Doom Emacs Configuration

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Let us change our traditional attitude to the construction of programs: Instead of imagining that our main task is to instruct a computer what to do, let us concentrate rather on explaining to human beings what we want a computer to do. — Donald Knuth

1 Note: If you want a proper Emacs Config, look here:

https://tecosaur.github.io/emacs-config/config.html, this is just a compilation of different parts of his (and other's) configs, as well as a few parts I wrote by my own. I'm slowly working on making my config "mine"

1.1 Credit:

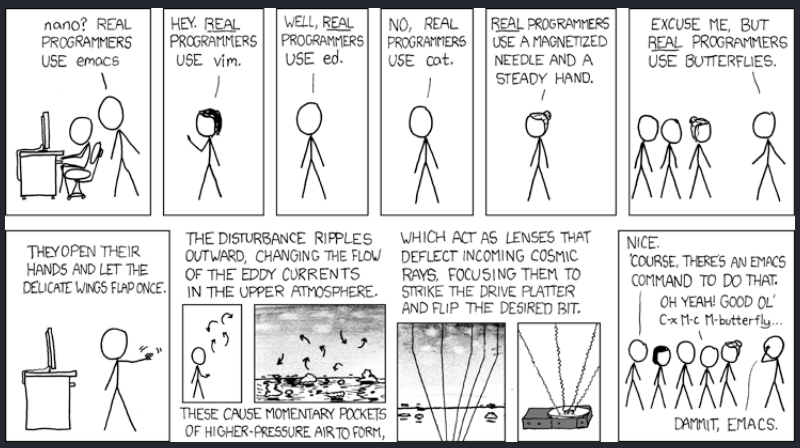
- Tecosaur - For all his help and the excellent config
- Dr. Elken - For his EXWM Module and help on the DOOM Server
- Henrik - For making Doom Emacs in the first place

Includes (snippets) of other software related under the MIT license:

- *Doom Emacs Config, 2021 Tecosaur. https://tecosaur.github.io/emacs-config/config.html*
- *.doom.d, 2021 Elken. https://github.com/elken/.doom.d/blob/master/config.org*

Includes (snippets) of other software related under the GPLv3 license:

- *.dotfiles, 2021 Daviwil. https://github.com/daviwil/dotfiles*



Real Programmers Real programmers set the universal constants at the start such that the universe evolves to contain the disk with the data they want.

2 Intro

Customizing an editor can be very rewarding ... until you have to leave it. For years I have been looking for ways to avoid this pain. Then I discovered vim-anywhere. The issue is

1. I use neovim (and neovide), not vim (and gvim)
2. Firenvim is only for browsers
3. Even if I found a neovim alternative, you can't do everything in neovim

I wanted everything, in one place. Hence why I (mostly) switched to Emacs.

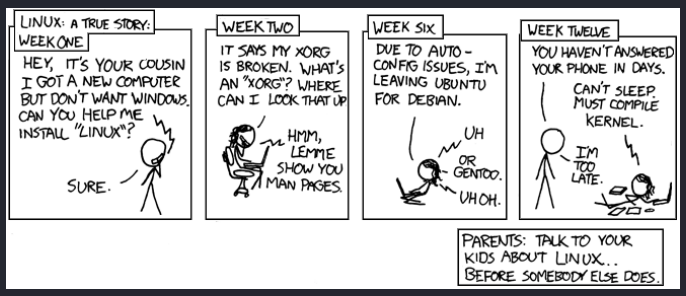
Separately, online I have seen the following statement enough times I think it's a catchphrase

> *Redditor 1: I just discovered this thing, isn't it cool.*
> *Redditor 2: Oh, there's an Emacs mode for that.*

This was enough for me to install Emacs, but there are many other reasons to keep using it.

I tried out the `spacemacs` distribution a bit, but it wasn't quite to my liking. Then I heard about `doom emacs` and thought I may as well give that a try.

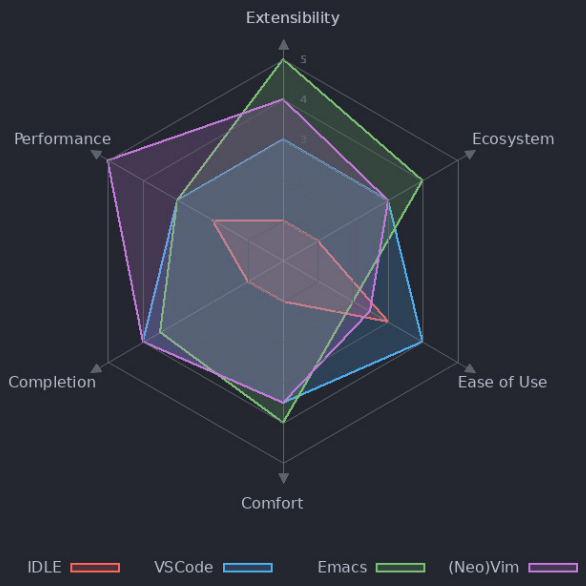
With Org, I've discovered the wonders of literate programming, and with the help of others I've switched more and more to just using Emacs (just replace "Linux" with "Emacs" in the comic below).



Cautionary This really is a true story, and she doesn't know I put it in my comic because her wifi hasn't worked for weeks.

Thats not to say using Emacs doesn't have its pitfalls. The performance leaves something to be desired, but the benefits far outweigh the drawbacks. Its unrivaled in extensibility.

Editor	Extensibility	Ecosystem	Ease of Use	Comfort	Completion	Performance
IDLE	1	1	3	1	1	2
VSCode	3	3	4	3.5	4	3
Emacs	5	4	2	4	3.5	3
(Neo)Vim	4	3	2.5	3.5	4	5



2.1 Why Emacs?

Emacs is not a text editor, this is a common misnomer. It is far more apt to describe Emacs as *a Lisp machine providing a generic user-centric text manipulation environment*. That's quite a mouthful. In simpler terms one can think of Emacs as a platform for text-related applications. It's a vague and generic definition because Emacs itself is generic.

Good with text. How far does that go? A lot further than one initially thinks:

- Task planning
- File management
- Terminal emulation
- Email client
- Remote server tool
- Git frontend
- Web client/server
- and more…

Ideally, one may use Emacs as *the* interface to perform `input → transform → output` cycles, i.e. form a bridge between the human mind and information manipulation.

2.1.1 The enveloping editor

Emacs allows one to do more in one place than any other application. Why is this good?

- Enables one to complete tasks with a consistent, standard set of keybindings, GUI and editing methods — learn once, use everywhere
- Reduced context-switching
- Compressing the stages of a project — a more centralised workflow can progress with greater ease
- Integration between tasks previously relegated to different applications, but with a com-

mon subject — e.g. linking to an email in a to-do list

Emacs can be thought of as a platform within which various elements of your workflow may settle, with the potential for rich integrations between them — a *life* IDE if you will.

Today, many aspects of daily computer usage are split between different applications which act like islands, but this often doesn't mirror how we *actually use* our computers. Emacs, if one goes down the rabbit hole, can give users the power to bridge this gap.

2.2 Notes for the unwary adventurer

If you like the look of this, that's marvellous, and I'm really happy that I've made something which you may find interesting, however:

✤ **Warning**

This config is *insidious*. Copying the whole thing blindly can easily lead to undesired effects. I recommend copying chunks instead.

If you are so bold as to wish to steal bits of my config (or if I upgrade and wonder why things aren't working), here's a list of sections which rely on external setup (i.e. outside of this config).

Oh, did I mention that I started this config when I didn't know any `lisp`, and this whole thing is a hack job? If you can suggest any improvements, please do so, no matter how much criticism you include I'll appreciate it :)

2.2.1 Extra Requirements

The lovely `doom doctor` is good at diagnosing most missing things, but here are a few extras.

- A LaTeX Compiler is required for the mathematics rendering performed in org, and that wonderful pdf/html export we have going. I recommend Tectonic.
- I use the Overpass font as a go-to sans serif. It's used as my `doom-variable-pitch-font` I have chosen it because it possesses a few characteristics I consider desirable, namely:
  - A clean, and legible style. Highway-style fonts tend to be designed to be clear at a glance, and work well with a thicker weight, and this is inspired by *Highway Gothic*.
  - It's slightly quirky. Look at the diagonal cut on stems for example. Helvetica is a masterful design, but I like a bit more pizzazz now and then.

  - **Note:** Alegreya is used for my latex export and writeroom mode configurations

- I use my patched SFMono font as a go-to monospace. I have chosen it because it possesses a few characteristics I consider desirable, namely:

  - Elegent characters, and good ligatures/unicode support

  - It fits will with the rest of my system

- A few LSP servers. Take a look at init.el' to see which modules have the `+lsp` flag.

- Gnuplot, used for `org-plot`.

- A build of emacs with modules and xwidgets support. I also recommend the native-comp flag with emacs28.

3 Doom Configuration

3.0.1 Modules

Doom has this lovely *modular configuration base* that takes a lot of work out of configuring Emacs. Each module (when enabled) can provide a list of packages to install (on `doom sync`) and configuration to be applied. The modules can also have flags applied to tweak their behaviour.

```
;;; init.el -*- lexical-binding: t; -*-

;; This file controls what Doom modules are enabled and what order they load in.
;; Press 'K' on a module to view its documentation, and 'gd' to browse its directory.

(doom! :completion
       <<doom-completion>>

       :ui
       <<doom-ui>>

       :editor
       <<doom-editor>>

       :emacs
       <<doom-emacs>>

       :term
       <<doom-term>>
```

```
:checkers
<<doom-checkers>>

:tools
<<doom-tools>>

:os
<<doom-os>>

:lang
<<doom-lang>>

:email
<<doom-email>>

:app
<<doom-app>>

:config
<<doom-config>>)
```

1. Structure As you may have noticed by this point, this is a literate configuration. Doom has good support for this which we access though the `literate` module.

   While we're in the `:config` section, we'll use Dooms nicer defaults, along with the bindings and smartparens behaviour (the flags aren't documented, but they exist).

   ```
   literate
   (default +bindings +smartparens)
   ```

2. Interface There's a lot that can be done to enhance Emacs' capabilities. I reckon enabling half the modules Doom provides should do it.

   ```
   (company                  ; the ultimate code completion backend
    +childframe)             ; ... when your children are better than you
   ;;helm                    ; the *other* search engine for love and life
   ;;ido                     ; the other *other* search engine...
   ;;(ivy                    ; a search engine for love and life
   ;; +icons                 ; ... icons are nice
   ;; +prescient)            ; ... I know what I want(ed)
   (vertico +icons)          ; the search engine of the future
   ```

   ```
   ;;deft                    ; notational velocity for Emacs
   doom                      ; what makes DOOM look the way it does
   doom-dashboard            ; a nifty splash screen for Emacs
   doom-quit                 ; DOOM quit-message prompts when you quit Emacs
   (emoji +unicode)          ; 🙂
   ;;fill-column             ; a `fill-column' indicator
   hl-todo                   ; highlight TODO/FIXME/NOTE/DEPRECATED/HACK/REVIEW
   ;;hydra                   ; quick documentation for related commands
   ```

```
;;indent-guides              ; highlighted indent columns, notoriously slow
(ligatures                  ; ligatures and symbols to make your code pretty again
 +extra)                    ; for those who dislike letters
minimap                     ; show a map of the code on the side
(modeline                   ; snazzy, Atom-inspired modeline, plus API
 +light)                    ; the doom modeline is a bit much, the default is a
 ↪  bit little
;;nav-flash                 ; blink the current line after jumping
;;neotree                   ; a project drawer, like NERDTree for vim
ophints                     ; highlight the region an operation acts on
(popup                      ; tame sudden yet inevitable temporary windows
 +all                       ; catch all popups that start with an asterix
 +defaults)                 ; default popup rules
;;(tabs                     ; an tab bar for Emacs
;;  +centaur-tabs)          ; ... with prettier tabs
treemacs                    ; a project drawer, like neotree but cooler
;;tree-sitter               ; ... sitting in a tree
;;unicode                   ; extended unicode support for various languages
vc-gutter                   ; vcs diff in the fringe
;;vi-tilde-fringe           ; fringe tildes to mark beyond EOB
;;(window-select +numbers)  ; visually switch windows
workspaces                  ; tab emulation, persistence & separate workspaces
zen                         ; distraction-free coding or writing
```

```
(evil +everywhere)          ; come to the dark side, we have cookies
file-templates              ; auto-snippets for empty files
fold                        ; (nigh) universal code folding
(format +onsave)            ; automated prettiness
;;god                       ; run Emacs commands without modifier keys
;;lispy                     ; vim for lisp, for people who don't like vim
;;multiple-cursors          ; editing in many places at once
;;objed                     ; text object editing for the innocent
;;parinfer                  ; turn lisp into python, sort of
;;rotate-text               ; cycle region at point between text candidates
snippets                    ; my elves. They type so I don't have to
;;word-wrap                 ; soft wrapping with language-aware indent
```

```
(dired +icons)              ; making dired pretty [functional]
electric                    ; smarter, keyword-based electric-indent
(ibuffer +icons)            ; interactive buffer management
undo                        ; persistent, smarter undo for your inevitable mistakes
vc                          ; version-control and Emacs, sitting in a tree
```

```
;;eshell                    ; the elisp shell that works everywhere
;;shell                     ; simple shell REPL for Emacs
;;term                      ; basic terminal emulator for Emacs
vterm                       ; the best terminal emulation in Emacs
```

```
syntax                      ; tasing you for every semicolon you forget
(:if (executable-find "aspell") spell) ; tasing you for misspelling mispelling
;;grammar                   ; tasing grammar mistake every you make
```

```
;;ansible                    ; a crucible for infrastructure as code
;;debugger                   ; FIXME stepping through code, to help you add bugs
;;direnv                     ; be direct about your environment
;;docker                     ; port everything to containers
editorconfig                 ; let someone else argue about tabs vs spaces
;;ein                        ; tame Jupyter notebooks with emacs
(eval +overlay)              ; run code, run (also, repls)
;;gist                       ; interacting with github gists
(lookup                      ; helps you navigate your code and documentation
 +dictionary                 ; dictionary/thesaurus is nice
 +docsets)                   ; ...or in Dash docsets locally
lsp                          ; Language Server Protocol
;;(:if IS-MAC macos)         ; MacOS-specific commands
magit                        ; a git porcelain for Emacs
 ;;+forge)                   ; interface with git forges
;;make                       ; run make tasks from Emacs
;;pass                       ; password manager for nerds
pdf                          ; pdf enhancements
;;prodigy                    ; FIXME managing external services & code builders
rgb                          ; creating color strings
;;taskrunner                 ; taskrunner for all your projects
;;terraform                  ; infrastructure as code
;;tmux                       ; an API for interacting with tmux
;;upload                     ; map local to remote projects via ssh/ftp
```

```
(:if IS-MAC macos)           ; improve compatibility with macOS
;;tty                        ; improve the terminal Emacs experience
```

3. Language support We can be rather liberal with enabling support for languages as the associated packages/configuration are (usually) only loaded when first opening an associated file.

```
;;agda                       ; types of types of types of types...
;;beancount                  ; mind the GAAP
;;cc                         ; C/C++/Obj-C madness
;;clojure                    ; java with a lisp
;;common-lisp                ; if you've seen one lisp, you've seen them all
;;coq                        ; proofs-as-programs
;;crystal                    ; ruby at the speed of c
;;csharp                     ; unity, .NET, and mono shenanigans
;;data                       ; config/data formats
;;(dart +flutter)            ; paint ui and not much else
;;dhall                      ; JSON with FP sprinkles
;;elixir                     ; erlang done right
;;elm                        ; care for a cup of TEA?
emacs-lisp                   ; drown in parentheses
;;erlang                     ; an elegant language for a more civilized age
;;ess                        ; emacs speaks statistics
;;faust                      ; dsp, but you get to keep your soul
;;fsharp                     ; ML stands for Microsoft's Language
;;fstar                      ; (dependent) types and (monadic) effects and Z3
;;gdscript                   ; the language you waited for
```

```
;;(go +lsp)                  ; the hipster dialect
;;(haskell +lsp)             ; a language that's lazier than I am
;;hy                         ; readability of scheme w/ speed of python
;;idris                      ;
;;json                       ; At least it ain't XML
;;(java +lsp)                ; the poster child for carpal tunnel syndrome
;;(javascript +lsp)          ; all(hope(abandon(ye(who(enter(here))))))
;;(julia +lsp)               ; Python, R, and MATLAB in a blender
;;(kotlin +lsp)              ; a better, slicker Java(Script)
(latex                      ; writing papers in Emacs has never been so fun
;; +fold                    ; fold the clutter away nicities
 +latexmk                   ; modern latex plz
 +cdlatex                   ; quick maths symbols
 +lsp)
;;lean                      ; proof that mathematicians need help
;;factor                    ; for when scripts are stacked against you
;;ledger                    ; an accounting system in Emacs
(lua +lsp)                  ; one-based indices? one-based indices
(markdown +grip)            ; writing docs for people to ignore
;;nim                       ; python + lisp at the speed of c
nix                         ; I hereby declare "nix geht mehr!"
;;ocaml                     ; an objective camel
(org                        ; organize your plain life in plain text
 +pretty                    ; yessss my pretties! (nice unicode symbols)
 +dragndrop                 ; drag & drop files/images into org buffers
 ;;+hugo                   ; use Emacs for hugo blogging
 ;;+noter                  ; enhanced PDF notetaking
 +jupyter                   ; ipython/jupyter support for babel
 +pandoc                    ; export-with-pandoc support
 +gnuplot                   ; who doesn't like pretty pictures
 +pomodoro                  ; be fruitful with the tomato technique
 +present                   ; using org-mode for presentations
 +roam2)                    ; wander around notes
;;php                       ; perl's insecure younger brother
;;plantuml                  ; diagrams for confusing people more
;;purescript                ; javascript, but functional
(python +lsp +pyright)      ; beautiful is better than ugly
;;qt                        ; the 'cutest' gui framework ever
;;racket                    ; a DSL for DSLs
;;raku                      ; the artist formerly known as perl6
;;rest                      ; Emacs as a REST client
;;rst                       ; ReST in peace
;;(ruby +rails)             ; 1.step {|i| p "Ruby is #{i.even? ? 'love' :
↪  'life'}"}
(rust +lsp)                 ; Fe2O3.unwrap().unwrap().unwrap().unwrap()
;;scala                     ; java, but good
;;scheme                    ; a fully conniving family of lisps
sh                          ; she sells {ba,z,fi}sh shells on the C xor
;;sml                       ; no, the /other/ ML
;;solidity                  ; do you need a blockchain? No.
;;swift                     ; who asked for emoji variables?
;;terra                     ; Earth and Moon in alignment for performance.
;;web                       ; the tubes
```

```
;;yaml                       ; JSON, but readable
;;zig                        ; C, but simpler
```

