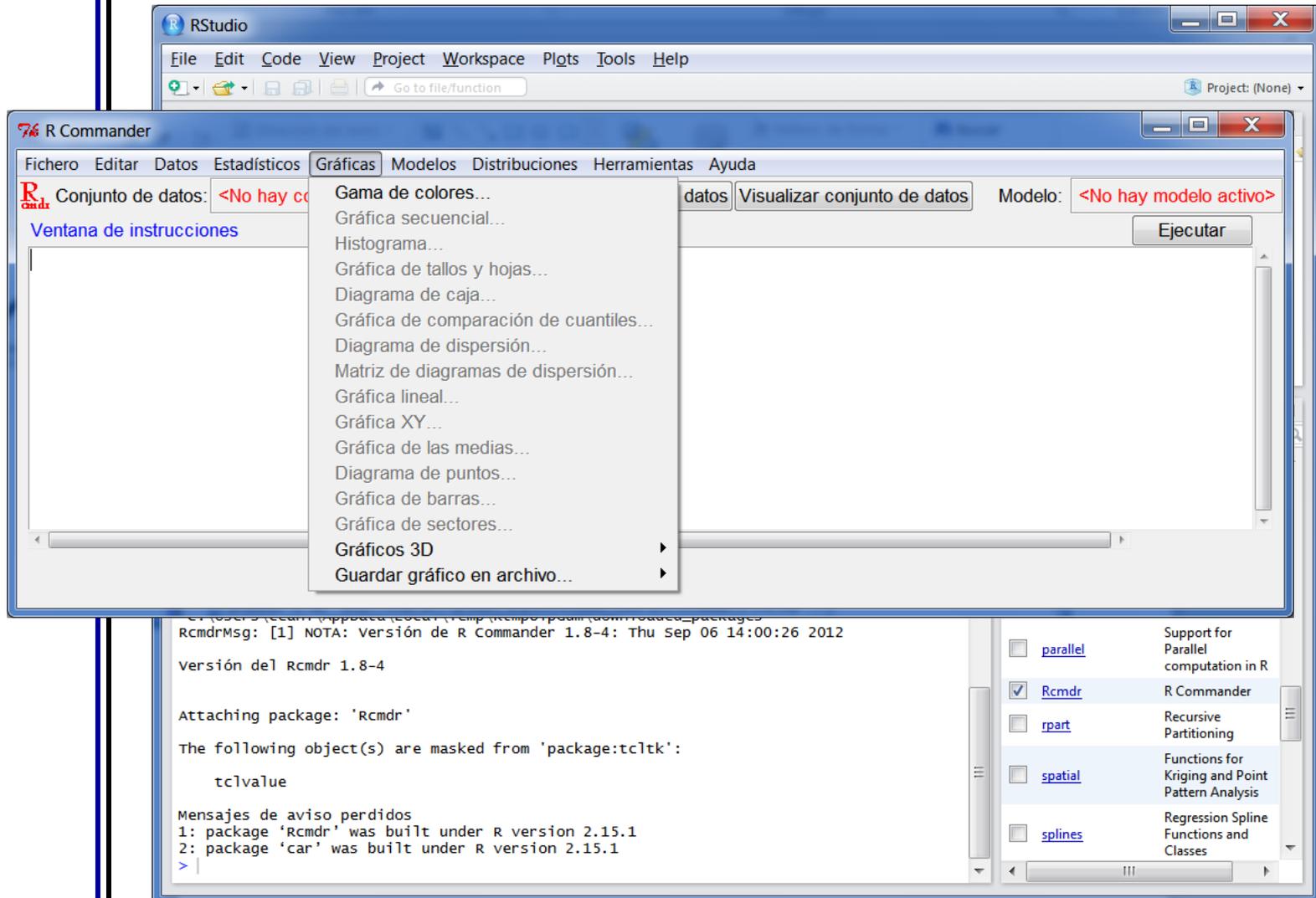
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

