Customizing and extending Emacs Speaks Statistics

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A word about use-package

In this document, several pieces of Emacs Lisp code will be proposed so that you can use them in your init file.

It is assumed that you use use-package for your init file: the Emacs Lisp code can be adapted in a straightforward manner if you do not use it.

As a reminder, this is the minimal code to add in your init file so as to use use-package, once it has been installed:

```
;; Make sure that use-package is installed:
(unless (package-installed-p 'use-package)
  (package-refresh-contents)
  (package-install 'use-package))
;; Load use-package:
(eval-when-compile
  (require 'use-package))
```

Documentation popups I

`company-quickhelp` allows for documentation popups, e.g. to further describe function arguments.
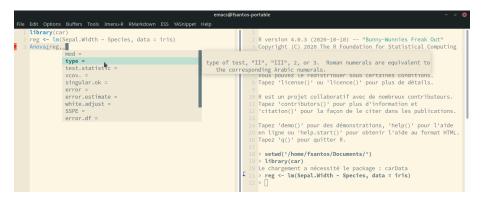

Figure 1: Documentation popups with `company-quickhelp`.

Documentation popups II

The minimal elisp code to add to your init file is straightforward:

```
(use-package company-quickhelp
  :ensure t
  :config
  ;; Load company-quickhelp globally:
  (company-quickhelp-mode)
  ;; Time before display of documentation popup:
  (setq company-quickhelp-delay 0.3))
```

By default, the documentation popup is shown automatically. You can adjust the time before the popup shows up by customizing the variable company-quickhelp-delay.

Code snippets

yasnippet is an Emacs package allowing for the expansion of whole pieces of code you often use (*snippets*) from one given abbreviation.

Key features of yasnippet

- All code snippets are stored as plain-text files in one given directory, so that they are easy to share with other people, and can be easily version controlled.

- As a corollary, it is also easy to retrieve and use large collection of snippets already available online. For instance, Andrea Crotti maintains a great collection available at https://github.com/AndreaCrotti/yasnippet-snippets.

- Although we only demonstrate its use within ESS and R here, note that yasnippet is not an R-specific solution, and that you can use it for any other programming language.

Setting up yasnippet I

To set up yasnippet, proceed through the following steps:

1. Create a directory snippets/ at some convenient location, and add a subfolder ess-r-mode/ in this directory.
2. Add the minimal following code in your init file:

```
(use-package yasnippet
  :ensure t
  :config
  ;; Indicate the directory containing your snippets:
  (setq yas-snippet-dirs '("path/to/your/snippets"))
  ;; Load your snippets on startup:
  (yas-reload-all)
  ;; Turn on yasnippet (minor) mode when editing R files:
  (add-hook 'ess-r-mode-hook #'yas-minor-mode))
```

Setting up yasnippet II

3. You can now fill your snippets/ess-r-mode/ directory with your own snippets. For instance, create a file function (without any extension) in this directory, with the following contents:

```
#name : function
#key : fun
# --
${1:name} <- function(${2:args}) {
    ${3:body}
}
```

Each snippet has a unique name, and can be triggered by typing a given key (followed by TAB). As we will see later on, the present snippet allows for the expansion of a template for defining new R functions more easily. The yasnippet manual gives more details about the expected syntax to define your own code snippets: http://joaotavora.github.io/yasnippet/.

Setting up yasnippet III

④ Now your snippets directory should look like:

```
snippets
    └── ess-r-mode
        └── function
```

Feel free to add or retrieve (a lot!) more snippets, i.e. to add more template files within the ess-r-mode sub-directory.

Using `yasnippet` in an ESS[R] buffer I

While you are editing an R source file with ESS, each snippet can be triggered by typing its key and then pressing TAB. You can then navigate through the placeholders of the expanded template by pressing TAB again.

For instance, with our previously defined snippet, typing `fun` followed by TAB will expand the full `function` template; you will then be able to specify easily a value for each of the three placeholders (the function's name, its `args` and `body`).

Note that `yasnippet` has a short video tutorial, available at https://www.youtube.com/watch?v=ZCGmZK4V7Sg.