4. Everything in Emacs It's just too convenient being able to have everything in Emacs. I couldn't resist the Email and Feed modules.

```
(:if (executable-find "mu") (mu4e +org +gmail))
;;notmuch
;;(wanderlust +gmail)
```

```
calendar                    ; A dated approach to timetabling
;;emms                      ; Multimedia in Emacs is music to my ears
;;everywhere                ; *leave* Emacs!? You must be joking.
irc                         ; how neckbeards socialize
(rss +org)                  ; emacs as an RSS reader
;;twitter                   ; twitter client https://twitter.com/vnought
```

3.0.2 Packages

Unlike most literate configurations I ~~am lazy~~ like to keep all my packages in one place

```
;; -*- no-byte-compile: t; -*-
;;; $DOOMDIR/packages.el

;;org
<<org>>

;;latex
<<latex>>

;;markdown and html
<<web>>

;;looks
<<looks>>

;;emacs additions
<<emacs>>

;;lsp
<<lsp>>

;;fun
<<fun>>
```

1. Org: The majority of my work in emacs is done in org mode, even this configuration was written in org! It makes sense that the majority of my packages are for tweaking org then

```
(package! org-appear)
(package! doct :recipe (:host github :repo "progfolio/doct"))
(package! org-padding :recipe (:host github :repo "TonCherAmi/org-padding"))
(package! org-ol-tree :recipe (:host github :repo "Townk/org-ol-tree"))
(package! org-pretty-table :recipe (:host github :repo "Fuco1/org-pretty-table"))
(package! org-roam-ui :recipe (:host github :repo "org-roam/org-roam-ui" :files
↪  ("*.el" "out")))
(package! org-pandoc-import
  :recipe (:host github
           :repo "tecosaur/org-pandoc-import"
           :files ("*.el" "filters" "preprocessors")))
```

2. LaTeX: When I'm not working in org, I'm probably exporting it to latex. Lets adjust that a bit too

```
(package! org-fragtog)
(package! aas :recipe (:host github :repo "ymarco/auto-activating-snippets"))
(package! laas :recipe (:host github :repo
↪  "tecosaur/LaTeX-auto-activating-snippets"))
(package! engrave-faces :recipe (:host github :repo "tecosaur/engrave-faces"))
(package! calctex :recipe (:host github :repo "johnbcoughlin/calctex" :files
↪  ("*.el" "calctex/*.el" "calctex-contrib/*.el" "org-calctex/*.el" "vendor")))
```

3. Web: Sometimes I need to use markdown too. **Note:** emacs-webkit is temporarily disabled because of its refusal to work without requiring org

```
(package! ox-gfm)
(package! websocket)
;;(package! webkit
;;          :recipe (:host github
;;                   :repo "akirakyle/emacs-webkit"
;;                   :branch "main"
;;                   :files (:defaults "*.js" "*.css" "*.so" "*.nix")
;;                   :pre-build (("nix-shell" "shell.nix" "--command make"))))
```

4. Looks: Making emacs look good is first priority, actually working in it is second

```
(unpin! doom-themes)
(unpin! doom-modeline)
(package! solaire-mode :disable t)
(package! ox-chameleon :recipe (:host github :repo "tecosaur/ox-chameleon"))
```

5. Emacs Tweaks: Emacs is missing just a few packages that I need to make it my OS. Specifically, screenshot capabilities are nice, and using the same dictionaries accross ~~operating systems~~ bootloaders would be nice too!

```
;;(package! vlf :recipe (:host github :repo "m00natic/vlfi" :files ("*.el")))
(package! screenshot :recipe (:host github :repo "tecosaur/screenshot"))
(package! lexic :recipe (:host github :repo "tecosaur/lexic"))
```

```
(package! magit-delta :recipe (:host github :repo "dandavison/magit-delta"))
```

6. LSP: I like to live life on the edge

```
(unpin! lsp-ui)
(unpin! lsp-mode)
```

7. Fun: We do a little trolling

```
(package! xkcd)
(package! keycast)
(package! selectric-mode)
```

4 Basic Configuration

Make this file run (slightly) faster with lexical binding

```
;;; config.el -*- lexical-binding: t; -*-
```

I want to run emacs28's new native-compiler with -O3, if available

```
(when 'native-comp-compiler-options
                (setq native-comp-compiler-options '("-O3")))
```

4.1 Personal information

Of course we need to tell emacs who I am

```
(setq user-full-name "Shaurya Singh"
      user-mail-address "shaunsingh0207@gmail.com")
```

4.2 Authinfo

I frequently delete my `~/.emacs.d` for fun, so having authinfo in a seperate file sounds like a good idea

```
(setq auth-sources '("~/.authinfo.gpg")
      auth-source-cache-expiry nil) ; default is 7200 (2h)
```

4.3 Emacsclient

mu4e is a bit finicky with emacsclient, and org takes forever to load. The solution? Use tecosaurs greedy daemon startup

```
(defun greedily-do-daemon-setup ()
  (require 'org)
  (require 'vertico)
  (require 'consult)
  (require 'marginalia)
  (when (require 'mu4e nil t)
    (setq mu4e-confirm-quit t)
    (setq +mu4e-lock-greedy t)
    (setq +mu4e-lock-relaxed t)
    (+mu4e-lock-add-watcher)
    (when (+mu4e-lock-available t)
      (mu4e~start))))

(when (daemonp)
  (add-hook 'emacs-startup-hook #'greedily-do-daemon-setup)
  (add-hook 'emacs-startup-hook #'init-mixed-pitch-h))
```

4.4 Shell

I use the fish shell. If you use zsh/bash, be sure to change this

```
(setq explicit-shell-file-name (executable-find "fish"))
```

4.4.1 Vterm

Vterm is my terminal emulator of choice. We can tell it to use ligatures, and also tell it to compile automatically Vterm clearly wins the terminal war. Also doesn't need much configuration out of the box, although the shell integration does. You can find that in `~/.config/fish/config.fish`

1. Always compile Fixes a weird bug with native-comp

   ```
   (setq vterm-always-compile-module t)
   ```

2. Kill buffer If the process exits, kill the `vterm` buffer

   ```
   (setq vterm-kill-buffer-on-exit t)
   ```

3. Functions Useful functions for the shell-side integration provided by vterm.

```
(after! vterm
  (setf (alist-get "magit-status" vterm-eval-cmds nil nil #'equal)
        '((lambda (path)
            (magit-status path)))))
```

I also want to hook Delta into Magit

```
(after! magit
   (magit-delta-mode +1))
```

4. Ligatures Use ligatures from within vterm (and eshell), we do this by redefining the variable where *not* to show ligatures

```
(setq +ligatures-in-modes t)
```

4.5 Fonts

Papyrus I secretly, deep in my guilty heart, like Papyrus and don't care if it's overused. [Cue hate mail in beautifully-kerned Helvetica.]

I like the apple fonts for programming, so I'll go with Liga SFMono Nerd Font. I prefer a rounder font for plain text, so I'll go with Overpass for that. I have a retina display as well, so lets keep the fonts light.

```
;;fonts
(setq doom-font (font-spec :family "Liga SFMono Nerd Font" :size 14)
      doom-big-font (font-spec :family "Liga SFMono Nerd Font" :size 20)
      doom-variable-pitch-font (font-spec :family "Overpass" :size 16)
      doom-unicode-font (font-spec :family "Liga SFMono Nerd Font")
      doom-serif-font (font-spec :family "Liga SFMono Nerd Font" :weight 'light))
```

For mixed pitch, I would go with something comfier. I like Alegreya, so lets go with that

```
;;mixed pitch modes
(defvar mixed-pitch-modes '(org-mode LaTeX-mode markdown-mode gfm-mode Info-mode)
  "Modes that `mixed-pitch-mode' should be enabled in, but only after UI
  ↪  initialisation.")
(defun init-mixed-pitch-h ()
  "Hook `mixed-pitch-mode' into each mode in `mixed-pitch-modes'.
      Also immediately enables `mixed-pitch-modes' if currently in one of the modes."
  (when (memq major-mode mixed-pitch-modes)
    (mixed-pitch-mode 1))
  (dolist (hook mixed-pitch-modes)
    (add-hook (intern (concat (symbol-name hook) "-hook")) #'mixed-pitch-mode)))
(add-hook 'doom-init-ui-hook #'init-mixed-pitch-h)
(add-hook! 'org-mode-hook #'+org-pretty-mode) ;enter mixed pitch mode in org mode

;;set mixed pitch font
 (after! mixed-pitch
  (defface variable-pitch-serif
    '((t (:family "serif")))
    "A variable-pitch face with serifs."
    :group 'basic-faces)
  (setq mixed-pitch-set-height t)
  (setq variable-pitch-serif-font (font-spec :family "Alegreya" :size 16))
  (set-face-attribute 'variable-pitch-serif nil :font variable-pitch-serif-font)
  (defun mixed-pitch-serif-mode (&optional arg)
    "Change the default face of the current buffer to a serifed variable pitch, while
    ↪  keeping some faces fixed pitch."
    (interactive)
    (let ((mixed-pitch-face 'variable-pitch-serif))
      (mixed-pitch-mode (or arg 'toggle)))))
```

Harfbuzz is missing the beautiful ff ffi ffj ffl fft fi fj ft Th ligatures, lets add those back in with the help of composition-function-table

```
(set-char-table-range composition-function-table ?f '(["\\(?:ff?[fijlt]\\)" 0
↪  font-shape-gstring]))
(set-char-table-range composition-function-table ?T '(["\\(?:Th\\)" 0
↪  font-shape-gstring]))
```

4.5.1 Font collections

Using the lovely conditional preamble, I'll define a number of font collections that can be used for LaTeX exports. Who knows, maybe I'll use it with other export formats too at some point.

To start with I'll create a default state variable and register `fontset` as part of `#+options`.

```
(after! ox-latex
(defvar org-latex-default-fontset 'alegreya
```

```
  "Fontset from `org-latex-fontsets' to use by default.
      As cm (computer modern) is TeX's default, that causes nothing
      to be added to the document.
      If \"nil\" no custom fonts will ever be used.")
(eval '(cl-pushnew '(:latex-font-set nil "fontset" org-latex-default-fontset)
                   (org-export-backend-options (org-export-get-backend 'latex)))))
```

Then a function is needed to generate a LaTeX snippet which applies the fontset. It would be nice if this could be done for individual styles and use different styles as the main document font. If the individual typefaces for a fontset are defined individually as `:serif`, `:sans`, `:mono`, and `:maths`. I can use those to generate LaTeX for subsets of the full fontset. Then, if I don't let any fontset names have `-` in them, I can use `-sans` and `-mono` as suffixes that specify the document font to use.

```
(after! ox-latex
(defun org-latex-fontset-entry ()
  "Get the fontset spec of the current file.
      Has format \"name\" or \"name-style\" where 'name' is one of
      the cars in `org-latex-fontsets'."
  (let ((fontset-spec
         (symbol-name
          (or (car (delq nil
                         (mapcar
                          (lambda (opt-line)
                          (plist-get (org-export--parse-option-keyword opt-line 'latex)
                                     :latex-font-set))
                          (cdar (org-collect-keywords '("OPTIONS"))))))
              org-latex-default-fontset))))
    (cons (intern (car (split-string fontset-spec "-")))
          (when (cadr (split-string fontset-spec "-"))
            (intern (concat ":" (cadr (split-string fontset-spec "-"))))))))

(defun org-latex-fontset (&rest desired-styles)
  "Generate a LaTeX preamble snippet which applies the current fontset for
  ↪  DESIRED-STYLES."
  (let* ((fontset-spec (org-latex-fontset-entry))
         (fontset (alist-get (car fontset-spec) org-latex-fontsets)))
    (if fontset
        (concat
         (mapconcat
          (lambda (style)
            (when (plist-get fontset style)
              (concat (plist-get fontset style) "\n")))
          desired-styles
          "")
         (when (memq (cdr fontset-spec) desired-styles)
           (pcase (cdr fontset-spec)
             (:serif "\\renewcommand{\\familydefault}{\\rmdefault}\n")
             (:sans "\\renewcommand{\\familydefault}{\\sfdefault}\n")
             (:mono "\\renewcommand{\\familydefault}{\\ttdefault}\n"))))
      (error "Font-set %s is not provided in org-latex-fontsets" (car
      ↪  fontset-spec))))))
```

Now that all the functionality has been implemented, we should hook it into our preamble generation.

```
(after! ox-latex
(add-to-list 'org-latex-conditional-features '(org-latex-default-fontset .
↪  custom-font) t)
(add-to-list 'org-latex-feature-implementations '(custom-font :snippet
↪  (org-latex-fontset :serif :sans :mono) :order 0) t)
(add-to-list 'org-latex-feature-implementations '(.custom-maths-font :eager t :when
↪  (custom-font maths) :snippet (org-latex-fontset :maths) :order 0.3) t))
```

Finally, we just need to add some fonts.

```
(after! ox-latex
(defvar org-latex-fontsets
  '((cm nil) ; computer modern
    (## nil) ; no font set
    (alegreya
     :serif "\\usepackage[osf]{Alegreya}"
     :sans "\\usepackage{AlegreyaSans}"
     :mono "\\usepackage[scale=0.88]{sourcecodepro}"
     :maths "\\usepackage[varbb]{newpxmath}")
    (biolinum
     :serif "\\usepackage[osf]{libertineRoman}"
     :sans "\\usepackage[sfdefault,osf]{biolinum}"
     :mono "\\usepackage[scale=0.88]{sourcecodepro}"
     :maths "\\usepackage[libertine,varvw]{newtxmath}")
    (fira
     :sans "\\usepackage[sfdefault,scale=0.85]{FiraSans}"
     :mono "\\usepackage[scale=0.80]{FiraMono}"
     :maths "\\usepackage{newtxsf} % change to firamath in future?")
    (kp
     :serif "\\usepackage{kpfonts}")
    (newpx
     :serif "\\usepackage{newpxtext}"
     :sans "\\usepackage{gillius}"
     :mono "\\usepackage[scale=0.9]{sourcecodepro}"
     :maths "\\usepackage[varbb]{newpxmath}")
    (noto
     :serif "\\usepackage[osf]{noto-serif}"
     :sans "\\usepackage[osf]{noto-sans}"
     :mono "\\usepackage[scale=0.96]{noto-mono}"
     :maths "\\usepackage{notomath}")
    (plex
     :serif "\\usepackage{plex-serif}"
     :sans "\\usepackage{plex-sans}"
     :mono "\\usepackage[scale=0.95]{plex-mono}"
     :maths "\\usepackage{newtxmath}") ; may be plex-based in future
    (source
     :serif "\\usepackage[osf]{sourceserifpro}"
     :sans "\\usepackage[osf]{sourcesanspro}"
     :mono "\\usepackage[scale=0.95]{sourcecodepro}"
     :maths "\\usepackage{newtxmath}") ; may be sourceserifpro-based in future
```

```
    (times
     :serif "\\usepackage{newtxtext}"
     :maths "\\usepackage{newtxmath}"))
  "Alist of fontset specifications.
     Each car is the name of the fontset (which cannot include \"-\").
     Each cdr is a plist with (optional) keys :serif, :sans, :mono, and :maths.
     A key's value is a LaTeX snippet which loads such a font."))
```

When we're using Alegreya we can apply a lovely little tweak to `tabular` which (locally) changes the figures used to lining fixed-width.

```
(after! ox-latex
(add-to-list 'org-latex-conditional-features '((string= (car
↪  (org-latex-fontset-entry)) "alegreya") . alegreya-typeface))
(add-to-list 'org-latex-feature-implementations '(alegreya-typeface) t)
(add-to-list 'org-latex-feature-implementations'(.alegreya-tabular-figures :eager t
    :when (alegreya-typeface table) :order 0.5 :snippet "
    \\makeatletter
    % tabular lining figures in tables
    \\renewcommand{\\tabular}{\\AlegreyaTLF\\let\\@halignto\\@empty\\@tabular}
    \\makeatother\n") t))
```

Due to the Alegreya's metrics, the `\LaTeX` symbol doesn't quite look right. We can correct for this by redefining it with subtlety shifted kerning.

```
(after! ox-latex
(add-to-list 'org-latex-conditional-features '("LaTeX" . latex-symbol))
(add-to-list 'org-latex-feature-implementations '(latex-symbol :when alegreya-typeface
    :order 0.5 :snippet "
    \\makeatletter
    % Kerning around the A needs adjusting
    \\DeclareRobustCommand{\\LaTeX}{L\\kern-.24em%
            {\\sbox\\z@ T%
             \\vbox to\\ht\\z@{\\hbox{\\check@mathfonts
                                  \\fontsize\\sf@size\\z@
                                  \\math@fontsfalse\\selectfont
                                  A}%
                          \\vss}%
            }%
            \\kern-.10em%
            \\TeX}
    \\makeatother\n") t))
```

Just in case the fonts aren't there, lets add check to notify the user of the issue. Seems like I forget ot install fonts every time I switch between ~~distros~~ emacs bootloaders

```
(defvar required-fonts '("Overpass" "Liga SFMono Nerd Font" "Alegreya" ))
(defvar available-fonts
  (delete-dups (or (font-family-list)
                   (split-string (shell-command-to-string "fc-list : family")
                                 "[,\n]"))))
(defvar missing-fonts
```

```
  (delq nil (mapcar
             (lambda (font)
               (unless (delq nil (mapcar (lambda (f)
                           (string-match-p (format "^%s$" font) f))
                                         available-fonts))
                                         font))
                                         required-fonts)))
(if missing-fonts
    (pp-to-string
     `(unless noninteractive
        (add-hook! 'doom-init-ui-hook
          (run-at-time nil nil
                       (lambda ()
                         (message "%s missing the following fonts: %s"
                                  (propertize "Warning!" 'face '(bold warning))
                                  (mapconcat (lambda (font)
                                               (propertize font 'face
                                               ↪  'font-lock-variable-name-face))
                                             ',missing-fonts
                                             ", "))
                         (sleep-for 0.5))))))
  ";; No missing fonts detected")
```

```
<<detect-missing-fonts()>>
```

4.6 Themes

Right now I'm using vibrant, but I use doom-nord sometimes

```
;;(setq doom-theme 'doom-one-light)
(setq doom-one-light-padded-modeline t)
;;(setq doom-theme 'doom-nord)
(setq doom-nord-padded-modeline t)
(setq doom-theme 'doom-vibrant)
(setq doom-vibrant-padded-modeline t)
```

4.7 Very large files

Emacs gets super slow with large files, this helps with that

```
;;(use-package! vlf-setup
  ;;:defer-incrementally vlf-tune vlf-base vlf-write vlf-search vlf-occur vlf-follow
  ↪  vlf-ediff vlf)
```

4.8 Company

I think company is a bit too quick to recommend some stuff

```
(after! company
   (setq company-idle-delay 0.1
      company-minimum-prefix-length 1
      company-selection-wrap-around t
      company-require-match 'never
      company-dabbrev-downcase nil
      company-dabbrev-ignore-case t
      company-dabbrev-other-buffers nil
      company-tooltip-limit 5
      company-tooltip-minimum-width 50))
(set-company-backend!
  '(text-mode
    markdown-mode
    gfm-mode)
  '(:seperate
    company-yasnippet
    company-ispell
    company-files))

;;nested snippets
(setq yas-triggers-in-field t)
```