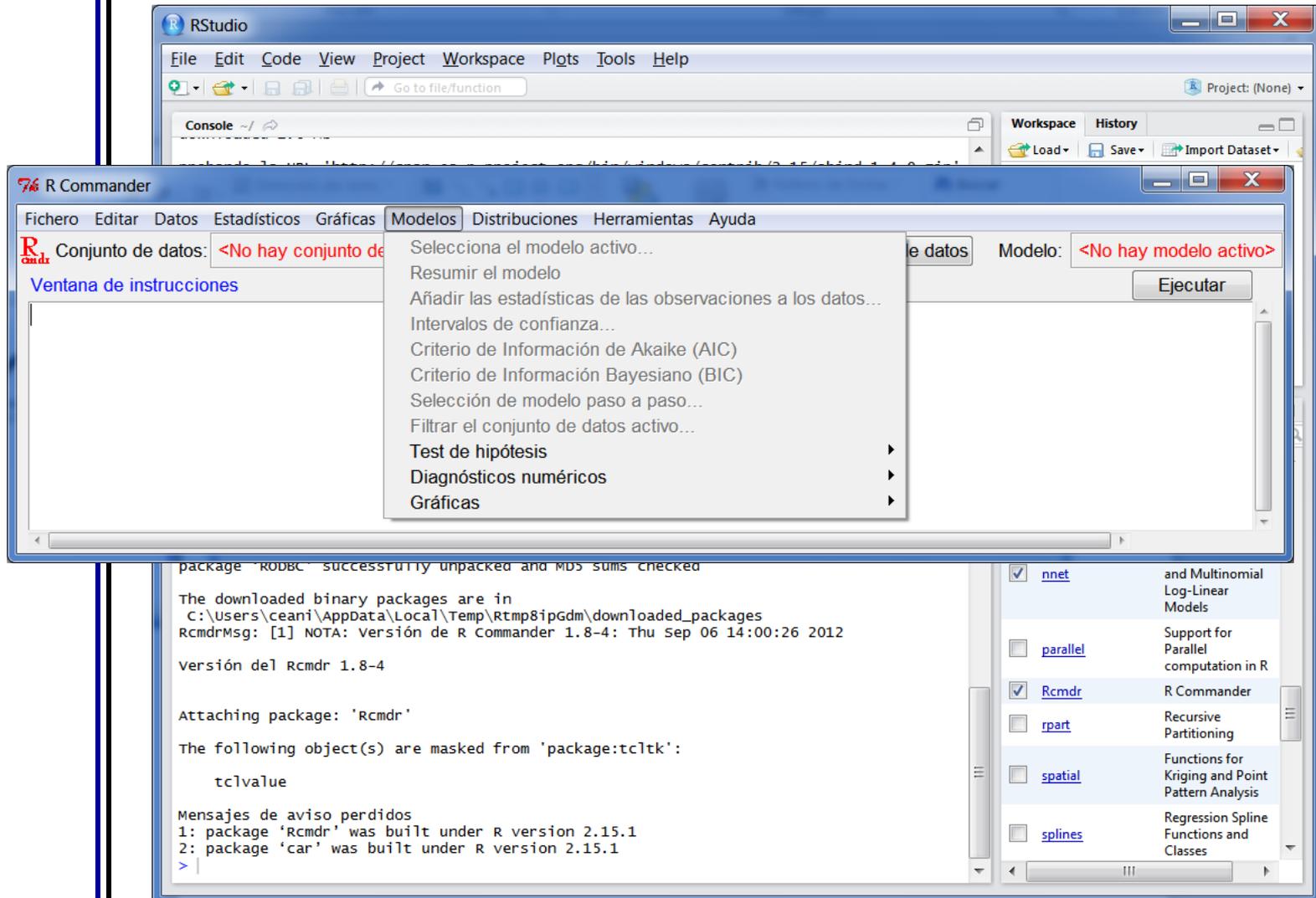
Package List:

Package	Description
<input checked="" type="checkbox"/> nnet	Neural Networks and Multinomial Log-Linear Models
<input type="checkbox"/> parallel	Support for Parallel computation in R
<input checked="" type="checkbox"/> Rcmdr	R Commander
<input type="checkbox"/> rpart	Recursive Partitioning
<input type="checkbox"/> spatial	Functions for Kriging and Point Pattern Analysis
<input type="checkbox"/> splines	Regression Spline Functions and Classes

Interfaz R Commander



Interfaz R Commander



The image shows the R Commander interface overlaid on the RStudio window. The R Commander window has a menu bar with options: Fichero, Editar, Datos, Estadísticos, Gráficas, **Modelos**, Distribuciones, Herramientas, Ayuda. The 'Modelos' menu is open, showing the following options:

- Selecciona el modelo activo...
- Resumir el modelo
- Añadir las estadísticas de las observaciones a los datos...
- Intervalos de confianza...
- Criterio de Información de Akaike (AIC)
- Criterio de Información Bayesiano (BIC)
- Selección de modelo paso a paso...
- Filtrar el conjunto de datos activo...
- Test de hipótesis
- Diagnósticos numéricos
- Gráficas

The R Commander interface also shows a 'Conjunto de datos:' field with the value '<No hay conjunto de datos>' and a 'Modelo:' field with the value '<No hay modelo activo>'. There is an 'Ejecutar' button. Below the menu, the console window displays the following output:

```

package 'RODBC' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

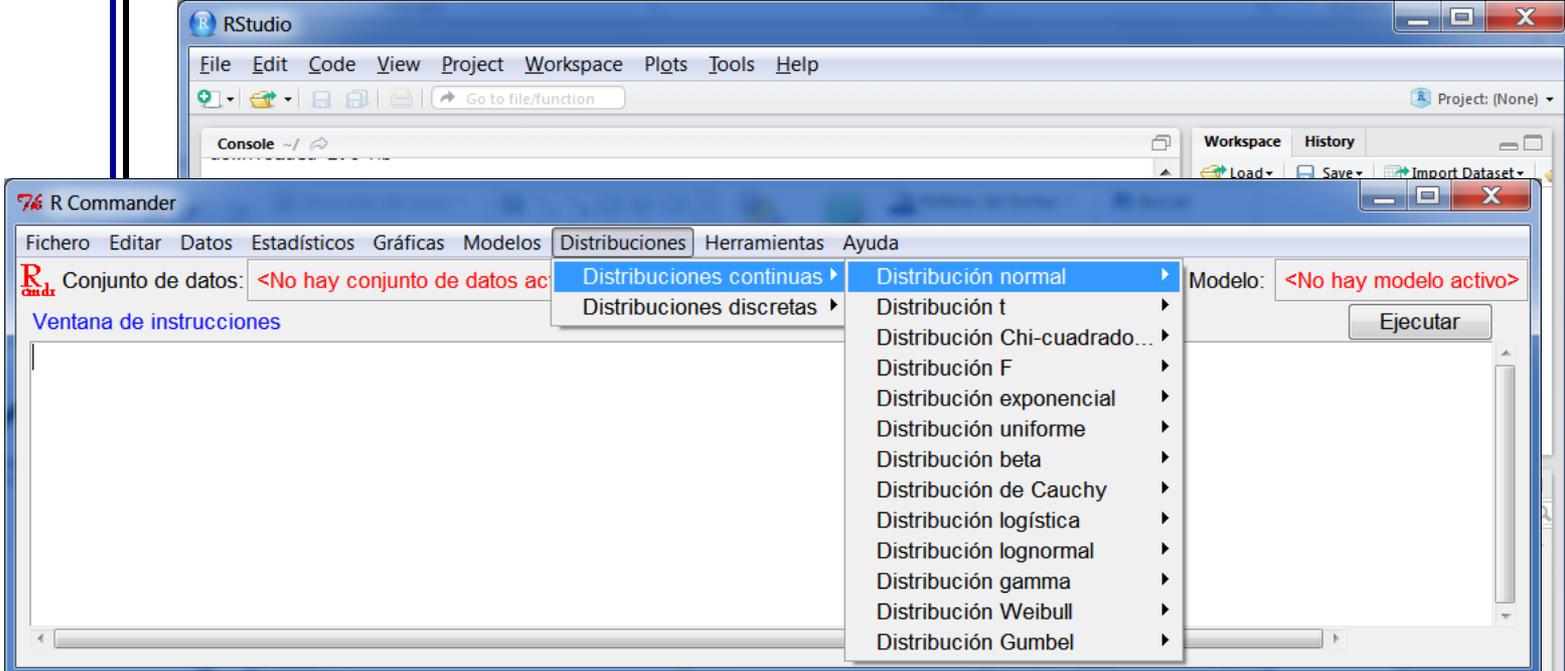
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
>
  
```

On the right side of the R Commander window, there is a list of installed packages with checkboxes:

- [nnet](#) and Multinomial Log-Linear Models
- [parallel](#) Support for Parallel computation in R
- [Rcmdr](#) R Commander
- [rpart](#) Recursive Partitioning
- [spatial](#) Functions for Kriging and Point Pattern Analysis
- [splines](#) Regression Spline Functions and Classes

Interfaz R Commander



The image shows the R Commander interface overlaid on the RStudio environment. The R Commander window has a menu bar with 'Fichero', 'Editar', 'Datos', 'Estadísticos', 'Gráficas', 'Modelos', 'Distribuciones', 'Herramientas', and 'Ayuda'. The 'Distribuciones' menu is open, showing 'Distribuciones continuas' and 'Distribuciones discretas'. Under 'Distribuciones continuas', 'Distribución normal' is selected. Other options include 'Distribución t', 'Distribución Chi-cuadrado...', 'Distribución F', 'Distribución exponencial', 'Distribución uniforme', 'Distribución beta', 'Distribución de Cauchy', 'Distribución logística', 'Distribución lognormal', 'Distribución gamma', 'Distribución Weibull', and 'Distribución Gumbel'. The 'Modelo:' field shows '<No hay modelo activo>' and an 'Ejecutar' button is visible.

The RStudio window in the background shows the 'Console' pane with the following output:

```
The downloaded binary packages are in
C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

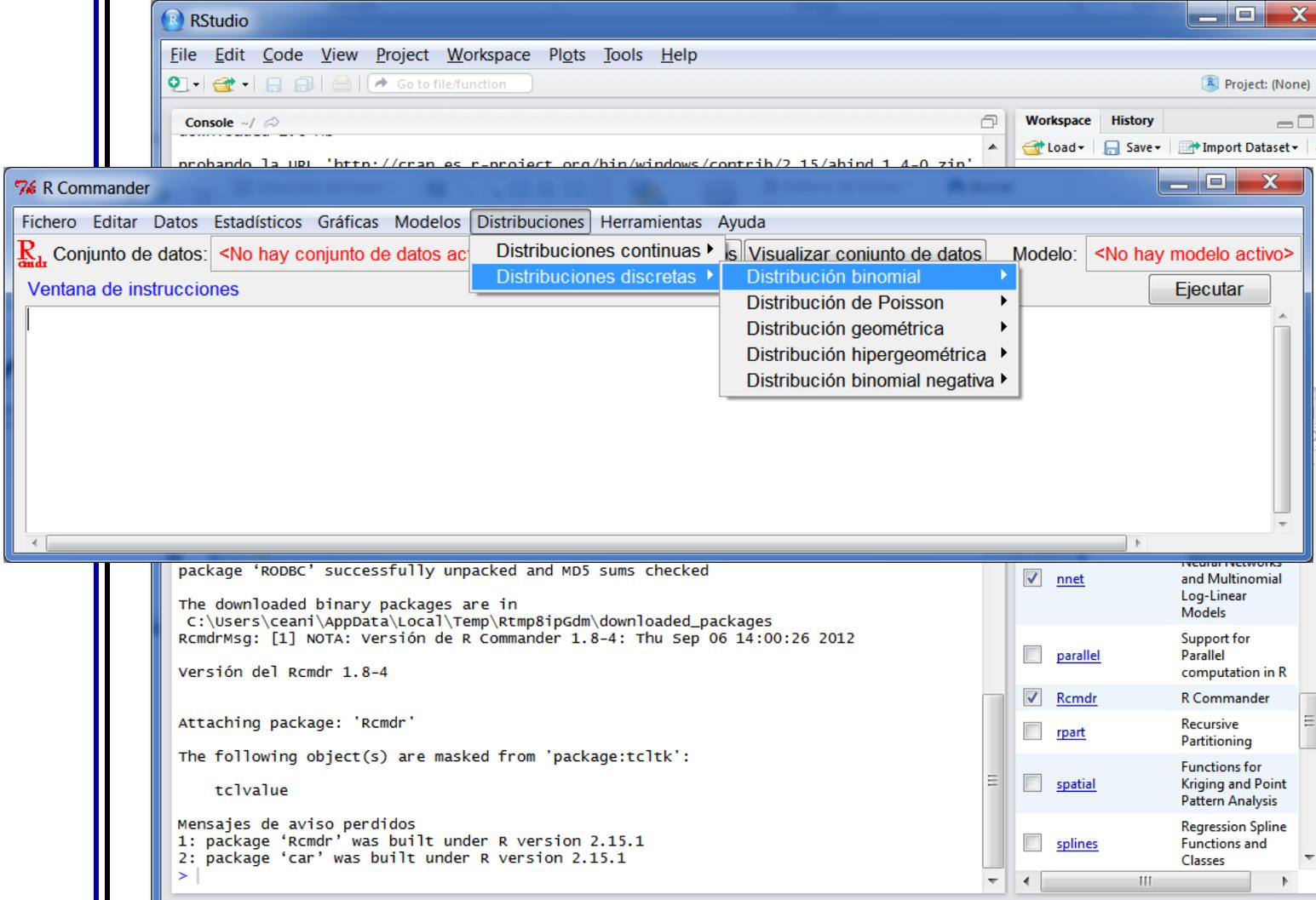
Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

Interfaz R Commander



