

as generic placeholders indicating *any valid value*, *any valid R statement*, *any valid R name*, etc.

1.4 Findings answers to problems

1.4.1 What are the options

First of all do not panic! Every programmer, even those with decades of experience, get stuck with problems from time to time, and can run out of ideas for a while. This is normal, and happens to all of us.

It is important to learn how to find answers as part of the routine of using R. First of all one can read the documentation of the function or object that one is trying to use, which in many cases also includes use examples. R's help pages tell how to use individual functions or objects. In contrast, R's manual *An Introduction to R* and books describe what functions or overall approaches to use for different tasks.

Reading the documentation and books not always helps. Sometimes one can become blind to the obvious, by being too familiar with a piece of code, as it also happens when writing in a natural language like English. A second useful step is, thus, looking at the code with “different eyes”, those of a friend or workmate, or your own eyes a day or a week later.

One can also seek help in specialised on-line forums or from peers or “local experts”. If searching in forums for existing questions and answers fails to yield a useful answer, one can write a new question in a forum.

When searching for answers, asking for advice or reading books, one can be confronted with different ways of approaching the same tasks. Do not allow this to overwhelm you; in most cases it will not matter which approach you use as many computations can be done in R, as in any computer language, in several different ways, still obtaining the same result. Use the alternative that you find easier to understand.

1.4.2 R's built-in help

Every object available in base R or exported by an R extension package (functions, methods, classes, data) is documented in R's help system. Sometimes a single help page documents several R objects. Not only help pages are always available, but they are structured consistently with a title, short description, and frequently also a detailed description. In the case of functions, parameter names, their purpose and expected arguments are always described, as well as the returned value. Usually at the bottom of help pages, several examples of the use of the objects or functions are given. How to access R help is described in section 2.3 on page 12.

In addition to help pages, R's distribution includes useful manuals as PDF or HTML files. These manuals are also available at <https://rstudio.github.io/r-manuals/> restyled for easier reading in web browsers. In addition to help pages,