Lets add some snippets for latex

```
(use-package! aas
  :commands aas-mode)

(use-package! laas
  :hook (LaTeX-mode . laas-mode)
  :config
  (defun laas-tex-fold-maybe ()
    (unless (equal "/" aas-transient-snippet-key)
      (+latex-fold-last-macro-a)))
  (add-hook 'org-mode #'laas-mode)
  (add-hook 'aas-post-snippet-expand-hook #'laas-tex-fold-maybe))
```

And with a little help from henrik, lets use those snippets in org mode

```
(defadvice! fixed-org-yas-expand-maybe-h ()
  "Expand a yasnippet snippet, if trigger exists at point or region is active.
     Made for `org-tab-first-hook'."
  :override #'+org-yas-expand-maybe-h
  (when (and (featurep! :editor snippets)
             (require 'yasnippet nil t)
             (bound-and-true-p yas-minor-mode))
    (and (let ((major-mode (cond ((org-in-src-block-p t)
                                  (org-src-get-lang-mode (org-eldoc-get-src-lang)))
```

```
                                ((org-inside-LaTeX-fragment-p)
                                 'latex-mode)
                                (major-mode)))
                (org-src-tab-acts-natively nil) ; causes breakages
                ;; Smart indentation doesn't work with yasnippet, and painfully slow
                ;; in the few cases where it does.
                (yas-indent-line 'fixed))
            (cond ((and (or (not (bound-and-true-p evil-local-mode))
                            (evil-insert-state-p)
                            (evil-emacs-state-p))
                        (or (and (bound-and-true-p yas--tables)
                                 (gethash major-mode yas--tables))
                            (progn (yas-reload-all) t))
                        (yas--templates-for-key-at-point))
                   (yas-expand)
                   t)
                  ((use-region-p)
                   (yas-insert-snippet)
                   t)))
          ;; HACK Yasnippet breaks org-superstar-mode because yasnippets is
          ;;      overzealous about cleaning up overlays.
          (when (bound-and-true-p org-superstar-mode)
            (org-superstar-restart)))))
```

Source code blocks are a pain in org-mode, so lets make a few functions to help with our snippets

```
(defun +yas/org-src-header-p ()
  "Determine whether `point' is within a src-block header or header-args."
  (pcase (org-element-type (org-element-context))
    ('src-block (< (point) ; before code part of the src-block
                   (save-excursion (goto-char (org-element-property :begin
                   ↪  (org-element-context)))
                                   (forward-line 1)
                                   (point))))
    ('inline-src-block (< (point) ; before code part of the inline-src-block
                          (save-excursion (goto-char (org-element-property :begin
                          ↪  (org-element-context)))
                                          (search-forward "]{")
                                          (point))))
    ('keyword (string-match-p "^header-args" (org-element-property :value
    ↪  (org-element-context))))))
```

Now let's write a function we can reference in yasnippets to produce a nice interactive way to specify header args.

```
(defun +yas/org-prompt-header-arg (arg question values)
  "Prompt the user to set ARG header property to one of VALUES with QUESTION.
     The default value is identified and indicated. If either default is selected,
     or no selection is made: nil is returned."
  (let* ((src-block-p (not (looking-back "^#\\+property:[ \t]+header-args:.*"
  ↪  (line-beginning-position))))
         (default
           (or
```

```
            (cdr (assoc arg
                        (if src-block-p
                            (nth 2 (org-babel-get-src-block-info t))
                          (org-babel-merge-params
                           org-babel-default-header-args
                           (let ((lang-headers
                                  (intern (concat "org-babel-default-header-args:"
                                                  (+yas/org-src-lang)))))
                             (when (boundp lang-headers) (eval lang-headers t)))))))
            ""))
          default-value)
     (setq values (mapcar
                   (lambda (value)
                     (if (string-match-p (regexp-quote value) default)
                         (setq default-value
                               (concat value " "
                                       (propertize "(default)" 'face 'font-lock-doc-face)))
                       value))
                   values))
     (let ((selection (consult--read question values :default default-value)))
       (unless (or (string-match-p "(default)$" selection)
                   (string= "" selection))
         selection))))
```

Finally, we fetch the language information for new source blocks.

Since we're getting this info, we might as well go a step further and also provide the ability to determine the most popular language in the buffer that doesn't have any `header-args` set for it (with `#+properties`).

```
(defun +yas/org-src-lang ()
  "Try to find the current language of the src/header at `point'.
     Return nil otherwise."
  (let ((context (org-element-context)))
    (pcase (org-element-type context)
      ('src-block (org-element-property :language context))
      ('inline-src-block (org-element-property :language context))
      ('keyword (when (string-match "^header-args:\\([^ ]+\\)" (org-element-property
      ↪  :value context))
                  (match-string 1 (org-element-property :value context)))))))

(defun +yas/org-last-src-lang ()
  "Return the language of the last src-block, if it exists."
  (save-excursion
    (beginning-of-line)
    (when (re-search-backward "^[ \t]*#\\+begin_src" nil t)
      (org-element-property :language (org-element-context)))))

(defun +yas/org-most-common-no-property-lang ()
  "Find the lang with the most source blocks that has no global header-args, else nil."
  (let (src-langs header-langs)
    (save-excursion
```

```
      (goto-char (point-min))
      (while (re-search-forward "^[ \t]*#\\+begin_src" nil t)
        (push (+yas/org-src-lang) src-langs))
      (goto-char (point-min))
      (while (re-search-forward "^[ \t]*#\\+property: +header-args" nil t)
        (push (+yas/org-src-lang) header-langs)))

    (setq src-langs
          (mapcar #'car
                  ;; sort alist by frequency (desc.)
                  (sort
                   ;; generate alist with form (value . frequency)
                   (cl-loop for (n . m) in (seq-group-by #'identity src-langs)
                            collect (cons n (length m)))
                   (lambda (a b) (> (cdr a) (cdr b))))))

    (car (cl-set-difference src-langs header-langs :test #'string=))))
```

Lets also include « to autocomplete, as with () and {}

```
(sp-local-pair
 '(org-mode)
 "<<" ">>"
 :actions '(insert))
```

And lastly lets add some helpful snippets for org-mode, and add a better templete

```
(set-file-template! "\\.org$" :trigger "__" :mode 'org-mode)
```

4.9 LSP

I think the LSP is a bit intrusive (especially with inline suggestions), so lets make it behave a bit more

```
(use-package! lsp-ui
  :hook (lsp-mode . lsp-ui-mode)
  :config
  (setq lsp-ui-sideline-enable nil; not anymore useful than flycheck
        lsp-lens-enable t
        lsp-ui-doc-enable t
        lsp-tex-server 'digestif
        lsp-headerline-breadcrumb-enable nil
        lsp-ui-peek-enable t
        lsp-ui-peek-fontify 'on-demand
        lsp-enable-symbol-highlighting nil))
```

The rust language server also has some extra features I would like to enable

```
(after! lsp-rust
  (setq lsp-rust-server 'rust-analyzer
  lsp-rust-analyzer-display-chaining-hints t
  lsp-rust-analyzer-display-parameter-hints t
  lsp-rust-analyzer-server-display-inlay-hints t
  lsp-rust-analyzer-cargo-watch-command "clippy"
  rustic-format-on-save t))
```

4.10 Better Defaults

The defaults for emacs aren't so good nowadays. Lets fix that up a bit

```
(setq undo-limit 80000000                         ;I mess up too much
      evil-want-fine-undo t                       ;By default while in insert all
      ↪  changes are one big blob. Be more granular
      scroll-margin 2                             ;having a little margin is nice
      auto-save-default t                         ;I dont like to lose work
      display-line-numbers-type nil               ;I dislike line numbers
      history-length 25                           ;Slight speedup
      delete-by-moving-to-trash t                 ;delete to system trash instead
      browse-url-browser-function 'xwidget-webkit-browse-url
      truncate-string-ellipsis "…")               ;default ellipses suck

(fringe-mode 0) ;;disable fringe
(global-subword-mode 1) ;;navigate through Camel Case words
(tool-bar-mode 1) ;;re-enable the toolbar
```

There's issues with emacs flickering on mac (and sometimes wayland). This should fix it

```
(add-to-list 'default-frame-alist '(inhibit-double-buffering . t))
```

Instead of fundamental mode, lisp-interaction-mode seems much more useful

```
(setq doom-scratch-initial-major-mode 'lisp-interaction-mode)
```

Ask where to open splits

```
(setq evil-vsplit-window-right t
      evil-split-window-below t)
```

...and open a buffer for it

```
(defadvice! prompt-for-buffer (&rest _)
  :after '(evil-window-split evil-window-vsplit)
  (consult-buffer))
```

The default bindings of doom are pretty good. I'm not so good with motions though, so lets make life easier with avy

```
(map! :leader
      :desc "hop to word" "w w" #'avy-goto-word-0)
(map! :leader
      :desc "hop to line"
      "l" #'avy-goto-line)
```

I also fine ; more intuitive than : for entering command mode

```
(after! evil
  (map! :nmv ";" #'evil-ex))
```

When im doing regexes, its usually with /g anyways, lets make that the default

```
(after! evil
  (setq evil-ex-substitute-global t     ; I like my s/../.. to by global by default
        evil-move-cursor-back nil       ; Don't move the block cursor when toggling
        ↪  insert mode
        evil-kill-on-visual-paste nil)) ; Don't put overwritten text in the kill ring
```

Doom looks much cleaner with the dividers removed. Not sure why it isn't the default honestly

```
(custom-set-faces!
  `(vertical-border :background ,(doom-color 'bg) :foreground ,(doom-color 'bg)))

(when (boundp 'window-divider-mode)
  (setq window-divider-default-places nil
        window-divider-default-bottom-width 0
        window-divider-default-right-width 0)
  (window-divider-mode -1))
```

I don't like seeing the cursorline, especially while writing. Lets disable that

```
(remove-hook 'doom-first-buffer-hook #'global-hl-line-mode)
```

Doom has a weird bug with emacs-plus where the cursor will just turn white on a light theme. Lets fix that.

```
(defadvice! fix-+evil-default-cursor-fn ()
  :override #'+evil-default-cursor-fn
  (evil-set-cursor-color (face-background 'cursor)))
(defadvice! fix-+evil-emacs-cursor-fn ()
  :override #'+evil-emacs-cursor-fn
  (evil-set-cursor-color (face-foreground 'warning)))
```

I like using the minimap, even if its slow. Looks cool in my opinion, lets make it a little cooler by removing the scroll highlighting

```
(setq minimap-highlight-line nil)
(custom-set-faces!
  `(minimap-active-region-background :background unspecified))
```

I like a bit of padding, both inside and outside, and lets make the line spacing comfier

```
;; Make a clean & minimalist frame
(use-package frame
  :config
  (setq-default default-frame-alist
                (append (list
                '(internal-border-width . 24)
                '(left-fringe    . 0)
                '(right-fringe   . 0)
                '(tool-bar-lines . 0)
                '(menu-bar-lines . 0)
                '(line-spacing . 0.35)
                '(vertical-scroll-bars . nil))))
  (setq-default window-resize-pixelwise t)
  (setq-default frame-resize-pixelwise t)
  :custom
  (window-divider-default-right-width 24)
  (window-divider-default-bottom-width 12)
  (window-divider-default-places 'right-only)
  (window-divider-mode t))

;; Make sure new frames use window-divider
(add-hook 'before-make-frame-hook 'window-divider-mode)
```

4.11 Selectric mode

Typewriter go br

```
(use-package! selectric-mode
  :commands selectric-mode)
```

5 Visual configuration

5.1 Modeline

Doom modeline already looks good, but it can be better. Lets add some icons, the battery status, and make sure we don't lose track of time

```
(after! doom-modeline
  (display-time-mode 1)                             ;Enable time in the mode-line
  (display-battery-mode 1)                          ;display the battery
  (setq doom-modeline-enable-word-count t))         ;Show word count
```

The encoding is always UTF-8, so its a bit redundant. Lets take that out

```
(defun doom-modeline-conditional-buffer-encoding ()
  "We expect the encoding to be LF UTF-8, so only show the modeline when this is not
  ↪  the case"
  (setq-local doom-modeline-buffer-encoding
              (unless (and (memq (plist-get (coding-system-plist
              ↪  buffer-file-coding-system) :category)
                                 '(coding-category-undecided coding-category-utf-8))
                           (not (memq (coding-system-eol-type
                           ↪  buffer-file-coding-system) '(1 2))))
                t)))
(add-hook 'after-change-major-mode-hook #'doom-modeline-conditional-buffer-encoding)
↪  ;;remove encoding
```

5.2 Centaur tabs

There isn't much of a point having tabs when you only have one buffer open. This checks the number of tabs, and hides them if theres only one left

```
(defun centaur-tabs-get-total-tab-length ()
  (length (centaur-tabs-tabs (centaur-tabs-current-tabset))))

(defun centaur-tabs-hide-on-window-change ()
  (run-at-time nil nil
               (lambda ()
                 (centaur-tabs-hide-check (centaur-tabs-get-total-tab-length)))))

(defun centaur-tabs-hide-check (len)
  (shut-up
    (cond
     ((and (= len 1) (not (centaur-tabs-local-mode))) (call-interactively
     ↪  #'centaur-tabs-local-mode))
     ((and (>= len 2) (centaur-tabs-local-mode)) (call-interactively
     ↪  #'centaur-tabs-local-mode)))))
```

I also like to have icons with my tabs.

```
(after! centaur-tabs
  (centaur-tabs-mode -1)
  (setq centaur-tabs-height 20
        centaur-tabs-set-icons t
        centaur-tabs-gray-out-icons 'buffer)
  (add-hook 'window-configuration-change-hook 'centaur-tabs-hide-on-window-change)
  (centaur-tabs-change-fonts "Liga SFMono Nerd Font" 105))
```

5.3 Vertico

For marginalia (vertico), lets use relative time, along with some other things

```
(after! marginalia
  (setq marginalia-censor-variables nil)

  (defadvice! +marginalia--anotate-local-file-colorful (cand)
    "Just a more colourful version of `marginalia--anotate-local-file'."
    :override #'marginalia--annotate-local-file
    (when-let (attrs (file-attributes (substitute-in-file-name
                                       (marginalia--full-candidate cand))
                                      'integer))
      (marginalia--fields
       ((marginalia--file-owner attrs)
        :width 12 :face 'marginalia-file-owner)
       ((marginalia--file-modes attrs))
       ((+marginalia-file-size-colorful (file-attribute-size attrs))
        :width 7)
       ((+marginalia--time-colorful (file-attribute-modification-time attrs))
        :width 12))))

  (defun +marginalia--time-colorful (time)
    (let* ((seconds (float-time (time-subtract (current-time) time)))
           (color (doom-blend
                   (face-attribute 'marginalia-date :foreground nil t)
                   (face-attribute 'marginalia-documentation :foreground nil t)
                   (/ 1.0 (log (+ 3 (/ (+ 1 seconds) 345600.0)))))))
      ;; 1 - log(3 + 1/(days + 1)) % grey
      (propertize (marginalia--time time) 'face (list :foreground color))))

  (defun +marginalia-file-size-colorful (size)
    (let* ((size-index (/ (log10 (+ 1 size)) 7.0))
           (color (if (< size-index 10000000) ; 10m
                      (doom-blend 'orange 'green size-index)
                    (doom-blend 'red 'orange (- size-index 1)))))
      (propertize (file-size-human-readable size) 'face (list :foreground color)))))
```

5.4 Treemacs

Lets theme treemacs while we're at it

```
(setq treemacs-width 25)
(setq doom-themes-treemacs-theme "doom-colors")
```

5.5 Emojis

Disable some annoying emojis

```
(defvar emojify-disabled-emojis
  '(;; Org
    "☐" "☑" "☐" "☐" "☐" "☐" "☐" "☐" "☐"
    ;; Terminal powerline
    "☐"
    ;; Box drawing
    "▶" "◀")
  "Characters that should never be affected by `emojify-mode'.")

(defadvice! emojify-delete-from-data ()
  "Ensure `emojify-disabled-emojis' don't appear in `emojify-emojis'."
  :after #'emojify-set-emoji-data
  (dolist (emoji emojify-disabled-emojis)
    (remhash emoji emojify-emojis)))

(add-hook! '(mu4e-compose-mode org-msg-edit-mode) (emoticon-to-emoji 1))
```

5.6 Splash screen

Emacs can render an image as the splash screen, and the emacs logo looks pretty cool Now we just make it theme-appropriate, and resize with the frame.

```
(defvar fancy-splash-image-template
  (expand-file-name "misc/splash-images/emacs-e-template.svg" doom-private-dir)
  "Default template svg used for the splash image, with substitutions from ")

(defvar fancy-splash-sizes
  `((:height 300 :min-height 50 :padding (0 . 2))
    (:height 250 :min-height 42 :padding (2 . 4))
    (:height 200 :min-height 35 :padding (3 . 3))
    (:height 150 :min-height 28 :padding (3 . 3))
    (:height 100 :min-height 20 :padding (2 . 2))
    (:height 75  :min-height 15 :padding (2 . 1))
    (:height 50  :min-height 10 :padding (1 . 0))
    (:height 1   :min-height 0  :padding (0 . 0)))
  "list of plists with the following properties
        :height the height of the image
        :min-height minimum `frame-height' for image
        :padding `+doom-dashboard-banner-padding' (top . bottom) to apply
        :template non-default template file
        :file file to use instead of template")

(defvar fancy-splash-template-colours
  '(("$colour1" . keywords) ("$colour2" . type) ("$colour3" . base5) ("$colour4" .
  ↪  base8))
  "list of colour-replacement alists of the form (\"$placeholder\" . 'theme-colour)
  ↪  which applied the template")

(unless (file-exists-p (expand-file-name "theme-splashes" doom-cache-dir))
  (make-directory (expand-file-name "theme-splashes" doom-cache-dir) t))
```

```
(defun fancy-splash-filename (theme-name height)
  (expand-file-name (concat (file-name-as-directory "theme-splashes")
                            theme-name
                            "-" (number-to-string height) ".svg")
                    doom-cache-dir))

(defun fancy-splash-clear-cache ()
  "Delete all cached fancy splash images"
  (interactive)
  (delete-directory (expand-file-name "theme-splashes" doom-cache-dir) t)
  (message "Cache cleared!"))

(defun fancy-splash-generate-image (template height)
  "Read TEMPLATE and create an image if HEIGHT with colour substitutions as
       described by `fancy-splash-template-colours' for the current theme"
  (with-temp-buffer
    (insert-file-contents template)
    (re-search-forward "$height" nil t)
    (replace-match (number-to-string height) nil nil)
    (dolist (substitution fancy-splash-template-colours)
      (goto-char (point-min))
      (while (re-search-forward (car substitution) nil t)
        (replace-match (doom-color (cdr substitution)) nil nil)))
    (write-region nil nil
                  (fancy-splash-filename (symbol-name doom-theme) height) nil nil)))

(defun fancy-splash-generate-images ()
  "Perform `fancy-splash-generate-image' in bulk"
  (dolist (size fancy-splash-sizes)
    (unless (plist-get size :file)
      (fancy-splash-generate-image (or (plist-get size :template)
                                       fancy-splash-image-template)
                                   (plist-get size :height)))))

(defun ensure-theme-splash-images-exist (&optional height)
  (unless (file-exists-p (fancy-splash-filename
                          (symbol-name doom-theme)
                          (or height
                              (plist-get (car fancy-splash-sizes) :height))))
    (fancy-splash-generate-images)))

(defun get-appropriate-splash ()
  (let ((height (frame-height)))
    (cl-some (lambda (size) (when (>= height (plist-get size :min-height)) size))
             fancy-splash-sizes)))

(setq fancy-splash-last-size nil)
(setq fancy-splash-last-theme nil)
(defun set-appropriate-splash (&rest _)
  (let ((appropriate-image (get-appropriate-splash)))
    (unless (and (equal appropriate-image fancy-splash-last-size)
                 (equal doom-theme fancy-splash-last-theme)))
```

```
    (unless (plist-get appropriate-image :file)
      (ensure-theme-splash-images-exist (plist-get appropriate-image :height)))
    (setq fancy-splash-image
          (or (plist-get appropriate-image :file)
              (fancy-splash-filename (symbol-name doom-theme) (plist-get
              ↪  appropriate-image :height))))
    (setq +doom-dashboard-banner-padding (plist-get appropriate-image :padding))
    (setq fancy-splash-last-size appropriate-image)
    (setq fancy-splash-last-theme doom-theme)
    (+doom-dashboard-reload)))

(add-hook 'window-size-change-functions #'set-appropriate-splash)
(add-hook 'doom-load-theme-hook #'set-appropriate-splash)
```

