Emacs and XEmacs

David J. Scott

`d.scott@auckland.ac.nz`

Department of Statistics, University of Auckland

Outline

- Basics
- Windows and menus
- Simple editing
- Modes
- Files
- Selecting and moving text
- Searching and replacing
- Commands and functions
- Customizing XEmacs

Resources

- XEmacs tutorial from Ohio State
  `http://www.cse.ohio-state.edu/~weide/sce/reference`
- Emacs tutorial
  `www.stat.auckland.ac.nz/~dscott/782/EmacsTutorial.`
- Getting started with XEmacs
  `www.stat.auckland.ac.nz/~dscott/782/xemacs-new-use`
- Emacs Manual
  `http://www.xemacs.org/Documentation/index.html`
- XEmacs FAQ
  `http://www.xemacs.org/Documentation/21.5/html/xema`
- Reference cards may be found fairly easily. For example
  `www.stat.auckland.ac.nz/~dscott/782/xemacs-refcard`

Description

- XEmacs is a self-documenting, customizable, extensible, real-time display editor

- Display: text is visible on the screen and is updated automatically as you type (c.f. sed, a stream editor)

- Real-time: updated frequently

- Self-documenting: Control-h gives help at any time

- Customizable: can change key bindings, specification of comments

- Extensible: can program entirely new commands, e.g. ESS

- Advanced features: filling of text; automatic indentation; multiple files; operation on document features including words, lines, paragraphs and pages; support for programming languages

Basics

- buffer: region of memory holding characters
- Enter XEmacs with the command `xemacs` or from a menu
- Emacs uses control characters: hold down Ctrl and press the character
- Write this as C-x if the other key pressed is the *x*
- Emacs also uses the META key which varies according to the keyboard
- Usually the META key is Alt or the alternative Alt, shown as Alt Gr
- If not, press Esc then the other character
- Write M-x for META-x, which might in fact be Esc followed by *x*

Basics

- To open a file use the File menu or the button, or C-x C-f, or open the file when starting XEmacs using
  `xemacs filename`

- If the file does not exist, type in the name you want for it and the file will be created.

- To leave XEmacs, use the File menu or C-x C-c

- To abort a command or operation, use C-g

- On starting XEmacs, the *Frame* appears

- Frame has menus, the *Mode line*, and the *Echo area*

Mode Line

- Mode line shows:
  - the status of the file
    - `'**'`   buffer has been edited
    - `'--'`   buffer has not been edited
    - `'%%'`   buffer is read only
  - name of active buffer (usually the name of the file being edited)
  - position in the file: `All, Top, Bot,` *nn%*
  - major and minor modes which are in effect
- Some major mode options are `Fundamental, Text, C`
- One minor mode is `Fill` which means lines are broken automatically when too wide (Auto Fill mode is on)
- Can display other information, e.g. the time

Echo Area

- This is the line at the bottom of the frame

- Will print characters you type

- e.g. when opening a file with C-x C-f, the Echo Area will be where you type in the file name

- Error messages are printed in the Echo Area

- Informative messages can be printed

XEmacs Window Operations

- Clicking the right button on the mode line allows operations on windows

- Options are Delete Window Above, Delete Other Windows, Split Window Above, Split Window Horizontally, and Balance Windows

- Keys for these commands are shown:

  `C-x 0`   Delete the currently selected window
  `C-x 1`   Delete all other windows but the selected one
  `C-x 2`   Split current window vertically

Menus

- File menu: opening, inserting, printing, and saving files

- Keys for commands are shown on the menus

- Edit menu: copy, paste, delete, select, find, replace

- View menu: frame and window operations

- Commands (Cmds) menu: macro recording, indenting, spelling, working rectangular regions (turn on Rectangle Mousing)

- Tools menu: packages, grep, compare

- Options menu: editing, keyboard and mouse, display, fonts

- Buffers menu: lists all buffers (up to 10) in groups, delete buffer

- Other menus depending on mode

- Help menu

Basic Editing

- To learn the basic keystroke commands, go through the Emacs tutorial

- Insert by typing, overstrike mode replaces characters already there

- Delete key can be set to delete current character, backspace deletes previous character

- Auto Fill will automatically split lines when they are too long

  - Toggle with `M-x auto-fill-mode <Enter>`
  - To re-fill a paragraph, use `M-q<Enter>` with the cursor in the paragraph.

