Introduction to R - [2.01 / 2.04]

Source: R project website (http://www.r-project.org)

R is a language and environment for statistical computing and graphics. It is a GNU project which is similar to the S language and environment which was developed at Bell Laboratories (formerly AT&T, now Lucent Technologies) by John Chambers and colleagues. R can be considered as a different implementation of S. There are some important differences, but much code written for S runs unaltered under R.

R provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, ...) and graphical techniques, and is highly extensible. The S language is often the vehicle of choice for research in statistical methodology, and R provides an Open Source route to participation in that activity.

One of R's strengths is the ease with which well-designed publication-quality plots can be produced, including mathematical symbols and formulae where needed. Great care has been taken over the defaults for the minor design choices in graphics, but the user retains full control.

R is available as Free Software under the terms of the Free Software Foundation's GNU General Public License in source code form. It compiles and runs on a wide variety of UNIX platforms and similar systems (including FreeBSD and Linux), Windows and MacOS.

R is a programming environment

- uses a well-developed but simple programming language
- allows for rapid development of new tools according to user demand
- these tools are distributed as packages, which any user can download to customize the R environment.

Base R and most R packages are available for download from the Comprehensive R Archive Network (CRAN) ***cran.r-project.org***. Base R comes with a number of basic data management, analysis, and graphical tools R's power and flexibility, however, lie in its array of **packages** (currently more than 4,000!)

The Four Freedom of Free Software

Free software means that the software's users have freedom. (The issue is not about price.) The GNU operating system was developed so that users can have freedom in their computing.

Specifically, free software means users have the four essential freedoms:

- (0) to run the program,
- (1) to study and change the program in source code form,
- (2) to redistribute exact copies, and
- (3) to distribute modified versions.

Software differs from material objectsin that it can be copied and changed much more easily. These facilities are why software is useful; A program's users should be free to take advantage of them, not solely its developer.