Lets add a little phrase in there as well

```
(defvar splash-phrase-source-folder
  (expand-file-name "misc/splash-phrases" doom-private-dir)
  "A folder of text files with a fun phrase on each line.")

(defvar splash-phrase-sources
  (let* ((files (directory-files splash-phrase-source-folder nil "\\.txt\\'"))
         (sets (delete-dups (mapcar
                             (lambda (file)
                               (replace-regexp-in-string "\\(?:-[0-9]+-\\w+\\)?\\.txt"
                               ↪  "" file))
                             files))))
    (mapcar (lambda (sset)
              (cons sset
                    (delq nil (mapcar
                               (lambda (file)
                                 (when (string-match-p (regexp-quote sset) file)
                                   file))
                               files))))
            sets))
  "A list of cons giving the phrase set name, and a list of files which contain phrase
  ↪  components.")

(defvar splash-phrase-set
  (nth (random (length splash-phrase-sources)) (mapcar #'car splash-phrase-sources))
  "The default phrase set. See `splash-phrase-sources'.")

(defun splase-phrase-set-random-set ()
  "Set a new random splash phrase set."
  (interactive)
  (setq splash-phrase-set
        (nth (random (1- (length splash-phrase-sources)))
             (cl-set-difference (mapcar #'car splash-phrase-sources) (list
             ↪  splash-phrase-set))))
  (+doom-dashboard-reload t))

(defvar splase-phrase--cache nil)
```

```
(defun splash-phrase-get-from-file (file)
  "Fetch a random line from FILE."
  (let ((lines (or (cdr (assoc file splase-phrase--cache))
                   (cdar (push (cons file
                                     (with-temp-buffer
                                       (insert-file-contents (expand-file-name file
                                       ↪  splash-phrase-source-folder))
                                     (split-string (string-trim (buffer-string)) "\n")))
                               splase-phrase--cache)))))
    (nth (random (length lines)) lines)))

(defun splash-phrase (&optional set)
  "Construct a splash phrase from SET. See `splash-phrase-sources'."
  (mapconcat
   #'splash-phrase-get-from-file
   (cdr (assoc (or set splash-phrase-set) splash-phrase-sources))
   " "))

(defun doom-dashboard-phrase ()
  "Get a splash phrase, flow it over multiple lines as needed, and make fontify it."
  (mapconcat
   (lambda (line)
     (+doom-dashboard--center
      +doom-dashboard--width
      (with-temp-buffer
        (insert-text-button
         line
         'action
         (lambda (_) (+doom-dashboard-reload t))
         'face 'doom-dashboard-menu-title
         'mouse-face 'doom-dashboard-menu-title
         'help-echo "Random phrase"
         'follow-link t)
        (buffer-string))))
   (split-string
    (with-temp-buffer
      (insert (splash-phrase))
      (setq fill-column (min 70 (/ (* 2 (window-width)) 3)))
      (fill-region (point-min) (point-max))
      (buffer-string))
    "\n")
   "\n"))

(defadvice! doom-dashboard-widget-loaded-with-phrase ()
  :override #'doom-dashboard-widget-loaded
  (setq line-spacing 0.2)
  (insert
   "\n\n"
   (propertize
    (+doom-dashboard--center
     +doom-dashboard--width
     (doom-display-benchmark-h 'return))
    'face 'doom-dashboard-loaded)
```

```
    "\n"
    (doom-dashboard-phrase)
    "\n"))
```

Lastly, the doom dashboard "useful commands" are no longer useful to me. So, we'll disable them and then for a particularly *clean* look disable the modeline, then also hide the cursor.

```
(remove-hook '+doom-dashboard-functions #'doom-dashboard-widget-shortmenu)
(add-hook! '+doom-dashboard-mode-hook (hide-mode-line-mode 1) (hl-line-mode -1))
(setq-hook! '+doom-dashboard-mode-hook evil-normal-state-cursor (list nil))
```

5.7 Writeroom

For starters, I think Doom is a bit over-zealous when zooming in

```
(setq +zen-text-scale 0.8)
```

Then, when using Org it would be nice to make a number of other aesthetic tweaks. Namely:

- Use a serif-ed variable-pitch font
- Hiding headline leading stars
- Using fleurons as headline bullets
- Hiding line numbers
- Removing outline indentation
- Centering the text
- Turning on `org-pretty-table-mode`
- Disabling `doom-modeline`

```
(defvar +zen-serif-p t
  "Whether to use a serifed font with `mixed-pitch-mode'.")
(after! writeroom-mode
  (defvar-local +zen--original-org-indent-mode-p nil)
  (defvar-local +zen--original-mixed-pitch-mode-p nil)
  (defun +zen-enable-mixed-pitch-mode-h ()
    "Enable `mixed-pitch-mode' when in `+zen-mixed-pitch-modes'."
    (when (apply #'derived-mode-p +zen-mixed-pitch-modes)
      (if writeroom-mode
          (progn
            (setq +zen--original-mixed-pitch-mode-p mixed-pitch-mode)
```

```
          (funcall (if +zen-serif-p #'mixed-pitch-serif-mode #'mixed-pitch-mode) 1))
      (funcall #'mixed-pitch-mode (if +zen--original-mixed-pitch-mode-p 1 -1)))))
(pushnew! writeroom--local-variables
          'display-line-numbers
          'visual-fill-column-width
          'org-adapt-indentation
          'org-superstar-headline-bullets-list
          'org-superstar-remove-leading-stars)
(add-hook 'writeroom-mode-enable-hook
          (defun +zen-prose-org-h ()
            "Reformat the current Org buffer appearance for prose."
            (when (eq major-mode 'org-mode)
              (setq display-line-numbers nil
                    visual-fill-column-width 60
                    org-adapt-indentation nil)
              (when (featurep 'org-superstar)
               (setq-local org-superstar-headline-bullets-list '("◉" "○" "☒" "☒" "☒"
                ↪  "☒" "◆" "▶")
                           org-superstar-remove-leading-stars t)
               (org-superstar-restart))               (setq
              +zen--original-org-indent-mode-p org-indent-mode)
              (org-indent-mode -1))))
(add-hook! 'writeroom-mode-hook
  (if writeroom-mode
      (add-hook 'post-command-hook #'recenter nil t)
    (remove-hook 'post-command-hook #'recenter t)))
(add-hook 'writeroom-mode-enable-hook #'doom-disable-line-numbers-h)
(add-hook 'writeroom-mode-disable-hook #'doom-enable-line-numbers-h)
(add-hook 'writeroom-mode-disable-hook
          (defun +zen-nonprose-org-h ()
            "Reverse the effect of `+zen-prose-org'."
            (when (eq major-mode 'org-mode)
              (when (featurep 'org-superstar)
                (org-superstar-restart))
              (when +zen--original-org-indent-mode-p (org-indent-mode 1))))))
```

5.8 Font Display

Mixed pitch is great. As is `+org-pretty-mode`, let's use them.

```
(add-hook 'org-mode-hook #'+org-pretty-mode)
```

However, the subscripts (and superscripts) are confusing with latex fragments, so lets turn those off

```
(setq org-pretty-entities-include-sub-superscripts nil)
```

Let's make headings a bit bigger

```
(custom-set-faces!
  '(org-document-title :height 1.2)
  '(outline-1 :weight extra-bold :height 1.25)
  '(outline-2 :weight bold :height 1.15)
  '(outline-3 :weight bold :height 1.12)
  '(outline-4 :weight semi-bold :height 1.09)
  '(outline-5 :weight semi-bold :height 1.06)
  '(outline-6 :weight semi-bold :height 1.03)
  '(outline-8 :weight semi-bold)
  '(outline-9 :weight semi-bold))
```

It seems reasonable to have deadlines in the error face when they're passed.

```
(setq org-agenda-deadline-faces
      '((1.0 . error)
        (1.0 . org-warning)
        (0.5 . org-upcoming-deadline)
        (0.0 . org-upcoming-distant-deadline)))
```

We can then have quote blocks stand out a bit more by making them *italic*.

```
(setq org-fontify-quote-and-verse-blocks t)
```

```
(use-package! org-appear
  :hook (org-mode . org-appear-mode)
  :config
  (setq org-appear-autoemphasis t
        org-appear-autosubmarkers t
        org-appear-autolinks nil)
  (run-at-time nil nil #'org-appear--set-elements))
```

Org files can be rather nice to look at, particularly with some of the customizations here. This comes at a cost however, expensive font-lock. Feeling like you're typing through molasses in large files is no fun, but there is a way I can defer font-locking when typing to make the experience more responsive.

```
(defun locally-defer-font-lock ()
  "Set jit-lock defer and stealth, when buffer is over a certain size."
  (when (> (buffer-size) 50000)
    (setq-local jit-lock-defer-time 0.05
                jit-lock-stealth-time 1)))

(add-hook 'org-mode-hook #'locally-defer-font-lock)
```

I dislike that end/begin statements in org mode are the same color as the background. I've changed them to use a darker color

```
(custom-set-faces!
  `(org-block-end-line :background ,(doom-color 'base2))
  `(org-block-begin-line :background ,(doom-color 'base2)))
```

5.8.1 Fontifying inline src blocks

Org does lovely things with `#+begin_src` blocks, like using font-lock for language's major-mode behind the scenes and pulling out the lovely colourful results. By contrast, inline `src_` blocks are somewhat neglected.

I am not the first person to feel this way, thankfully others have taken to stackexchange to voice their desire for inline src fontification. I was going to steal their work, but unfortunately they didn't perform *true* source code fontification, but simply applied the `org-code` face to the content.

We can do better than that, and we shall! Using `org-src-font-lock-fontify-block` we can apply language-appropriate syntax highlighting. Then, continuing on to `{{{results(...)}}}`, it can have the `org-block` face applied to match, and then the value-surrounding constructs hidden by mimicking the behaviour of `prettify-symbols-mode`.

```
(defvar org-prettify-inline-results t
  "Whether to use (ab)use prettify-symbols-mode on {{{results(...)}}}.
      Either t or a cons cell of strings which are used as substitutions
      for the start and end of inline results, respectively.")

(defvar org-fontify-inline-src-blocks-max-length 200
  "Maximum content length of an inline src block that will be fontified.")

(defun org-fontify-inline-src-blocks (limit)
  "Try to apply `org-fontify-inline-src-blocks-1'."
  (condition-case nil
      (org-fontify-inline-src-blocks-1 limit)
    (error (message "Org mode fontification error in %S at %d"
                    (current-buffer)
                    (line-number-at-pos)))))

(defun org-fontify-inline-src-blocks-1 (limit)
  "Fontify inline src_LANG blocks, from `point' up to LIMIT."
  (let ((case-fold-search t)
        (initial-point (point)))
    (while (re-search-forward "\\_<src_\\([^ \t\n[{]+\\)[{[]?" limit t) ; stolen from
    ↪  `org-element-inline-src-block-parser'
      (let ((beg (match-beginning 0))
            pt
            (lang-beg (match-beginning 1))
            (lang-end (match-end 1)))
        (remove-text-properties beg lang-end '(face nil))
        (font-lock-append-text-property lang-beg lang-end 'face 'org-meta-line)
        (font-lock-append-text-property beg lang-beg 'face 'shadow)
        (font-lock-append-text-property beg lang-end 'face 'org-block)
        (setq pt (goto-char lang-end))
        ;; `org-element--parse-paired-brackets' doesn't take a limit, so to
        ;; prevent it searching the entire rest of the buffer we temporarily
```

```
        ;; narrow the active region.
        (save-restriction
          (narrow-to-region beg (min (point-max) limit (+ lang-end
          ↪  org-fontify-inline-src-blocks-max-length)))
          (when (ignore-errors (org-element--parse-paired-brackets ?\[))
            (remove-text-properties pt (point) '(face nil))
            (font-lock-append-text-property pt (point) 'face 'org-block)
            (setq pt (point)))
          (when (ignore-errors (org-element--parse-paired-brackets ?\{))
            (remove-text-properties pt (point) '(face nil))
            (font-lock-append-text-property pt (1+ pt) 'face '(org-block shadow))
            (unless (= (1+ pt) (1- (point)))
              (if org-src-fontify-natively
                  (org-src-font-lock-fontify-block (buffer-substring-no-properties
                  ↪  lang-beg lang-end) (1+ pt) (1- (point)))
                (font-lock-append-text-property (1+ pt) (1- (point)) 'face 'org-block)))
            (font-lock-append-text-property (1- (point)) (point) 'face '(org-block
            ↪  shadow))
            (setq pt (point))))
        (when (and org-prettify-inline-results (re-search-forward "\\= {{{results("
        ↪  limit t))
          (font-lock-append-text-property pt (1+ pt) 'face 'org-block)
          (goto-char pt))))
      (when org-prettify-inline-results
        (goto-char initial-point)
        (org-fontify-inline-src-results limit))))

(defun org-fontify-inline-src-results (limit)
  (while (re-search-forward "{{{results(\\(.+?\\))}}}" limit t)
    (remove-list-of-text-properties (match-beginning 0) (point)
                                    '(composition
                                      prettify-symbols-start
                                      prettify-symbols-end))
    (font-lock-append-text-property (match-beginning 0) (match-end 0) 'face 'org-block)
    (let ((start (match-beginning 0)) (end (match-beginning 1)))
      (with-silent-modifications
        (compose-region start end (if (eq org-prettify-inline-results t) "⊠" (car
        ↪  org-prettify-inline-results)))
        (add-text-properties start end `(prettify-symbols-start ,start
        ↪  prettify-symbols-end ,end))))
    (let ((start (match-end 1)) (end (point)))
      (with-silent-modifications
        (compose-region start end (if (eq org-prettify-inline-results t) "⊠" (cdr
        ↪  org-prettify-inline-results)))
        (add-text-properties start end `(prettify-symbols-start ,start
        ↪  prettify-symbols-end ,end))))))

(defun org-fontify-inline-src-blocks-enable ()
  "Add inline src fontification to font-lock in Org.
     Must be run as part of `org-font-lock-set-keywords-hook'."
  (setq org-font-lock-extra-keywords
        (append org-font-lock-extra-keywords '((org-fontify-inline-src-blocks)))))
```

```
(add-hook 'org-font-lock-set-keywords-hook #'org-fontify-inline-src-blocks-enable)
```

5.9 Symbols

Firstly, I dislike the default stars for org-mode, so lets improve that

```
;;make bullets look better
(after! org-superstar
  (setq org-superstar-headline-bullets-list '("◉" "○" "□" "□" "□" "□" "◆" "▶")
        org-superstar-prettify-item-bullets t ))
```

I also want to hide leading stars, since they feel redundant

```
(setq org-ellipsis " ▾ "
      org-hide-leading-stars t
      org-priority-highest ?A
      org-priority-lowest ?E
      org-priority-faces
      '((?A . 'all-the-icons-red)
        (?B . 'all-the-icons-orange)
        (?C . 'all-the-icons-yellow)
        (?D . 'all-the-icons-green)
        (?E . 'all-the-icons-blue)))
```

Lastly, lets add some ligatures for some org mode stuff

```
(appendq! +ligatures-extra-symbols
          `(:checkbox      "☐"
            :pending       "□"
            :checkedbox    "☑"
            :list_property "::"
            :em_dash       "—"
            :ellipses      "…"
            :arrow_right   "→"
            :arrow_left    "←"
            :property      "□"
            :options       "□"
            :startup       "□"
            :html_head     "□"
            :html          "□"
            :latex_class   "□"
            :latex_header  "□"
            :beamer_header "□"
            :latex         "□"
            :attr_latex    "□"
            :attr_html     "□"
            :attr_org      "□"
            :begin_quote   "□"
            :end_quote     "□"
            :caption       "□"
```

```
            :header        "›"
            :begin_export  "⧈"
            :end_export    "⧈"
            :properties    "⧈"
            :end           "⧈"
            :priority_a   ,(propertize "⧈" 'face 'all-the-icons-red)
            :priority_b   ,(propertize "⧈" 'face 'all-the-icons-orange)
            :priority_c   ,(propertize "■" 'face 'all-the-icons-yellow)
            :priority_d   ,(propertize "⧈" 'face 'all-the-icons-green)
            :priority_e   ,(propertize "⧈" 'face 'all-the-icons-blue)))
(set-ligatures! 'org-mode
  :merge t
  :checkbox      "[ ]"
  :pending       "[-]"
  :checkedbox    "[X]"
  :list_property "::"
  :em_dash       "---"
  :ellipsis      "..."
  :arrow_right   "->"
  :arrow_left    "<-"
  :title         "#+title:"
  :subtitle      "#+subtitle:"
  :author        "#+author:"
  :date          "#+date:"
  :property      "#+property:"
  :options       "#+options:"
  :startup       "#+startup:"
  :macro         "#+macro:"
  :html_head     "#+html_head:"
  :html          "#+html:"
  :latex_class   "#+latex_class:"
  :latex_header  "#+latex_header:"
  :beamer_header "#+beamer_header:"
  :latex         "#+latex:"
  :attr_latex    "#+attr_latex:"
  :attr_html     "#+attr_html:"
  :attr_org      "#+attr_org:"
  :begin_quote   "#+begin_quote"
  :end_quote     "#+end_quote"
  :caption       "#+caption:"
  :header        "#+header:"
  :begin_export  "#+begin_export"
  :end_export    "#+end_export"
  :results       "#+RESULTS:"
  :property      ":PROPERTIES:"
  :end           ":END:"
  :priority_a    "[#A]"
  :priority_b    "[#B]"
  :priority_c    "[#C]"
  :priority_d    "[#D]"
  :priority_e    "[#E]")
(plist-put +ligatures-extra-symbols :name "⧈")
```