Basic Editing

- Moving around can be via mouse, arrow keys, paging up and down or scrolling

- Many keyboard commands for moving by a character, a word, a line

- Top of the buffer `M-<` and bottom of the buffer `M->` are useful

- Can select text and erase with delete or overtyping if editing options are set.

- Many options for deleting sections of text
  - `C-k` (`kill-line`) kills to the end of the line (reverse by yanking `C-y`)
  - `M-k` (`kill-sentence`) kills to the end of the sentence
  - `M-z` *char* (`zap-to-char`) will kill the next occurrence of *char*

Other Features

- Emacs keeps a record of all changes to each buffer

- Can undo repeatedly using menus or `C-x u`

- Help menu: Info, Commands and Keys, Tutorials

- Can use as a mailer, calendar, diary

Search and Replace

- Emacs does an incremental search using the menu, `C-s` (forward) or `C-r` (backward)

- Next occurrence is found with `C-s C-s`

- `C-g` will quit the search

- Search and replace done using menu or `M-%`

- Respond with `y` (yes), `n` (no), or `q` (quit)

- Using the keyboard:
  `M-x replace-string`, (replace without asking) or
  `M-x query-replace`

Customizing XEmacs

Customizing XEmacs

- There are many packages available for XEmacs to enhance its usability

- As a minumum I recommend installing AUCTeX and ESS to support TeX and R respectively

- The package `recentf` is also useful to maintain a list of recently used files

- AUCTeX and other packages are available using the XEmacs package system

- To use the package system, on the Tools > Packages menu first set the download site (Australia(aarnet.edu.au) works)

- Then on the same menu, select List and Install and follow the instructions which are hidden at the bottom of the page

- If you do not have root access the package system may fail with the error `Permission denied`

Customizing XEmacs

- On the grad room machines it is not necessary to install a lot of packages: they are already there in the site installation
- Customization of XEmacs to work with LaTeX for these machines requires only the addition of the line

  ```
  (require 'tex-site)
  ```

  to the file `init.el`
- The initialization file `init.el` is available under the Options menu
- For Unix/Linux installations, this file is normally in the directory `~/.xemacs`
- `init.el` may require small changes to enable XEmacs to work with particular packages
- It can also be used to create environments which differ markedly from the defaults XEmacs

Customizing bash

- It appears you may or may not have a `.bashrc` file in your home directory when you start

- If you do have a `.bashrc` file, it should contain the following lines at the top

```
if [ -f /etc/bashrc ]; then
   . /etc/bashrc
fi
```

- If you do not have a `.bashrc` file or these lines are not at the top of your `.bashrc` file, create the file and/or add them to the file

- You may use XEmacs or the editor under the menu Applications > Accessories (which is called gedit) to do this

Customizing XEmacs

- To get the latest version of AUCTeX however:
  - download the file `auctex-11.84-pkg.tar.gz` from `http://www.gnu.org/software/auctex/`
  - create the directory `/.xemacs/xemacs-packages` if it does not already exist
  - move the file `auctex-11.84-pkg.tar.gz` to this directory
  - unpack the file
  - add the lines

    `(require 'tex-site)`
    `(setq LaTeX-enable-toolbar nil)`

    to `init.el`
  - the second line is required to work around a bug: it turns off the set of special buttons when editing a `.tex` file

Customizing XEmacs

- The package `recentf` requires special treatment and will be covered in Assignment 2

- To use `recentf`, the lines

  ```
  (require 'recentf)
  (recentf-mode 1)
  ```

  must be added to `init.el`

- ESS must also be installed separately

XEmacs for Windows

- One advantage of XEmacs is that it is available on Windows as well as Unix

- A working version of XEmacs for Windows may be downloaded from the XEmacs website `http://www.xemacs.org/`

- John Fox has instructions for installing ESS at `http://socserv.mcmaster.ca/jfox/Books/Companion/ES`