

Advanced Emacs

Emacs as a platform

- Emacs is a platform for building text editors
 - It isn't very useful without customization
- There exist “starter packs” similar to our GPI `.vimrc` to simplify / complicate editing

Emacs Lisp

```
;; Eshell C-l support
(defun eshell-clear-buffer ()
  "Clear terminal"
  (interactive)
  (let ((inhibit-read-only t))
    (erase-buffer)
    (eshell-send-input)))
(add-hook 'eshell-mode-hook
  '(lambda()
     (local-set-key (kbd
"C-l") 'eshell-clear-buffer)))
```

- Configuration language for Emacs
- Somewhat archaic
 - Dynamic scope
 - Weakly typed
 - Parentheses!!!
- Powerful enough to write very useful extensions

Dot Emacs (.emacs)

- Emacs equivalent of the .vimrc
 - Single file holding configuration information written in Emacs Lisp
 - .emacs.d directory often used to hold multiple files

Emacs modes

- Last week, we said that Emacs is a non-modal editor
 - Contrast with Vim, which has Normal, Insert, and Visual modes
- But Emacs has modal editing at a higher level
- Which keys do which things depends on
 - What type of file you are editing
 - Arbitrary “hooks” to change keybindings in response to events
 - Manually changing the modes with M-x

Major and minor modes

- Each “buffer” is associated with exactly one major mode and some list of minor modes
- Modes can “inherit” from other modes
 - For example, prog-mode is the parent of python-mode and c++-mode
- Each major mode redefines tons of keybindings in ways that are useful for the particular file you are editing
- Minor modes are less intrusive, and define smaller sets of commands for editing tasks that are useful in many different file types
 - Like spellcheck through flyspell-mode

Vim emulation using evil-mode

- Evil-mode changes the Emacs editing language to the vim editing language
 - All of the keybindings you are familiar with from class will work
 - Emacs M-x commands are still available

Getting help in Emacs

- C-h i
 - Open Emacs manual
- C-h b
 - List all bindings in scope
- C-h c
 - Describe what command is bound to a key

Useful Emacs concepts

- Windowing commands
- Buffers vs Windows vs Frames
- Split view on a single buffer

Spacemacs

- Emacs starting kit focused on evil-mode

Spacemacs Layers

- Spacemacs organizes extensions into layers by topic
- Can also install emacs extensions manually from the ELPA or MELPA repositories
 - Or just copy the Emacs Lisp files into .emacs.d

Emacs packages

tramp-mode

- Edit files over ssh
- Very useful for editing files on Andrew
- Open file dialog (SPC-f-f in Spacemacs) and use the following syntax
 - `ssh:andrew:private/gpi-labs`

shell-mode

- Open bash inside of Emacs
- M-x shell

magit-mode

- Git client for Emacs

org-mode

- Outline and todo list
 - Great for note-taking
 - Can write latex inline

avy-mode

- Like the t and f commands from Vim, but more general
- Simplify movement across entire files

helm

- File browsing and completion framework
 - Find commands and files

docview-mode

- View pdfs and images inside of emacs
- Works in combination with tramp-mode to view writeup files on Andrew

flycheck-mode

- Syntax-checking for several different programming languages
- IDE-like discovery of syntax errors before compilation

Language-specific modes

- Most languages have their own spacemacs layer providing an editing mode specific to that language