Lets also add a function that makes it easy to convert from upper to lowercase, since the ligatures

don't work with Uppercase (I can make them work, but lowercase looks better anyways)

```
(defun org-syntax-convert-keyword-case-to-lower ()
  "Convert all #+KEYWORDS to #+keywords."
  (interactive)
  (save-excursion
    (goto-char (point-min))
    (let ((count 0)
          (case-fold-search nil))
      (while (re-search-forward "^[ \t]*#\\+[A-Z_]+" nil t)
        (unless (s-matches-p "RESULTS" (match-string 0))
          (replace-match (downcase (match-string 0)) t)
          (setq count (1+ count))))
      (message "Replaced %d occurances" count))))
```

5.10 Keycast

Its nice for demonstrations

```
(use-package! keycast
  :commands keycast-mode
  :config
  (define-minor-mode keycast-mode
    "Show current command and its key binding in the mode line."
    :global t
    (if keycast-mode
        (progn
          (add-hook 'pre-command-hook 'keycast--update t)
          (add-to-list 'global-mode-string '("" mode-line-keycast " ")))
      (remove-hook 'pre-command-hook 'keycast--update)
      (setq global-mode-string (remove '("" mode-line-keycast " ")
      ↪  global-mode-string))))
  (custom-set-faces!
    '(keycast-command :inherit doom-modeline-debug
                      :height 1.0)
    '(keycast-key :inherit custom-modified
                  :height 1.0
                  :weight bold)))
```

5.11 Transparency

I'm not too big of a fan of transparency, but some people like it. You can use this little function to toggle it now. On `C-c t` inactive windows will dim (85% transparency) and focused windows remain opaque

```
(defun toggle-transparency ()
  (interactive)
  (let ((alpha (frame-parameter nil 'alpha)))
    (set-frame-parameter
     nil 'alpha
     (if (eql (cond ((numberp alpha) alpha)
                    ((numberp (cdr alpha)) (cdr alpha))
                    ;; Also handle undocumented (<active> <inactive>) form.
                    ((numberp (cadr alpha)) (cadr alpha)))
              100)
         '(100 . 85) '(100 . 100)))))
(global-set-key (kbd "C-c t") 'toggle-transparency)
```

5.12 Screenshots

Make it easy to take nice screenshots. I need to figure out how to make clipboard work though.

```
(use-package! screenshot
  :defer t)
```

5.13 RSS

RSS is a nice simple way of getting my news. Lets set that up

```
(map! :map elfeed-search-mode-map
      :after elfeed-search
      [remap kill-this-buffer] "q"
      [remap kill-buffer] "q"
      :n doom-leader-key nil
      :n "q" #'+rss/quit
      :n "e" #'elfeed-update
      :n "r" #'elfeed-search-untag-all-unread
      :n "u" #'elfeed-search-tag-all-unread
      :n "s" #'elfeed-search-live-filter
      :n "RET" #'elfeed-search-show-entry
      :n "p" #'elfeed-show-pdf
      :n "+" #'elfeed-search-tag-all
      :n "-" #'elfeed-search-untag-all
      :n "S" #'elfeed-search-set-filter
      :n "b" #'elfeed-search-browse-url
      :n "y" #'elfeed-search-yank)
(map! :map elfeed-show-mode-map
      :after elfeed-show
      [remap kill-this-buffer] "q"
      [remap kill-buffer] "q"
      :n doom-leader-key nil
      :nm "q" #'+rss/delete-pane
```

```
      :nm "o" #'ace-link-elfeed
      :nm "RET" #'org-ref-elfeed-add
      :nm "n" #'elfeed-show-next
      :nm "N" #'elfeed-show-prev
      :nm "p" #'elfeed-show-pdf
      :nm "+" #'elfeed-show-tag
      :nm "-" #'elfeed-show-untag
      :nm "s" #'elfeed-show-new-live-search
      :nm "y" #'elfeed-show-yank)

(after! elfeed-search
  (set-evil-initial-state! 'elfeed-search-mode 'normal))
(after! elfeed-show-mode
  (set-evil-initial-state! 'elfeed-show-mode   'normal))

(after! evil-snipe
  (push 'elfeed-show-mode   evil-snipe-disabled-modes)
  (push 'elfeed-search-mode evil-snipe-disabled-modes))

 (after! elfeed

  (elfeed-org)
  (use-package! elfeed-link)

  (setq elfeed-search-filter "@1-week-ago +unread"
        elfeed-search-print-entry-function '+rss/elfeed-search-print-entry
        elfeed-search-title-min-width 80
        elfeed-show-entry-switch #'pop-to-buffer
        elfeed-show-entry-delete #'+rss/delete-pane
        elfeed-show-refresh-function #'+rss/elfeed-show-refresh--better-style
        shr-max-image-proportion 0.6)

  (add-hook! 'elfeed-show-mode-hook (hide-mode-line-mode 1))
  (add-hook! 'elfeed-search-update-hook #'hide-mode-line-mode)

  (defface elfeed-show-title-face '((t (:weight ultrabold :slant italic :height 1.5)))
    "title face in elfeed show buffer"
    :group 'elfeed)
  (defface elfeed-show-author-face `((t (:weight light)))
    "title face in elfeed show buffer"
    :group 'elfeed)
  (set-face-attribute 'elfeed-search-title-face nil
                      :foreground 'nil
                      :weight 'light)

  (defadvice! +rss-elfeed-wrap-h-nicer ()
    "Enhances an elfeed entry's readability by wrapping it to a width of
        `fill-column' and centering it with `visual-fill-column-mode'."
    :override #'+rss-elfeed-wrap-h
    (setq-local truncate-lines nil
                shr-width 120
                visual-fill-column-center-text t
                default-text-properties '(line-height 1.1))
```

```
  (let ((inhibit-read-only t)
        (inhibit-modification-hooks t))
    (visual-fill-column-mode)
    ;; (setq-local shr-current-font '(:family "Merriweather" :height 1.2))
    (set-buffer-modified-p nil)))

(defun +rss/elfeed-search-print-entry (entry)
  "Print ENTRY to the buffer."
  (let* ((elfeed-goodies/tag-column-width 40)
         (elfeed-goodies/feed-source-column-width 30)
         (title (or (elfeed-meta entry :title) (elfeed-entry-title entry) ""))
         (title-faces (elfeed-search--faces (elfeed-entry-tags entry)))
         (feed (elfeed-entry-feed entry))
         (feed-title
          (when feed
            (or (elfeed-meta feed :title) (elfeed-feed-title feed))))
         (tags (mapcar #'symbol-name (elfeed-entry-tags entry)))
         (tags-str (concat (mapconcat 'identity tags ",")))
         (title-width (- (window-width) elfeed-goodies/feed-source-column-width
                         elfeed-goodies/tag-column-width 4))

         (tag-column (elfeed-format-column
                      tags-str (elfeed-clamp (length tags-str)
                                             elfeed-goodies/tag-column-width
                                             elfeed-goodies/tag-column-width)
                      :left))
         (feed-column (elfeed-format-column
                       feed-title (elfeed-clamp elfeed-goodies/feed-source-column-width
                                                elfeed-goodies/feed-source-column-width
                                               elfeed-goodies/feed-source-column-width)
                        :left)))

    (insert (propertize feed-column 'face 'elfeed-search-feed-face) " ")
    (insert (propertize tag-column 'face 'elfeed-search-tag-face) " ")
    (insert (propertize title 'face title-faces 'kbd-help title))
    (setq-local line-spacing 0.2)))

(defun +rss/elfeed-show-refresh--better-style ()
  "Update the buffer to match the selected entry, using a mail-style."
  (interactive)
  (let* ((inhibit-read-only t)
         (title (elfeed-entry-title elfeed-show-entry))
         (date (seconds-to-time (elfeed-entry-date elfeed-show-entry)))
         (author (elfeed-meta elfeed-show-entry :author))
         (link (elfeed-entry-link elfeed-show-entry))
         (tags (elfeed-entry-tags elfeed-show-entry))
         (tagsstr (mapconcat #'symbol-name tags ", "))
         (nicedate (format-time-string "%a, %e %b %Y %T %Z" date))
         (content (elfeed-deref (elfeed-entry-content elfeed-show-entry)))
         (type (elfeed-entry-content-type elfeed-show-entry))
         (feed (elfeed-entry-feed elfeed-show-entry))
         (feed-title (elfeed-feed-title feed))
         (base (and feed (elfeed-compute-base (elfeed-feed-url feed)))))
```

```
      (erase-buffer)
      (insert "\n")
      (insert (format "%s\n\n" (propertize title 'face 'elfeed-show-title-face)))
      (insert (format "%s\t" (propertize feed-title 'face 'elfeed-search-feed-face)))
      (when (and author elfeed-show-entry-author)
        (insert (format "%s\n" (propertize author 'face 'elfeed-show-author-face))))
      (insert (format "%s\n\n" (propertize nicedate 'face 'elfeed-log-date-face)))
      (when tags
        (insert (format "%s\n"
                        (propertize tagsstr 'face 'elfeed-search-tag-face))))
      ;; (insert (propertize "Link: " 'face 'message-header-name))
      ;; (elfeed-insert-link link link)
      ;; (insert "\n")
      (cl-loop for enclosure in (elfeed-entry-enclosures elfeed-show-entry)
               do (insert (propertize "Enclosure: " 'face 'message-header-name))
               do (elfeed-insert-link (car enclosure))
               do (insert "\n"))
      (insert "\n")
      (if content
          (if (eq type 'html)
              (elfeed-insert-html content base)
            (insert content))
        (insert (propertize "(empty)\n" 'face 'italic)))
      (goto-char (point-min)))))

(after! elfeed-show
  (require 'url)

  (defvar elfeed-pdf-dir
    (expand-file-name "pdfs/"
                      (file-name-directory (directory-file-name
                      ↪  elfeed-enclosure-default-dir))))

  (defvar elfeed-link-pdfs
    '(("https://www.jstatsoft.org/index.php/jss/article/view/v0\\([^/]+\\)" .
    ↪  "https://www.jstatsoft.org/index.php/jss/article/view/v0\\1/v\\1.pdf")
      ("http://arxiv.org/abs/\\([^/]+\\)" . "https://arxiv.org/pdf/\\1.pdf"))
    "List of alists of the form (REGEX-FOR-LINK . FORM-FOR-PDF)")

  (defun elfeed-show-pdf (entry)
    (interactive
     (list (or elfeed-show-entry (elfeed-search-selected :ignore-region))))
    (let ((link (elfeed-entry-link entry))
          (feed-name (plist-get (elfeed-feed-meta (elfeed-entry-feed entry)) :title))
          (title (elfeed-entry-title entry))
          (file-view-function
           (lambda (f)
             (when elfeed-show-entry
               (elfeed-kill-buffer))
             (pop-to-buffer (find-file-noselect f))))
          pdf)

      (let ((file (expand-file-name
```

```
                (concat (subst-char-in-string ?/ ?, title) ".pdf")
                (expand-file-name (subst-char-in-string ?/ ?, feed-name)
                                  elfeed-pdf-dir))))
      (if (file-exists-p file)
          (funcall file-view-function file)
        (dolist (link-pdf elfeed-link-pdfs)
          (when (and (string-match-p (car link-pdf) link)
                     (not pdf))
           (setq pdf (replace-regexp-in-string (car link-pdf) (cdr link-pdf) link))))
        (if (not pdf)
            (message "No associated PDF for entry")
          (message "Fetching %s" pdf)
          (unless (file-exists-p (file-name-directory file))
            (make-directory (file-name-directory file) t))
          (url-copy-file pdf file)
          (funcall file-view-function file))))))
```

6 Org

6.1 Org-Mode

Org mode is the best writing format, no contest. The defaults are more terminal-oriented, so lets make it look a little better

I like a little padding on my org blocks, just a millimeter or two on the top and bottom should do

```
(use-package! org-padding
  :hook (org-mode-hook . org-padding-mode)
  :defer t)
(setq org-padding-block-begin-line-padding '(1.15 . 0.15))
(setq org-padding-block-end-line-padding '(1.15 . 0.15))
```

Some hooks are a bit annoying, so lets make them shut up

```
(defadvice! shut-up-org-problematic-hooks (orig-fn &rest args)
  :around #'org-fancy-priorities-mode
  :around #'org-superstar-mode
  (ignore-errors (apply orig-fn args)))
```

Lets add org pretty table as well

```
(use-package! org-pretty-table
  :commands (org-pretty-table-mode global-org-pretty-table-mode))
```

Sadly I can't always work in org, but I can import stuff into it!

```
(use-package! org-pandoc-import
  :after org)
```

I prefer /org as my directory. Lets change some other defaults too

```
(setq org-directory "~/org"                        ; let's put files here
      org-use-property-inheritance t               ; it's convenient to have properties
      ↪  inherited
      org-log-done 'time                           ; having the time a item is done
      ↪  sounds convenient
      org-list-allow-alphabetical t                ; have a. A. a) A) list bullets
      org-export-in-background t                   ; run export processes in external
      ↪  emacs process
      org-catch-invisible-edits 'smart)            ; try not to accidently do weird
      ↪  stuff in invisible regions
```

I want to slightly change the default args for babel

```
(setq org-babel-default-header-args
      '((:session . "none")
        (:results . "replace")
        (:exports . "code")
        (:cache . "no")
        (:noweb . "no")
        (:hlines . "no")
        (:tangle . "no")
        (:comments . "link")))
```

I also want to change the order of bullets

```
(setq org-list-demote-modify-bullet '(("+" . "-") ("-" . "+") ("*" . "+") ("1." .
↪  "a.")))
```

org-ol-tree is nice for viewing the structure of an org file

```
(use-package! org-ol-tree
  :commands org-ol-tree)
(map! :map org-mode-map
      :after org
      :localleader
      :desc "Outline" "O" #'org-ol-tree)
```