The image shows the R Commander interface overlaid on the RStudio window. The R Commander window has a menu bar with 'Fichero', 'Editar', 'Datos', 'Estadísticos', 'Gráficas', 'Modelos', 'Distribuciones', 'Herramientas', and 'Ayuda'. The 'Distribuciones' menu is open, showing 'Distribuciones continuas' and 'Distribuciones discretas'. The 'Distribuciones discretas' sub-menu is also open, listing 'Distribución binomial', 'Distribución de Poisson', 'Distribución geométrica', 'Distribución hipergeométrica', and 'Distribución binomial negativa'. The 'Distribución binomial' option is highlighted. The console window shows the following output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

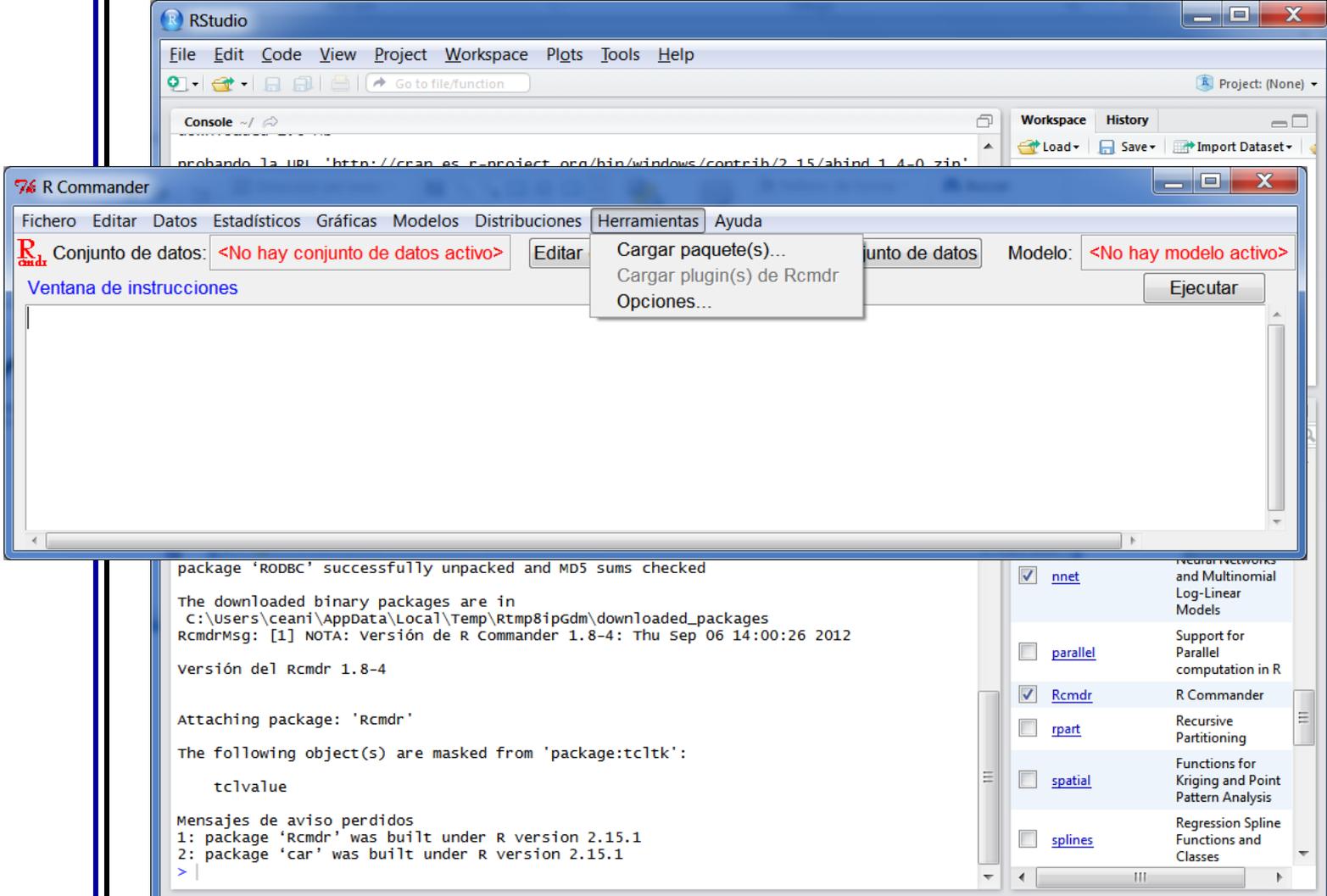
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

On the right side of the R Commander window, there is a list of installed packages with checkboxes:

Package	Description
<input checked="" type="checkbox"/> nnet	Neural Networks and Multinomial Log-Linear Models
<input type="checkbox"/> parallel	Support for Parallel computation in R
<input checked="" type="checkbox"/> Rcmdr	R Commander
<input type="checkbox"/> rpart	Recursive Partitioning
<input type="checkbox"/> spatial	Functions for Kriging and Point Pattern Analysis
<input type="checkbox"/> splines	Regression Spline Functions and Classes

Interfaz R Commander



