Obviously, there is only *one* relevant call within `sum()`, namely the `.Internal` call to an inner entry point `sum()`. The next step is to look up that entry point in the file 'names.c', which reveals the following line:

```
/* many lines omitted */
  {"sum", do_summary, 0, 11, -1,
                  {PP_FUNCALL, PREC_FN, 0}},
/* many lines omitted */
```

This line tells us to look for `do_summary` which itself lives in file 'summary.c' in the same directory. If the filename is not obvious, then it can be found by simply 'grep'ping for the string in R's `$R_HOME/src/` path.

The Bleeding Edge

Folks working on the bleeding edge of statistical computing might want to check out the most recent sources, e.g., by looking into the current svn archives of R. To access them via a web browser, visit https://svn.r-project.org/R/. The subdirectory `./trunk/` contains the current R-devel version; other branches (such as R-patched) can be found in `./branches/`, and released versions of R can be found in `./tags/`.

Summary

It is easy to look at both R and C, C++ or Fortran sources. It is not that difficult to change the sources and to recompile or to reinstall a modified package. This way, users can become developers very easily and contribute bugfixes and new features to existing packages or even to R itself.

Acknowledgments

I would like to thank Roger Bivand, Gabor Grothendieck, Paul Murrell, and David Scott for suggestions to improve this Help Desk article.

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useR! 2006, The Second R User Conference

by Balasubramanian Narasimhan

The second useR! 2006 conference (http://www.R-project.org/useR-2006) took place in Vienna, June 15–17. The conference was organized by the Austrian Association for Statistical Computing and Wirtschaftsuniversität Wien and sponsored by the R foundation for Statistical Computing as well as the American Statistical Association section on Statistical Computing. The organizing committee consisted of Torsten Hothorn, Achim Zeileis, David Meyer, and Bettina Grün (in charge of conference, program, local organization, and web site, consecutively) along with Kurt Hornik and Friedrich Leisch.

The approximately 400 attendees comprised a broad spectrum of users from the scientific and business community. The conference was divided into keynote, kaleidoscope, and focus sessions. The kaleidoscope sessions addressed applications and usage of R appealing to a broad audience, while the focus sessions were more specialized, highlighting a specific topic followed by a discussion and exhibition. Keynote speakers included R core members and R users:

- John Chambers on the history of S and R
- Brian Everitt on cluster analysis
- John Fox and Sanford Weisberg on using R for teaching
- Trevor Hastie on path algorithms
- Jan de Leeuw on R in psychometrics

- Uwe Ligges, Stefano Iacus and Simon Urbanek on R on various platforms
- Paul Murrell on drawing graphs in R
- Peter Rossi on Bayesian statisics with marketing data in R

The conference web page hosts abstracts and slides for all presentations, highlighting the role R is playing in many fields from teaching to research to commercial applications. The conference concluded with a panel discussion on getting recognition for excellence in computational statisics. The panelists included Jan de Leeuw (Editor, Journal of Statisical Software), Timothy Hesterberg (Past-Chair, ASA Section on Statistical Computing), Martina Mittlböck, (Associate Editor, Computational Statistics & Data Analysis), Paul Murrell (Chair, ASA Section on Statistical Graphics), Erich Neuwirth (Associate Editor, Computational Statistics), and Luke Tierney (Editor, Journal of Computational and Graphical Statistics). A video of the panel discussion is available from the website and is recommended viewing.

I would be remiss if I did not mention the routinely excellent arrangements made by the organizers. The conference provided a wonderful milieu for discussions over coffee breaks, lunches, pub outings and dinner, and judging by the activity, it was a roaring success. Social events included a cocktail reception at the Vienna City Hall (Rathaus), and a traditional Viennese dinner at Heuriger Fuhrgassl-Huber restaurant with generous sampling of Viennese white wine. Everyone was enthusiastic in praise of the conference and I am sure that the next useR! is eagerly anticipated.

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Changes in R

by the R Core Team

User-visible changes

- The startup message now prints first the version string and then the copyright notice (to be more similar to `R --version`).
- `save()` by default evaluates promise objects. The old behaviour (to save the promise and its evaluation environment) can be obtained by setting the new argument `'eval.promises'` to FALSE. (Note that this does not apply to promises embedded in objects, only to top-level objects.)
- The functions `read.csv()`, `read.csv2()`, `read.delim()`, `read.delim2()` now default their `'comment.char'` argument to `""`. (These functions are designed to read files produced by other software, which might use the # character inside fields, but are unlikely to use it for comments.)
- The bindings in the base environment/namespace (currently the same thing) are now locked. This means that the values of base functions cannot be changed except via `assignInNamespace()` and similar tricks.
- `[[` on a factor now returns a one-element factor (and not an integer), `as.list()` on a factor returns a list of one-element factors (and not of character vectors), and `unlist()` on a list of factors returns a factor (and not an integer vector). These changes may affect the results of `sapply()` and `lapply()` applied to factors.
- `mauchly.test()` now returns the W statistic (for comparability with SAS and SPSS), rather than the z (which was accidentally not named in the output)
- `sort(x, decreasing = FALSE, ...)` is now a generic function. This means that `'partial'` is no longer the second argument, and calls which used positional matching may be incorrect: we try to detect them.
- See the section on `'Changes to S4 methods'`: all packages depending on **methods** need to be re-installed.

New features

- `agrep()`, `grep()`, `strwrap()`, `strtrim()`, `substr()` and related functions now coerce arguments which should be character via `as.character()` rather than internally (so method dispatch takes place, e.g. for factors).

  `chartr()`, `charfold()`, `tolower()` and `toupper()` now coerce their main argument if necessary to a character vector via `as.character()`.

  Functions which work element-by-element on character vectors to give a character result now preserve attributes including names, dims and dimnames (as suggested by the Blue