6.1.1 HTML

```
(use-package! ox-gfm
  :after org)
```

:header-args:emacs-lisp: :noweb-ref ox-html-conf For some reason this only works if you have org first

```
(after! ox-html
  (define-minor-mode org-fancy-html-export-mode
  "Toggle my fabulous org export tweaks. While this mode itself does a little bit,
      the vast majority of the change in behaviour comes from switch statements in:
       - `org-html-template-fancier'
       - `org-html--build-meta-info-extended'
       - `org-html-src-block-collapsable'
       - `org-html-block-collapsable'
       - `org-html-table-wrapped'
       - `org-html--format-toc-headline-colapseable'
       - `org-html--toc-text-stripped-leaves'
       - `org-export-html-headline-anchor'"
  :global t
  :init-value t
  (if org-fancy-html-export-mode
      (setq org-html-style-default org-html-style-fancy
            org-html-meta-tags #'org-html-meta-tags-fancy
            org-html-checkbox-type 'html-span)
    (setq org-html-style-default org-html-style-plain
          org-html-meta-tags #'org-html-meta-tags-default
          org-html-checkbox-type 'html)))

(defadvice! org-html-template-fancier (orig-fn contents info)
  "Return complete document string after HTML conversion.
      CONTENTS is the transcoded contents string.  INFO is a plist
      holding export options. Adds a few extra things to the body
      compared to the default implementation."
  :around #'org-html-template
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn contents info)
    (concat
     (when (and (not (org-html-html5-p info)) (org-html-xhtml-p info))
       (let* ((xml-declaration (plist-get info :html-xml-declaration))
              (decl (or (and (stringp xml-declaration) xml-declaration)
                        (cdr (assoc (plist-get info :html-extension)
                                    xml-declaration))
                        (cdr (assoc "html" xml-declaration))
                        "")))
         (when (not (or (not decl) (string= "" decl)))
           (format "%s\n"
                   (format decl
                           (or (and org-html-coding-system
                                    (fboundp 'coding-system-get)
                                    (coding-system-get org-html-coding-system
                                    ↪  'mime-charset))
                               "iso-8859-1"))))))
     (org-html-doctype info)
     "\n"
     (concat "<html"
             (cond ((org-html-xhtml-p info)
                    (format
```

```
                " xmlns=\"http://www.w3.org/1999/xhtml\" lang=\"%s\"
                ↪  xml:lang=\"%s\""
                (plist-get info :language) (plist-get info :language)))
              ((org-html-html5-p info)
               (format " lang=\"%s\"" (plist-get info :language))))
        ">\n")
"<head>\n"
(org-html--build-meta-info info)
(org-html--build-head info)
(org-html--build-mathjax-config info)
"</head>\n"
"<body>\n<input type='checkbox' id='theme-switch'><div id='page'><label
↪  id='switch-label' for='theme-switch'></label>"
(let ((link-up (org-trim (plist-get info :html-link-up)))
      (link-home (org-trim (plist-get info :html-link-home))))
  (unless (and (string= link-up "") (string= link-home ""))
    (format (plist-get info :html-home/up-format)
            (or link-up link-home)
            (or link-home link-up))))
;; Preamble.
(org-html--build-pre/postamble 'preamble info)
;; Document contents.
(let ((div (assq 'content (plist-get info :html-divs))))
  (format "<%s id=\"%s\">\n" (nth 1 div) (nth 2 div)))
;; Document title.
(when (plist-get info :with-title)
  (let ((title (and (plist-get info :with-title)
                    (plist-get info :title)))
        (subtitle (plist-get info :subtitle))
        (html5-fancy (org-html--html5-fancy-p info)))
    (when title
      (format
       (if html5-fancy
           "<header class=\"page-header\">%s\n<h1
           ↪  class=\"title\">%s</h1>\n%s</header>"
         "<h1 class=\"title\">%s%s</h1>\n")
       (if (or (plist-get info :with-date)
               (plist-get info :with-author))
           (concat "<div class=\"page-meta\">"
                   (when (plist-get info :with-date)
                     (org-export-data (plist-get info :date) info))
                   (when (and (plist-get info :with-date) (plist-get info
                   ↪  :with-author)) ", ")
                   (when (plist-get info :with-author)
                     (org-export-data (plist-get info :author) info))
                   "</div>\n")
         "")
       (org-export-data title info)
       (if subtitle
           (format
            (if html5-fancy
                "<p class=\"subtitle\" role=\"doc-subtitle\">%s</p>\n"
              (concat "\n" (org-html-close-tag "br" nil info) "\n"
```

```
                          "<span class=\"subtitle\">%s</span>\n"))
                (org-export-data subtitle info))
              "")))))
     contents
     (format "</%s>\n" (nth 1 (assq 'content (plist-get info :html-divs))))
     ;; Postamble.
     (org-html--build-pre/postamble 'postamble info)
     ;; Possibly use the Klipse library live code blocks.
     (when (plist-get info :html-klipsify-src)
       (concat "<script>" (plist-get info :html-klipse-selection-script)
               "</script><script src=\""
               org-html-klipse-js
               "\"></script><link rel=\"stylesheet\" type=\"text/css\" href=\""
               org-html-klipse-css "\"/>"))
     ;; Closing document.
     "</div>\n</body>\n</html>")))

(defadvice! org-html-toc-linked (depth info &optional scope)
  "Build a table of contents.
     Just like `org-html-toc', except the header is a link to \"#\".
     DEPTH is an integer specifying the depth of the table.  INFO is
     a plist used as a communication channel.  Optional argument SCOPE
     is an element defining the scope of the table.  Return the table
     of contents as a string, or nil if it is empty."
  :override #'org-html-toc
  (let ((toc-entries
         (mapcar (lambda (headline)
                   (cons (org-html--format-toc-headline headline info)
                         (org-export-get-relative-level headline info)))
                 (org-export-collect-headlines info depth scope))))
    (when toc-entries
      (let ((toc (concat "<div id=\"text-table-of-contents\">"
                         (org-html--toc-text toc-entries)
                         "</div>\n")))
        (if scope toc
          (let ((outer-tag (if (org-html--html5-fancy-p info)
                               "nav"
                             "div")))
            (concat (format "<%s id=\"table-of-contents\">\n" outer-tag)
                    (let ((top-level (plist-get info :html-toplevel-hlevel)))
                      (format "<h%d><a href=\"#\" style=\"color:inherit;
                      ↪  text-decoration: none;\">%s</a></h%d>\n"
                              top-level
                              (org-html--translate "Table of Contents" info)
                              top-level))
                    toc
                    (format "</%s>\n" outer-tag)))))))))

(defvar org-html-meta-tags-opengraph-image
 '(:image "https://tecosaur.com/resources/org/nib.png"
   :type "image/png"
   :width "200"
   :height "200"
```

```
    :alt "Green fountain pen nib")
  "Plist of og:image:PROP properties and their value, for use in
  ↪  `org-html-meta-tags-fancy'.")

(defun org-html-meta-tags-fancy (info)
  "Use the INFO plist to construct the meta tags, as described in
  ↪  `org-html-meta-tags'."
  (let ((title (org-html-plain-text
                (org-element-interpret-data (plist-get info :title)) info))
        (author (and (plist-get info :with-author)
                     (let ((auth (plist-get info :author)))
                       ;; Return raw Org syntax.
                       (and auth (org-html-plain-text
                                  (org-element-interpret-data auth) info))))))
    (append
     (list
      (when (org-string-nw-p author)
        (list "name" "author" author))
      (when (org-string-nw-p (plist-get info :description))
        (list "name" "description"
              (plist-get info :description)))
      '("name" "generator" "org mode")
      '("name" "theme-color" "#77aa99")
      '("property" "og:type" "article")
      (list "property" "og:title" title)
      (let ((subtitle (org-export-data (plist-get info :subtitle) info)))
        (when (org-string-nw-p subtitle)
          (list "property" "og:description" subtitle))))
     (when org-html-meta-tags-opengraph-image
       (list (list "property" "og:image" (plist-get org-html-meta-tags-opengraph-image
       ↪  :image))
             (list "property" "og:image:type" (plist-get
             ↪  org-html-meta-tags-opengraph-image :type))
             (list "property" "og:image:width" (plist-get
             ↪  org-html-meta-tags-opengraph-image :width))
             (list "property" "og:image:height" (plist-get
             ↪  org-html-meta-tags-opengraph-image :height))
             (list "property" "og:image:alt" (plist-get
             ↪  org-html-meta-tags-opengraph-image :alt))))
     (list
      (when (org-string-nw-p author)
        (list "property" "og:article:author:first_name" (car (s-split-up-to " " author
        ↪  2))))
      (when (and (org-string-nw-p author) (s-contains-p " " author))
        (list "property" "og:article:author:last_name" (cadr (s-split-up-to " " author
        ↪  2))))
      (list "property" "og:article:published_time"
            (format-time-string
             "%FT%T%z"
             (or
              (when-let ((date-str (cadar (org-collect-keywords '("DATE")))))
                (unless (string= date-str (format-time-string "%F"))
                  (ignore-errors (encode-time (org-parse-time-string date-str)))))
```

```
              (if buffer-file-name
                  (file-attribute-modification-time (file-attributes buffer-file-name))
                (current-time)))))
      (when buffer-file-name
        (list "property" "og:article:modified_time"
              (format-time-string "%FT%T%z" (file-attribute-modification-time
              ↪  (file-attributes buffer-file-name)))))))))

(unless (functionp #'org-html-meta-tags-default)
  (defalias 'org-html-meta-tags-default #'ignore))
(setq org-html-meta-tags #'org-html-meta-tags-fancy)

(setq org-html-style-plain org-html-style-default
      org-html-htmlize-output-type 'css
      org-html-doctype "html5"
      org-html-html5-fancy t)

(defun org-html-reload-fancy-style ()
  (interactive)
  (setq org-html-style-fancy
        (concat (f-read-text (expand-file-name "misc/org-export-header.html"
        ↪  doom-private-dir))
                "<script>\n"
               (f-read-text (expand-file-name "misc/org-css/main.js" doom-private-dir))
                "</script>\n<style>\n"
                (f-read-text (expand-file-name "misc/org-css/main.min.css"
                ↪  doom-private-dir))
                "</style>"))
  (when org-fancy-html-export-mode
    (setq org-html-style-default org-html-style-fancy)))
(org-html-reload-fancy-style)

(defvar org-html-export-collapsed nil)
(eval '(cl-pushnew '(:collapsed "COLLAPSED" "collapsed" org-html-export-collapsed t)
                   (org-export-backend-options (org-export-get-backend 'html))))
(add-to-list 'org-default-properties "EXPORT_COLLAPSED")

(defadvice! org-html-src-block-collapsable (orig-fn src-block contents info)
  "Wrap the usual <pre> block in a <details>"
  :around #'org-html-src-block
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn src-block contents info)
    (let* ((properties (cadr src-block))
           (lang (mode-name-to-lang-name
                  (plist-get properties :language)))
           (name (plist-get properties :name))
           (ref (org-export-get-reference src-block info))
           (collapsed-p (member (or (org-export-read-attribute :attr_html src-block
           ↪  :collapsed)
                                    (plist-get info :collapsed))
                                '("y" "yes" "t" t "true" "all"))))
      (format
```

```
       "<details id='%s' class='code'%s><summary%s>%s</summary>
           <div class='gutter'>
           <a href='#%s'>#</a>
           <button title='Copy to clipboard'
           onclick='copyPreToClipbord(this)'>⧉</button>\
           </div>
           %s
           </details>"
       ref
       (if collapsed-p "" " open")
       (if name " class='named'" "")
       (concat
        (when name (concat "<span class=\"name\">" name "</span>"))
        "<span class=\"lang\">" lang "</span>")
       ref
       (if name
           (replace-regexp-in-string (format "<pre\\( class=\"[^\"]+\"\\)? id=\"%s\">"
           ↪  ref) "<pre\\1>"
                                     (funcall orig-fn src-block contents info))
         (funcall orig-fn src-block contents info))))))

(defun mode-name-to-lang-name (mode)
  (or (cadr (assoc mode
                   '(("asymptote" "Asymptote")
                     ("awk" "Awk")
                     ("C" "C")
                     ("clojure" "Clojure")
                     ("css" "CSS")
                     ("D" "D")
                     ("ditaa" "ditaa")
                     ("dot" "Graphviz")
                     ("calc" "Emacs Calc")
                     ("emacs-lisp" "Emacs Lisp")
                     ("fortran" "Fortran")
                     ("gnuplot" "gnuplot")
                     ("haskell" "Haskell")
                     ("hledger" "hledger")
                     ("java" "Java")
                     ("js" "Javascript")
                     ("latex" "LaTeX")
                     ("ledger" "Ledger")
                     ("lisp" "Lisp")
                     ("lilypond" "Lilypond")
                     ("lua" "Lua")
                     ("matlab" "MATLAB")
                     ("mscgen" "Mscgen")
                     ("ocaml" "Objective Caml")
                     ("octave" "Octave")
                     ("org" "Org mode")
                     ("oz" "OZ")
                     ("plantuml" "Plantuml")
                     ("processing" "Processing.js")
                     ("python" "Python")
```

```
                    ("R" "R")
                    ("ruby" "Ruby")
                    ("sass" "Sass")
                    ("scheme" "Scheme")
                    ("screen" "Gnu Screen")
                    ("sed" "Sed")
                    ("sh" "shell")
                    ("sql" "SQL")
                    ("sqlite" "SQLite")
                    ("forth" "Forth")
                    ("io" "IO")
                    ("J" "J")
                    ("makefile" "Makefile")
                    ("maxima" "Maxima")
                    ("perl" "Perl")
                    ("picolisp" "Pico Lisp")
                    ("scala" "Scala")
                    ("shell" "Shell Script")
                    ("ebnf2ps" "ebfn2ps")
                    ("cpp" "C++")
                    ("abc" "ABC")
                    ("coq" "Coq")
                    ("groovy" "Groovy")
                    ("bash" "bash")
                    ("csh" "csh")
                    ("ash" "ash")
                    ("dash" "dash")
                    ("ksh" "ksh")
                    ("mksh" "mksh")
                    ("posh" "posh")
                    ("ada" "Ada")
                    ("asm" "Assembler")
                    ("caml" "Caml")
                    ("delphi" "Delphi")
                    ("html" "HTML")
                    ("idl" "IDL")
                    ("mercury" "Mercury")
                    ("metapost" "MetaPost")
                    ("modula-2" "Modula-2")
                    ("pascal" "Pascal")
                    ("ps" "PostScript")
                    ("prolog" "Prolog")
                    ("simula" "Simula")
                    ("tcl" "tcl")
                    ("tex" "LaTeX")
                    ("plain-tex" "TeX")
                    ("verilog" "Verilog")
                    ("vhdl" "VHDL")
                    ("xml" "XML")
                    ("nxml" "XML")
                    ("conf" "Configuration File"))))
mode))
```

```
 (defadvice! org-html-table-wrapped (orig-fn table contents info)
  "Wrap the usual <table> in a <div>"
  :around #'org-html-table
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn table contents info)
    (let* ((name (plist-get (cadr table) :name))
           (ref (org-export-get-reference table info)))
      (format "<div id='%s' class='table'>
          <div class='gutter'><a href='#%s'>#</a></div>
          <div class='tabular'>
          %s
          </div>\
          </div>"
              ref ref
              (if name
                  (replace-regexp-in-string (format "<table id=\"%s\"" ref) "<table"
                                            (funcall orig-fn table contents info))
                (funcall orig-fn table contents info))))))


(defadvice! org-html--format-toc-headline-colapseable (orig-fn headline info)
  "Add a label and checkbox to `org-html--format-toc-headline's usual output,
     to allow the TOC to be a collapseable tree."
  :around #'org-html--format-toc-headline
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn headline info)
    (let ((id (or (org-element-property :CUSTOM_ID headline)
                  (org-export-get-reference headline info))))
      (format "<input type='checkbox' id='toc--%s'/><label for='toc--%s'>%s</label>"
              id id (funcall orig-fn headline info)))))

 (defadvice! org-html--toc-text-stripped-leaves (orig-fn toc-entries)
  "Remove label"
  :around #'org-html--toc-text
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn toc-entries)
    (replace-regexp-in-string "<input [^>]+><label [^>]+>\\(.+?\\)</label></li>"
    ↪  "\\1</li>"
                              (funcall orig-fn toc-entries))))

(setq org-html-text-markup-alist
      '((bold . "<b>%s</b>")
        (code . "<code>%s</code>")
        (italic . "<i>%s</i>")
        (strike-through . "<del>%s</del>")
        (underline . "<span class=\"underline\">%s</span>")
        (verbatim . "<kbd>%s</kbd>")))

(appendq! org-html-checkbox-types
          '((html-span
```

```
            (on . "<span class='checkbox'></span>")
            (off . "<span class='checkbox'></span>")
            (trans . "<span class='checkbox'></span>"))))
(setq org-html-checkbox-type 'html-span)

(pushnew! org-html-special-string-regexps
          '("-&gt;" . "&#8594;")
          '("&lt;-" . "&#8592;"))

(defun org-export-html-headline-anchor (text backend info)
  (when (and (org-export-derived-backend-p backend 'html)
             (not (org-export-derived-backend-p backend 're-reveal))
             org-fancy-html-export-mode)
    (unless (bound-and-true-p org-msg-export-in-progress)
      (replace-regexp-in-string
       "<h\\([0-9]\\) id=\"\\([a-z0-9-]+\\)\">\\(.*[^ ]\\)<\\/h[0-9]>" ; this is quite
       ↪  restrictive, but due to `org-reference-contraction' I can do this
       "<h\\1 id=\"\\2\">\\3<a aria-hidden=\"true\" href=\"#\\2\">#</a> </h\\1>"
       text))))

(add-to-list 'org-export-filter-headline-functions
             'org-export-html-headline-anchor)

(org-link-set-parameters "Https"
                      :follow (lambda (url arg) (browse-url (concat "https:" url) arg))
                         :export #'org-url-fancy-export)

 (defun org-url-fancy-export (url _desc backend)
  (let ((metadata (org-url-unfurl-metadata (concat "https:" url))))
    (cond
     ((org-export-derived-backend-p backend 'html)
      (concat
       "<div class=\"link-preview\">"
       (format "<a href=\"%s\">" (concat "https:" url))
       (when (plist-get metadata :image)
         (format "<img src=\"%s\"/>" (plist-get metadata :image)))
       "<small>"
       (replace-regexp-in-string "//\\(?:www\\.\\)?\\([^/]+\\)/?.*" "\\1" url)
       "</small><p>"
       (when (plist-get metadata :title)
         (concat "<b>" (org-html-encode-plain-text (plist-get metadata :title))
         ↪  "</b></br>"))
       (when (plist-get metadata :description)
         (org-html-encode-plain-text (plist-get metadata :description)))
       "</p></a></div>"))
     (t url))))

(setq org-url-unfurl-metadata--cache nil)
(defun org-url-unfurl-metadata (url)
  (cdr (or (assoc url org-url-unfurl-metadata--cache)
           (car (push
                 (cons
                  url
```

```
            (let* ((head-data
                    (-filter #'listp
                             (cdaddr
                              (with-current-buffer (progn (message "Fetching
                              ↪  metadata from %s" url)
                                                          (url-retrieve-synchronously
                                                           ↪  url t t 5))
                                (goto-char (point-min))
                                (delete-region (point-min) (- (search-forward
                                ↪  "<head") 6))
                                (delete-region (search-forward "</head>")
                                ↪  (point-max))
                                (goto-char (point-min))
                                (while (re-search-forward
                                ↪  "<script[^\u2800]+?</script>" nil t)
                                  (replace-match ""))
                                (goto-char (point-min))
                                (while (re-search-forward
                                ↪  "<style[^\u2800]+?</style>" nil t)
                                  (replace-match ""))
                                (libxml-parse-html-region (point-min)
                                ↪  (point-max))))))
                   (meta (delq nil
                               (mapcar
                                (lambda (tag)
                                  (when (eq 'meta (car tag))
                                    (cons (or (cdr (assoc 'name (cadr tag)))
                                              (cdr (assoc 'property (cadr tag))))
                                          (cdr (assoc 'content (cadr tag))))))
                                head-data))))
              (let ((title (or (cdr (assoc "og:title" meta))
                               (cdr (assoc "twitter:title" meta))
                               (nth 2 (assq 'title head-data))))
                    (description (or (cdr (assoc "og:description" meta))
                                     (cdr (assoc "twitter:description" meta))
                                     (cdr (assoc "description" meta))))
                    (image (or (cdr (assoc "og:image" meta))
                               (cdr (assoc "twitter:image" meta)))))
                (when image
                  (setq image (replace-regexp-in-string
                               "^/" (concat "https://" (replace-regexp-in-string
                               ↪  "//\\([^/]+\\)/?.*" "\\1" url) "/")
                               (replace-regexp-in-string
                                "^//" "https://"
                                image))))
                (list :title title :description description :image image))))
          org-url-unfurl-metadata--cache)))))

        (setq org-html-mathjax-options
'((path "https://cdn.jsdelivr.net/npm/mathjax@3/es5/tex-svg.js" )
  (scale "1")
  (autonumber "ams")
  (multlinewidth "85%")
```

```
        (tagindent ".8em")
        (tagside "right")))

(setq org-html-mathjax-template
      "<script>
          MathJax = {
            chtml: {
              scale: %SCALE
            },
            svg: {
              scale: %SCALE,
              fontCache: \"global\"
            },
            tex: {
              tags: \"%AUTONUMBER\",
              multlineWidth: \"%MULTLINEWIDTH\",
              tagSide: \"%TAGSIDE\",
              tagIndent: \"%TAGINDENT\"
            }
          };
          </script>
          <script id=\"MathJax-script\" async
                  src=\"%PATH\"></script>")

)
```

There are quite a few instances where I want to modify variables defined in `ox-html`, so we'll wrap the contents of this section in a

```
(after! ox-html
  <<ox-html-conf>>
)
```

Tecosaur has a good collection of fonts, might as well take some

```
<link rel="icon" href="https://tecosaur.com/resources/org/nib.ico" type="image/ico" />
<link rel="preload" as="font" crossorigin="anonymous" type="font/woff2"
↪  href="https://tecosaur.com/resources/org/etbookot-roman-webfont.woff2">
<link rel="preload" as="font" crossorigin="anonymous" type="font/woff2"
↪  href="https://tecosaur.com/resources/org/etbookot-italic-webfont.woff2">
<link rel="preload" as="font" crossorigin="anonymous" type="font/woff2"
↪  href="https://tecosaur.com/resources/org/Merriweather-TextRegular.woff2">
<link rel="preload" as="font" crossorigin="anonymous" type="font/woff2"
↪  href="https://tecosaur.com/resources/org/Merriweather-TextItalic.woff2">
<link rel="preload" as="font" crossorigin="anonymous" type="font/woff2"
↪  href="https://tecosaur.com/resources/org/Merriweather-TextBold.woff2">
```

```
(defun org-html-block-collapsable (orig-fn block contents info)
  "Wrap the usual block in a <details>"
  (if (or (not org-fancy-html-export-mode) (bound-and-true-p
  ↪  org-msg-export-in-progress))
      (funcall orig-fn block contents info)
    (let ((ref (org-export-get-reference block info))
```

```
          (type (pcase (car block)
                  ('property-drawer "Properties")))
          (collapsed-default (pcase (car block)
                               ('property-drawer t)
                               (_ nil)))
          (collapsed-value (org-export-read-attribute :attr_html block :collapsed))
          (collapsed-p (or (member (org-export-read-attribute :attr_html block
          ↪  :collapsed)
                                   '("y" "yes" "t" t "true"))
                           (member (plist-get info :collapsed) '("all")))))
      (format
       "<details id='%s' class='code'%s>
           <summary%s>%s</summary>
           <div class='gutter'>\
           <a href='#%s'>#</a>
           <button title='Copy to clipboard'
           onclick='copyPreToClipbord(this)'>⧉</button>\
           </div>
           %s\n
           </details>"
       ref
       (if (or collapsed-p collapsed-default) "" " open")
       (if type " class='named'" "")
       (if type (format "<span class='type'>%s</span>" type) "")
       ref
       (funcall orig-fn block contents info)))))

(advice-add 'org-html-example-block   :around #'org-html-block-collapsable)
(advice-add 'org-html-fixed-width     :around #'org-html-block-collapsable)
(advice-add 'org-html-property-drawer :around #'org-html-block-collapsable)
```