The image displays two overlapping windows from the R software environment. The background window is RStudio, showing its standard interface with a menu bar (File, Edit, Code, View, Project, Workspace, Plots, Tools, Help) and a console area. The foreground window is R Commander, which has a menu bar (Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, Ayuda). The 'Herramientas' menu is open, showing options: 'Cargar paquete(s)...', 'Cargar plugin(s) de Rcmdr', and 'Opciones...'. The R Commander window also shows a 'Conjunto de datos:' field with '<No hay conjunto de datos activo>', an 'Ejecutar' button, and a 'Modelo:' field with '<No hay modelo activo>'. The console area of R Commander displays the following text:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

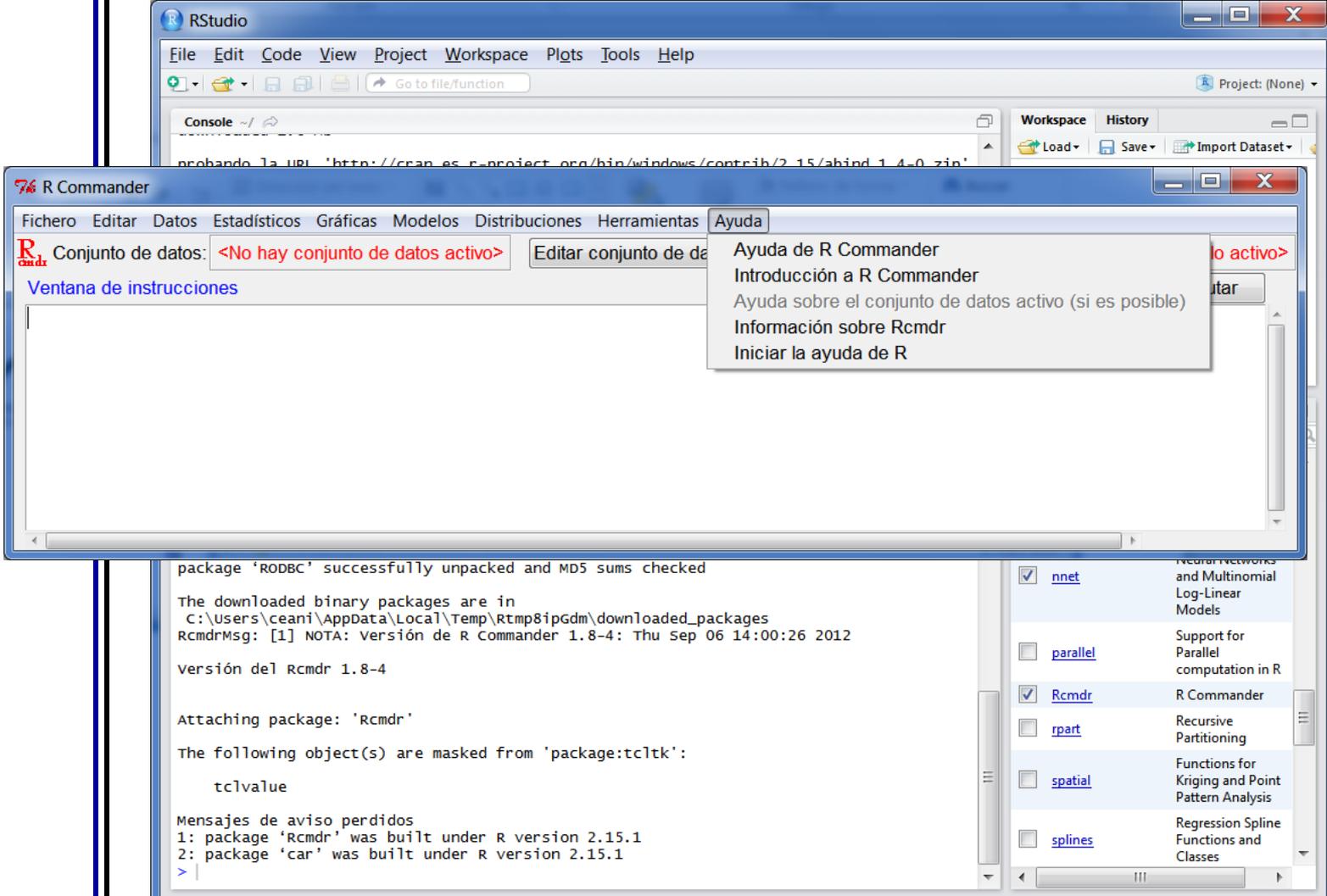
  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

On the right side of the R Commander window, there is a list of installed packages with checkboxes:

- [nnet](#) Neural Networks and Multinomial Log-Linear Models
- [parallel](#) Support for Parallel computation in R
- [Rcmdr](#) R Commander
- [rpart](#) Recursive Partitioning
- [spatial](#) Functions for Kriging and Point Pattern Analysis
- [splines](#) Regression Spline Functions and Classes

Interfaz R Commander



The image shows a screenshot of the RStudio environment with the R Commander window open. The RStudio window in the background has a menu bar (File, Edit, Code, View, Project, Workspace, Plots, Tools, Help) and a toolbar. The R Commander window is in the foreground, showing a menu bar (Fichero, Editar, Datos, Estadísticos, Gráficas, Modelos, Distribuciones, Herramientas, Ayuda) and a main area with a red R logo and the text "Conjunto de datos: <No hay conjunto de datos activo>". A context menu is open over the "Ayuda" menu item, listing options: "Ayuda de R Commander", "Introducción a R Commander", "Ayuda sobre el conjunto de datos activo (si es posible)", "Información sobre Rcmdr", and "Iniciar la ayuda de R". Below the main area, there is a console window showing the following output:

```
package 'RODBC' successfully unpacked and MD5 sums checked
The downloaded binary packages are in
  C:\Users\ceani\AppData\Local\Temp\Rtmp8ipgdm\downloaded_packages
RcmdrMsg: [1] NOTA: versión de R Commander 1.8-4: Thu Sep 06 14:00:26 2012

Versión del Rcmdr 1.8-4

Attaching package: 'Rcmdr'

The following object(s) are masked from 'package:tcltk':

  tclvalue

Mensajes de aviso perdidos
1: package 'Rcmdr' was built under R version 2.15.1
2: package 'car' was built under R version 2.15.1
> |
```

On the right side of the R Commander window, there is a list of installed packages with checkboxes:

- [nnet](#) Neural Networks and Multinomial Log-Linear Models
- [parallel](#) Support for Parallel computation in R
- [Rcmdr](#) R Commander
- [rpart](#) Recursive Partitioning
- [spatial](#) Functions for Kriging and Point Pattern Analysis
- [splines](#) Regression Spline Functions and Classes

Bibliografía

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