6.2 Org-Roam

I would like to get into the habit of using org-roam for my notes, mainly because of that cool reddit post with the server.

```
(setq org-roam-directory "~/org/roam/")
```

Lets set up the org-roam-ui as well

```
(use-package! websocket
  :after org-roam)

(use-package! org-roam-ui
  :after org-roam
  :commands org-roam-ui-open
  :hook (org-roam . org-roam-ui-mode)
  :config
      (setq org-roam-ui-sync-theme t
            org-roam-ui-follow t
```

```
            org-roam-ui-update-on-save t
            org-roam-ui-open-on-start t))
```

The doom-modeline is a bit messy with roam, lets adjust that

```
(defadvice! doom-modeline--buffer-file-name-roam-aware-a (orig-fun)
  :around #'doom-modeline-buffer-file-name ; takes no args
  (if (s-contains-p org-roam-directory (or buffer-file-name ""))
      (replace-regexp-in-string
       "\\(?:^\\|.*/\\)\\([0-9]\\{4\\}\\)\\([0-9]\\{2\\}\\)\\([0-9]\\{2\\}\\)[0-9]*-"
       "☒(\\1-\\2-\\3) "
       (subst-char-in-string ?_ ?  buffer-file-name))
    (funcall orig-fun)))
```

Now, I want to replace the org-roam buffer with org-roam-ui, to do that, we need to disable the regular buffer

```
(after! org-roam
   (setq +org-roam-open-buffer-on-find-file nil))
```

6.3 Org-Agenda

Set the directory

```
(setq org-agenda-files (list "~/org/school.org"
                             "~/org/todo.org"))
```

6.4 Org-Capture

Use doct

```
(use-package! doct
  :commands (doct))
```

6.4.1 Prettify

Improve the look of the capture dialog (idea borrowed from tecosaur)

```
(defun org-capture-select-template-prettier (&optional keys)
  "Select a capture template, in a prettier way than default
      Lisp programs can force the template by setting KEYS to a string."
  (let ((org-capture-templates
         (or (org-contextualize-keys
```

```
             (org-capture-upgrade-templates org-capture-templates)
             org-capture-templates-contexts)
            '(("t" "Task" entry (file+headline "" "Tasks")
              "* TODO %?\n  %u\n  %a")))))
    (if keys
        (or (assoc keys org-capture-templates)
            (error "No capture template referred to by \"%s\" keys" keys))
      (org-mks org-capture-templates
               "Select a capture template\n━━━━━━━━━━━━━━━━━━━━━━━━━"
               "Template key: "
               `(("q" ,(concat (all-the-icons-octicon "stop" :face 'all-the-icons-red
               ↪  :v-adjust 0.01) "\tAbort")))))))
(advice-add 'org-capture-select-template :override
↪  #'org-capture-select-template-prettier)

(defun org-mks-pretty (table title &optional prompt specials)
  "Select a member of an alist with multiple keys. Prettified.
     TABLE is the alist which should contain entries where the car is a string.
     There should be two types of entries.
     1. prefix descriptions like (\"a\" \"Description\")
        This indicates that `a' is a prefix key for multi-letter selection, and
        that there are entries following with keys like \"ab\", \"ax\"…
     2. Select-able members must have more than two elements, with the first
        being the string of keys that lead to selecting it, and the second a
        short description string of the item.
     The command will then make a temporary buffer listing all entries
     that can be selected with a single key, and all the single key
     prefixes.  When you press the key for a single-letter entry, it is selected.
     When you press a prefix key, the commands (and maybe further prefixes)
     under this key will be shown and offered for selection.
     TITLE will be placed over the selection in the temporary buffer,
     PROMPT will be used when prompting for a key.  SPECIALS is an
     alist with (\"key\" \"description\") entries.  When one of these
     is selected, only the bare key is returned."
  (save-window-excursion
    (let ((inhibit-quit t)
          (buffer (org-switch-to-buffer-other-window "*Org Select*"))
          (prompt (or prompt "Select: "))
          case-fold-search
          current)
      (unwind-protect
          (catch 'exit
            (while t
              (setq-local evil-normal-state-cursor (list nil))
              (erase-buffer)
              (insert title "\n\n")
              (let ((des-keys nil)
                    (allowed-keys '("\C-g"))
                    (tab-alternatives '("\s" "\t" "\r"))
                    (cursor-type nil))
                ;; Populate allowed keys and descriptions keys
                ;; available with CURRENT selector.
                (let ((re (format "\\`%s\\(.\\)\\'"
```

```
                                (if current (regexp-quote current) "")))
                    (prefix (if current (concat current " ") "")))
               (dolist (entry table)
                 (pcase entry
                   ;; Description.
                   (`(,(and key (pred (string-match re))) ,desc)
                    (let ((k (match-string 1 key)))
                      (push k des-keys)
                      ;; Keys ending in tab, space or RET are equivalent.
                      (if (member k tab-alternatives)
                          (push "\t" allowed-keys)
                        (push k allowed-keys))
                      (insert (propertize prefix 'face 'font-lock-comment-face)
                      ↪  (propertize k 'face 'bold) (propertize "›" 'face
                      ↪  'font-lock-comment-face) "  " desc "…" "\n")))
                   ;; Usable entry.
                   (`(,(and key (pred (string-match re))) ,desc . ,_)
                    (let ((k (match-string 1 key)))
                      (insert (propertize prefix 'face 'font-lock-comment-face)
                      ↪  (propertize k 'face 'bold) "   " desc "\n")
                      (push k allowed-keys)))
                   (_ nil))))
             ;; Insert special entries, if any.
             (when specials
               (insert "————————————————————————\n")
               (pcase-dolist (`(,key ,description) specials)
                 (insert (format "%s   %s\n" (propertize key 'face '(bold
                 ↪  all-the-icons-red)) description))
                 (push key allowed-keys)))
             ;; Display UI and let user select an entry or
             ;; a sub-level prefix.
             (goto-char (point-min))
             (unless (pos-visible-in-window-p (point-max))
               (org-fit-window-to-buffer))
             (let ((pressed (org--mks-read-key allowed-keys prompt nil)))
               (setq current (concat current pressed))
               (cond
                ((equal pressed "\C-g") (user-error "Abort"))
                ((equal pressed "ESC") (user-error "Abort"))
                ;; Selection is a prefix: open a new menu.
                ((member pressed des-keys))
                ;; Selection matches an association: return it.
                ((let ((entry (assoc current table)))
                   (and entry (throw 'exit entry))))
                ;; Selection matches a special entry: return the
                ;; selection prefix.
                ((assoc current specials) (throw 'exit current))
                (t (error "No entry available")))))))
       (when buffer (kill-buffer buffer))))))
(advice-add 'org-mks :override #'org-mks-pretty)
```

The org-capture bin is rather nice, but I'd be nicer with a smaller frame, and no modeline.

```
(setf (alist-get 'height +org-capture-frame-parameters) 15)
(setq +org-capture-fn
      (lambda ()
        (interactive)
        (set-window-parameter nil 'mode-line-format 'none)
        (org-capture)))
```

Sprinkle in some `doct` utility functions

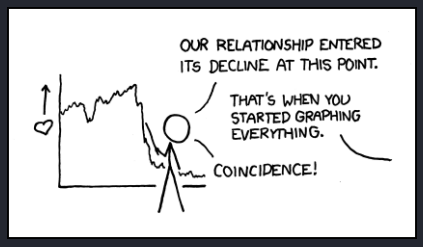
```
(defun +doct-icon-declaration-to-icon (declaration)
  "Convert :icon declaration to icon"
  (let ((name (pop declaration))
        (set  (intern (concat "all-the-icons-" (plist-get declaration :set))))
        (face (intern (concat "all-the-icons-" (plist-get declaration :color))))
        (v-adjust (or (plist-get declaration :v-adjust) 0.01)))
    (apply set `(,name :face ,face :v-adjust ,v-adjust))))

(defun +doct-iconify-capture-templates (groups)
  "Add declaration's :icon to each template group in GROUPS."
  (let ((templates (doct-flatten-lists-in groups)))
    (setq doct-templates (mapcar (lambda (template)
                                   (when-let* ((props (nthcdr (if (= (length template)
                                   ↪  4) 2 5) template))
                                               (spec (plist-get (plist-get props :doct)
                                                ↪  :icon)))
                                     (setf (nth 1 template) (concat
                                     ↪  (+doct-icon-declaration-to-icon spec)
                                                                    "\t"
                                                                   (nth 1 template))))
                                   template)
                                 templates))))

(setq doct-after-conversion-functions '(+doct-iconify-capture-templates))
```

6.4.2 Templates

```
(setq org-capture-templates
      (doct `(("Home" :keys "h"
               :icon ("home" :set "octicon" :color "cyan")
               :file "Home.org"
               :prepend t
               :headline "Inbox"
               :template ("* TODO %?"
                          "%i %a"))
              ("Work" :keys "w"
               :icon ("business" :set "material" :color "yellow")
               :file "Work.org"
               :prepend t
               :headline "Inbox"
               :template ("* TODO %?"
```

```
                "SCHEDULED: %^{Schedule:}t"
                "DEADLINE: %^{Deadline:}t"
                "%i %a"))
        ("Note" :keys "n"
         :icon ("sticky-note" :set "faicon" :color "yellow")
         :file "Notes.org"
         :template ("* *?"
                "%i %a"))
        ("Project" :keys "p"
         :icon ("repo" :set "octicon" :color "silver")
         :prepend t
         :type entry
         :headline "Inbox"
         :template ("* %{keyword} %?"
                "%i"
                "%a")
         :file ""
         :custom (:keyword "")
         :children (("Task" :keys "t"
                     :icon ("checklist" :set "octicon" :color "green")
                     :keyword "TODO"
                     :file +org-capture-project-todo-file)
                    ("Note" :keys "n"
                     :icon ("sticky-note" :set "faicon" :color "yellow")
                     :keyword "%U"
                     :file +org-capture-project-notes-file)))
        )))
```

6.5 ORG Plot



Decline 'There's also a spike on the Fourier transform at the one-month mark where –' 'You want to stop talking right now.'

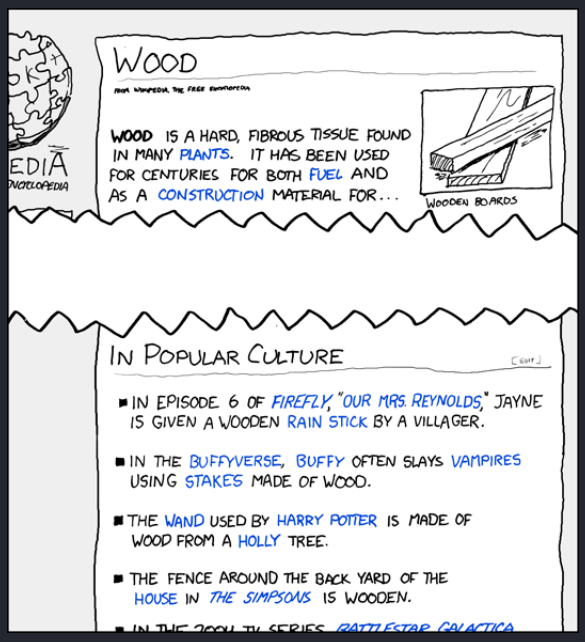
You can't ever have too many graphs! Lets make it look prettier, and tell it to use the doom theme colors

```
(after! org-plot
  (defun org-plot/generate-theme (_type)
    "Use the current Doom theme colours to generate a GnuPlot preamble."
```

```
(format "
    fgt = \"textcolor rgb '%s'\" # foreground text
    fgat = \"textcolor rgb '%s'\" # foreground alt text
    fgl = \"linecolor rgb '%s'\" # foreground line
    fgal = \"linecolor rgb '%s'\" # foreground alt line
    # foreground colors
    set border lc rgb '%s'
    # change text colors of  tics
    set xtics @fgt
    set ytics @fgt
    # change text colors of labels
    set title @fgt
    set xlabel @fgt
    set ylabel @fgt
    # change a text color of key
    set key @fgt
    # line styles
    set linetype 1 lw 2 lc rgb '%s' # red
    set linetype 2 lw 2 lc rgb '%s' # blue
    set linetype 3 lw 2 lc rgb '%s' # green
    set linetype 4 lw 2 lc rgb '%s' # magenta
    set linetype 5 lw 2 lc rgb '%s' # orange
    set linetype 6 lw 2 lc rgb '%s' # yellow
    set linetype 7 lw 2 lc rgb '%s' # teal
    set linetype 8 lw 2 lc rgb '%s' # violet
    # border styles
    set tics out nomirror
    set border 3
    # palette
    set palette maxcolors 8
    set palette defined ( 0 '%s',\
    1 '%s',\
    2 '%s',\
    3 '%s',\
    4 '%s',\
    5 '%s',\
    6 '%s',\
    7 '%s' )
    "
        (doom-color 'fg)
        (doom-color 'fg-alt)
        (doom-color 'fg)
        (doom-color 'fg-alt)
        (doom-color 'fg)
        ;; colours
        (doom-color 'red)
        (doom-color 'blue)
        (doom-color 'green)
        (doom-color 'magenta)
        (doom-color 'orange)
        (doom-color 'yellow)
        (doom-color 'teal)
        (doom-color 'violet)
```

```
          ;; duplicated
          (doom-color 'red)
          (doom-color 'blue)
          (doom-color 'green)
          (doom-color 'magenta)
          (doom-color 'orange)
          (doom-color 'yellow)
          (doom-color 'teal)
          (doom-color 'violet)
          ))
(defun org-plot/gnuplot-term-properties (_type)
  (format "background rgb '%s' size 1050,650"
          (doom-color 'bg)))
(setq org-plot/gnuplot-script-preamble #'org-plot/generate-theme)
(setq org-plot/gnuplot-term-extra #'org-plot/gnuplot-term-properties))
```

6.6 XKCD



In Popular Culture Someday the 'in popular culture' section will have its own article with an 'in popular culture' section. It will reference this title-text referencing it, and the blogosphere will implode.

Relevent XKCD:

I link to xkcd's so much that its better to just have a configuration for them We want to set this up so it loads nicely in org.

```
(use-package! xkcd
  :commands (xkcd-get-json
             xkcd-download xkcd-get
             ;; now for funcs from my extension of this pkg
             +xkcd-find-and-copy +xkcd-find-and-view
             +xkcd-fetch-info +xkcd-select)
  :config
  (setq xkcd-cache-dir (expand-file-name "xkcd/" doom-cache-dir)
        xkcd-cache-latest (concat xkcd-cache-dir "latest"))
  (unless (file-exists-p xkcd-cache-dir)
    (make-directory xkcd-cache-dir))
  (after! evil-snipe
    (add-to-list 'evil-snipe-disabled-modes 'xkcd-mode))
  :general (:states 'normal
            :keymaps 'xkcd-mode-map
            "<right>" #'xkcd-next
            "n"       #'xkcd-next ; evil-ish
            "<left>"  #'xkcd-prev
            "N"       #'xkcd-prev ; evil-ish
            "r"       #'xkcd-rand
            "a"       #'xkcd-rand ; because image-rotate can interfere
            "t"       #'xkcd-alt-text
            "q"       #'xkcd-kill-buffer
            "o"       #'xkcd-open-browser
            "e"       #'xkcd-open-explanation-browser
            ;; extras
            "s"       #'+xkcd-find-and-view
            "/"       #'+xkcd-find-and-view
            "y"       #'+xkcd-copy))
```

Let's also extend the functionality a whole bunch.

```
(after! xkcd
  (require 'emacsql-sqlite)

  (defun +xkcd-select ()
    "Prompt the user for an xkcd using `completing-read' and `+xkcd-select-format'.
    ↪  Return the xkcd number or nil"
    (let* (prompt-lines
           (-dummy (maphash (lambda (key xkcd-info)
                              (push (+xkcd-select-format xkcd-info) prompt-lines))
                            +xkcd-stored-info))
           (num (completing-read (format "xkcd (%s): " xkcd-latest) prompt-lines)))
      (if (equal "" num) xkcd-latest
        (string-to-number (replace-regexp-in-string "\\([0-9]+\\).*" "\\1" num)))))

  (defun +xkcd-select-format (xkcd-info)
    "Creates each completing-read line from an xkcd info plist. Must start with the
    ↪  xkcd number"
    (format "%-4s  %-30s %s"
            (propertize (number-to-string (plist-get xkcd-info :num))
                        'face 'counsel-key-binding)
            (plist-get xkcd-info :title)
```

```
          (propertize (plist-get xkcd-info :alt)
                      'face '(variable-pitch font-lock-comment-face))))

(defun +xkcd-fetch-info (&optional num)
  "Fetch the parsed json info for comic NUM. Fetches latest when omitted or 0"
  (require 'xkcd)
  (when (or (not num) (= num 0))
    (+xkcd-check-latest)
    (setq num xkcd-latest))
  (let ((res (or (gethash num +xkcd-stored-info)
                 (puthash num (+xkcd-db-read num) +xkcd-stored-info))))
    (unless res
      (+xkcd-db-write
       (let* ((url (format "https://xkcd.com/%d/info.0.json" num))
              (json-assoc
               (if (gethash num +xkcd-stored-info)
                   (gethash num +xkcd-stored-info)
                 (json-read-from-string (xkcd-get-json url num)))))
         json-assoc))
      (setq res (+xkcd-db-read num)))
    res))

;; since we've done this, we may as well go one little step further
(defun +xkcd-find-and-copy ()
  "Prompt for an xkcd using `+xkcd-select' and copy url to clipboard"
  (interactive)
  (+xkcd-copy (+xkcd-select)))

(defun +xkcd-copy (&optional num)
  "Copy a url to xkcd NUM to the clipboard"
  (interactive "i")
  (let ((num (or num xkcd-cur)))
    (gui-select-text (format "https://xkcd.com/%d" num))
    (message "xkcd.com/%d copied to clipboard" num)))

(defun +xkcd-find-and-view ()
  "Prompt for an xkcd using `+xkcd-select' and view it"
  (interactive)
  (xkcd-get (+xkcd-select))
  (switch-to-buffer "*xkcd*"))

(defvar +xkcd-latest-max-age (* 60 60) ; 1 hour
  "Time after which xkcd-latest should be refreshed, in seconds")

;; initialise `xkcd-latest' and `+xkcd-stored-info' with latest xkcd
(add-transient-hook! '+xkcd-select
  (require 'xkcd)
  (+xkcd-fetch-info xkcd-latest)
  (setq +xkcd-stored-info (+xkcd-db-read-all)))

(add-transient-hook! '+xkcd-fetch-info
  (xkcd-update-latest))
```

```
(defun +xkcd-check-latest ()
  "Use value in `xkcd-cache-latest' as long as it isn't older thabn
  ↪  `+xkcd-latest-max-age'"
  (unless (and (file-exists-p xkcd-cache-latest)
               (< (- (time-to-seconds (current-time))
                     (time-to-seconds (file-attribute-modification-time
                     ↪  (file-attributes xkcd-cache-latest))))
                  +xkcd-latest-max-age))
    (let* ((out (xkcd-get-json "http://xkcd.com/info.0.json" 0))
           (json-assoc (json-read-from-string out))
           (latest (cdr (assoc 'num json-assoc))))
      (when (/= xkcd-latest latest)
        (+xkcd-db-write json-assoc)
        (with-current-buffer (find-file xkcd-cache-latest)
          (setq xkcd-latest latest)
          (erase-buffer)
          (insert (number-to-string latest))
          (save-buffer)
          (kill-buffer (current-buffer)))))
    (shell-command (format "touch %s" xkcd-cache-latest))))

(defvar +xkcd-stored-info (make-hash-table :test 'eql)
  "Basic info on downloaded xkcds, in the form of a hashtable")

(defadvice! xkcd-get-json--and-cache (url &optional num)
  "Fetch the Json coming from URL.
      If the file NUM.json exists, use it instead.
      If NUM is 0, always download from URL.
      The return value is a string."
  :override #'xkcd-get-json
  (let* ((file (format "%s%d.json" xkcd-cache-dir num))
         (cached (and (file-exists-p file) (not (eq num 0))))
         (out (with-current-buffer (if cached
                                       (find-file file)
                                     (url-retrieve-synchronously url))
                (goto-char (point-min))
                (unless cached (re-search-forward "^$"))
                (prog1
                    (buffer-substring-no-properties (point) (point-max))
                  (kill-buffer (current-buffer))))))
    (unless (or cached (eq num 0))
      (xkcd-cache-json num out))
    out))

(defadvice! +xkcd-get (num)
  "Get the xkcd number NUM."
  :override 'xkcd-get
  (interactive "nEnter comic number: ")
  (xkcd-update-latest)
  (get-buffer-create "*xkcd*")
  (switch-to-buffer "*xkcd*")
  (xkcd-mode)
  (let (buffer-read-only)
```

```
    (erase-buffer)
    (setq xkcd-cur num)
    (let* ((xkcd-data (+xkcd-fetch-info num))
           (num (plist-get xkcd-data :num))
           (img (plist-get xkcd-data :img))
           (safe-title (plist-get xkcd-data :safe-title))
           (alt (plist-get xkcd-data :alt))
           title file)
      (message "Getting comic...")
      (setq file (xkcd-download img num))
      (setq title (format "%d: %s" num safe-title))
      (insert (propertize title
                          'face 'outline-1))
      (center-line)
      (insert "\n")
      (xkcd-insert-image file num)
      (if (eq xkcd-cur 0)
          (setq xkcd-cur num))
      (setq xkcd-alt alt)
      (message "%s" title))))

(defconst +xkcd-db--sqlite-available-p
  (with-demoted-errors "+org-xkcd initialization: %S"
    (emacsql-sqlite-ensure-binary)
    t))

(defvar +xkcd-db--connection (make-hash-table :test #'equal)
  "Database connection to +org-xkcd database.")

(defun +xkcd-db--get ()
  "Return the sqlite db file."
  (expand-file-name "xkcd.db" xkcd-cache-dir))

(defun +xkcd-db--get-connection ()
  "Return the database connection, if any."
  (gethash (file-truename xkcd-cache-dir)
           +xkcd-db--connection))

(defconst +xkcd-db--table-schema
  '((xkcds
     [(num integer :unique :primary-key)
      (year        :not-null)
      (month       :not-null)
      (link        :not-null)
      (news        :not-null)
      (safe_title  :not-null)
      (title       :not-null)
      (transcript  :not-null)
      (alt         :not-null)
      (img         :not-null)])))

(defun +xkcd-db--init (db)
  "Initialize database DB with the correct schema and user version."
```

```
  (emacsql-with-transaction db
    (pcase-dolist (`(,table . ,schema) +xkcd-db--table-schema)
      (emacsql db [:create-table $i1 $S2] table schema))))

(defun +xkcd-db ()
  "Entrypoint to the +org-xkcd sqlite database.
     Initializes and stores the database, and the database connection.
     Performs a database upgrade when required."
  (unless (and (+xkcd-db--get-connection)
               (emacsql-live-p (+xkcd-db--get-connection)))
    (let* ((db-file (+xkcd-db--get))
           (init-db (not (file-exists-p db-file))))
      (make-directory (file-name-directory db-file) t)
      (let ((conn (emacsql-sqlite db-file)))
        (set-process-query-on-exit-flag (emacsql-process conn) nil)
        (puthash (file-truename xkcd-cache-dir)
                 conn
                 +xkcd-db--connection)
        (when init-db
          (+xkcd-db--init conn)))))
  (+xkcd-db--get-connection))

(defun +xkcd-db-query (sql &rest args)
  "Run SQL query on +org-xkcd database with ARGS.
     SQL can be either the emacsql vector representation, or a string."
  (if  (stringp sql)
      (emacsql (+xkcd-db) (apply #'format sql args))
    (apply #'emacsql (+xkcd-db) sql args)))

(defun +xkcd-db-read (num)
  (when-let ((res
              (car (+xkcd-db-query [:select * :from xkcds
                                    :where (= num $s1)]
                                   num
                                   :limit 1))))
    (+xkcd-db-list-to-plist res)))

(defun +xkcd-db-read-all ()
  (let ((xkcd-table (make-hash-table :test 'eql :size 4000)))
    (mapcar (lambda (xkcd-info-list)
              (puthash (car xkcd-info-list) (+xkcd-db-list-to-plist xkcd-info-list)
              ↪  xkcd-table))
            (+xkcd-db-query [:select * :from xkcds]))
    xkcd-table))

(defun +xkcd-db-list-to-plist (xkcd-datalist)
  `(:num ,(nth 0 xkcd-datalist)
    :year ,(nth 1 xkcd-datalist)
    :month ,(nth 2 xkcd-datalist)
    :link ,(nth 3 xkcd-datalist)
    :news ,(nth 4 xkcd-datalist)
    :safe-title ,(nth 5 xkcd-datalist)
    :title ,(nth 6 xkcd-datalist)
```

```
      :transcript ,(nth 7 xkcd-datalist)
      :alt ,(nth 8 xkcd-datalist)
      :img ,(nth 9 xkcd-datalist)))

  (defun +xkcd-db-write (data)
    (+xkcd-db-query [:insert-into xkcds
                     :values $v1]
                    (list (vector
                           (cdr (assoc 'num        data))
                           (cdr (assoc 'year       data))
                           (cdr (assoc 'month      data))
                           (cdr (assoc 'link       data))
                           (cdr (assoc 'news       data))
                           (cdr (assoc 'safe_title data))
                           (cdr (assoc 'title      data))
                           (cdr (assoc 'transcript data))
                           (cdr (assoc 'alt        data))
                           (cdr (assoc 'img        data))
                           )))))
```

Now to just have this register with org

```
(after! org
  (org-link-set-parameters "xkcd"
                           :image-data-fun #'+org-xkcd-image-fn
                           :follow #'+org-xkcd-open-fn
                           :export #'+org-xkcd-export
                           :complete #'+org-xkcd-complete)

  (defun +org-xkcd-open-fn (link)
    (+org-xkcd-image-fn nil link nil))

  (defun +org-xkcd-image-fn (protocol link description)
    "Get image data for xkcd num LINK"
    (let* ((xkcd-info (+xkcd-fetch-info (string-to-number link)))
           (img (plist-get xkcd-info :img))
           (alt (plist-get xkcd-info :alt)))
      (message alt)
      (+org-image-file-data-fn protocol (xkcd-download img (string-to-number link))
      ↪  description)))

  (defun +org-xkcd-export (num desc backend _com)
    "Convert xkcd to html/LaTeX form"
    (let* ((xkcd-info (+xkcd-fetch-info (string-to-number num)))
           (img (plist-get xkcd-info :img))
           (alt (plist-get xkcd-info :alt))
           (title (plist-get xkcd-info :title))
           (file (xkcd-download img (string-to-number num))))
      (cond ((org-export-derived-backend-p backend 'html)
             (format "<img class='invertible' src='%s' title=\"%s\" alt='%s'>" img
             ↪  (subst-char-in-string ?\" ?“ alt) title))
            ((org-export-derived-backend-p backend 'latex)
```

```
            (format "\\begin{figure}[!htb]
                    \\centering
                    \\includegraphics[scale=0.4]{%s}%s
                  \\end{figure}" file (if (equal desc (format "xkcd:%s" num)) ""
                      (format "\n  \\caption*{\\label{xkcd:%s} %s}"
                              num
                              (or desc
                                  (format "\\textbf{%s} %s" title alt))))))
           (t (format "https://xkcd.com/%s" num)))))

  (defun +org-xkcd-complete (&optional arg)
    "Complete xkcd using `+xkcd-stored-info'"
    (format "xkcd:%d" (+xkcd-select))))
```

6.7 View Exported File

I have to export files pretty often, lets setup some keybindings to make it easier

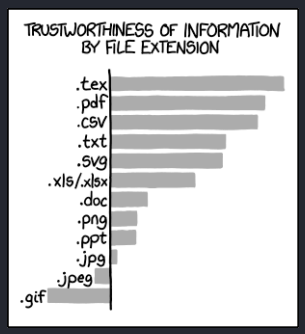
```
(map! :map org-mode-map
      :localleader
      :desc "View exported file" "v" #'org-view-output-file)

(defun org-view-output-file (&optional org-file-path)
  "Visit buffer open on the first output file (if any) found, using
  ↪  `org-view-output-file-extensions'"
  (interactive)
  (let* ((org-file-path (or org-file-path (buffer-file-name) ""))
         (dir (file-name-directory org-file-path))
         (basename (file-name-base org-file-path))
         (output-file nil))
    (dolist (ext org-view-output-file-extensions)
      (unless output-file
        (when (file-exists-p
               (concat dir basename "." ext))
          (setq output-file (concat dir basename "." ext)))))
    (if output-file
        (if (member (file-name-extension output-file)
        ↪  org-view-external-file-extensions)
            (browse-url-xdg-open output-file)
          (pop-to-bufferpop-to-buffer (or (find-buffer-visiting output-file)
                                  (find-file-noselect output-file))))
      (message "No exported file found"))))

(defvar org-view-output-file-extensions '("pdf" "md" "rst" "txt" "tex" "html")
  "Search for output files with these extensions, in order, viewing the first that
  ↪  matches")
(defvar org-view-external-file-extensions '("html")
  "File formats that should be opened externally.")
```

6.8 Dictionaries

Lets use lexic instead of the default dictionary

```
(use-package! lexic
  :commands lexic-search lexic-list-dictionary
  :config
  (map! :map lexic-mode-map
        :n "q" #'lexic-return-from-lexic
        :nv "RET" #'lexic-search-word-at-point
        :n "a" #'outline-show-all
        :n "h" (cmd! (outline-hide-sublevels 3))
        :n "o" #'lexic-toggle-entry
        :n "n" #'lexic-next-entry
        :n "N" (cmd! (lexic-next-entry t))
        :n "p" #'lexic-previous-entry
        :n "P" (cmd! (lexic-previous-entry t))
        :n "E" (cmd! (lexic-return-from-lexic) ; expand
                     (switch-to-buffer (lexic-get-buffer)))
        :n "M" (cmd! (lexic-return-from-lexic) ; minimise
                     (lexic-goto-lexic))
        :n "C-p" #'lexic-search-history-backwards
        :n "C-n" #'lexic-search-history-forwards
        :n "/" (cmd! (call-interactively #'lexic-search))))

(defadvice! +lookup/dictionary-definition-lexic (identifier &optional arg)
  "Look up the definition of the word at point (or selection) using `lexic-search'."
  :override #'+lookup/dictionary-definition
  (interactive
   (list (or (doom-thing-at-point-or-region 'word)
             (read-string "Look up in dictionary: "))
         current-prefix-arg))
  (lexic-search identifier nil nil t))
```

7 Latex



File Extensions I have never been lied to by data in a .txt file which has been hand-aligned.

I have a love-hate relationship with latex. Its extremely powerful, but at the same time its hard to write, hard to understand, and very slow. The solution: write everything in org and then export it to tex. Best of both worlds!

7.1 Basic configuration

First of all, lets use pdf-tools to preview pdfs by defaults

```
(setq +latex-viewers '(pdf-tools evince zathura okular skim sumatrapdf))
```

I also want to adjust the look of those previews

```
(after! org
  (setq org-highlight-latex-and-related '(native script entities))
  (add-to-list 'org-src-block-faces '("latex" (:inherit default :extend t))))

(after! org
  (plist-put org-format-latex-options :background "Transparent"))
```

Lets add cdlatex org mode integration

```
(after! org
  (add-hook 'org-mode-hook 'turn-on-org-cdlatex))

(defadvice! org-edit-latex-emv-after-insert ()
  :after #'org-cdlatex-environment-indent
  (org-edit-latex-environment))
```

I like to preview images inline too

```
(setq org-display-inline-images t)
(setq org-redisplay-inline-images t)
(setq org-startup-with-inline-images "inlineimages")
```

Obviously we can't edit a png though. Let use org-fragtog to toggle between previews and text mode

```
(use-package! org-fragtog
  :hook (org-mode . org-fragtog-mode))
```

Here's just my private LaTeX config.

```
(setq org-format-latex-header "\\documentclass{article}
    \\usepackage[usenames]{xcolor}
    \\usepackage[T1]{fontenc}
    \\usepackage{booktabs}
    \\pagestyle{empty}             % do not remove
    % The settings below are copied from fullpage.sty
    \\setlength{\\textwidth}{\\paperwidth}
    \\addtolength{\\textwidth}{-3cm}
    \\setlength{\\oddsidemargin}{1.5cm}
    \\addtolength{\\oddsidemargin}{-2.54cm}
    \\setlength{\\evensidemargin}{\\oddsidemargin}
    \\setlength{\\textheight}{\\paperheight}
    \\addtolength{\\textheight}{-\\headheight}
    \\addtolength{\\textheight}{-\\headsep}
    \\addtolength{\\textheight}{-\\footskip}
    \\addtolength{\\textheight}{-3cm}
    \\setlength{\\topmargin}{1.5cm}
    \\addtolength{\\topmargin}{-2.54cm}
    ")
```

7.2 PDF-Tools

DocView gives me a headache, but pdf-tools can be improved, lets configure it a little more

```
(use-package pdf-view
  :hook (pdf-tools-enabled . pdf-view-themed-minor-mode)
  :hook (pdf-tools-enabled . hide-mode-line-mode)
  :config
  (setq pdf-view-resize-factor 1.1)
  (setq-default pdf-view-display-size 'fit-page))
```

7.3 Export

7.3.1 Conditional features

```
(defvar org-latex-italic-quotes t
  "Make \"quote\" environments italic.")
(defvar org-latex-par-sep t
  "Vertically seperate paragraphs, and remove indentation.")

(defvar org-latex-conditional-features

  ↪  '(("\\[\\[\\(?:file\\|https?\\):\\(?:[^]]\\|\\\\\\]\\)+?\\.\\(?:eps\\|pdf\\|png\\|jpeg\\|jpg\\|jbig2
  ↪  . image)
    ("\\[\\[\\(?:file\\|https?\\):\\(?:[^]]+?\\|\\\\\\]\\)\\.svg\\]\\]" . svg)
    ("^[ \t]*|" . table)
```

```
    ("cref:\\|\\cref{\\|\\[\\[[^\\]]+\\]\\]" . cleveref)
    ("[;\\\\]?\\b[A-Z][A-Z]+s?[^A-Za-z]" . acronym)
    ("\\+[^ ].*[^ ]\\+\\|_[^ ].*[^
    ↪  ]_\\|\\\\uu?line\\|\\\\uwave\\|\\\\sout\\|\\\\xout\\|\\\\dashuline\\|\\dotuline\\|\\markoverwith"
    ↪  . underline)
    (":float wrap" . float-wrap)
    (":float sideways" . rotate)
    ("^[ \t]*#\\+caption:\\|\\\\caption" . caption)
    ("\\[\\[xkcd:" . (image caption))
    ((and org-latex-italic-quotes "^[ \t]*#\\+begin_quote\\|\\\\begin{quote}") .
    ↪  italic-quotes)
    (org-latex-par-sep . par-sep)
    ("^[ \t]*\\(?:[-+*]\\|[0-9]+[.)]\\|[A-Za-z]+[.)]\\) \\[[ -X]\\]" . checkbox)
    ("^[ \t]*#\\+begin_warning\\|\\\\begin{warning}" . box-warning)
    ("^[ \t]*#\\+begin_info\\|\\\\begin{info}"       . box-info)
    ("^[ \t]*#\\+begin_success\\|\\\\begin{success}" . box-success)
    ("^[ \t]*#\\+begin_error\\|\\\\begin{error}"     . box-error))
  "Org feature tests and associated LaTeX feature flags.
     Alist where the car is a test for the presense of the feature,
     and the cdr is either a single feature symbol or list of feature symbols.
     When a string, it is used as a regex search in the buffer.
     The feature is registered as present when there is a match.
     The car can also be a
     - symbol, the value of which is fetched
     - function, which is called with info as an argument
     - list, which is `eval'uated
     If the symbol, function, or list produces a string: that is used as a regex
     search in the buffer. Otherwise any non-nil return value will indicate the
     existance of the feature.")
```

```
(defvar org-latex-caption-preamble "
    \\usepackage{subcaption}
    \\usepackage[hypcap=true]{caption}
    \\setkomafont{caption}{\\sffamily\\small}
    \\setkomafont{captionlabel}{\\upshape\\bfseries}
    \\captionsetup{justification=raggedright,singlelinecheck=true}
    \\usepackage{capt-of} % required by Org
    "
  "Preamble that improves captions.")

(defvar org-latex-checkbox-preamble "
    \\newcommand{\\checkboxUnchecked}{$\\square$}
    \\newcommand{\\checkboxTransitive}{\\rlap{\\raisebox{-
    0.1ex}{\\hspace{0.35ex}\\Large\\textbf
    -}}$\\square$}
    \\newcommand{\\checkboxChecked}{\\rlap{\\raisebox{0.2ex}{\\hspace{0.35ex}\\scriptsize
    \\ding{52}}}$\\square$}
    "
  "Preamble that improves checkboxes.")
```

```
(defvar org-latex-box-preamble "
    % args = #1 Name, #2 Colour, #3 Ding, #4 Label
    \\newcommand{\\defsimplebox}[4]{%
      \\definecolor{#1}{HTML}{#2}
      \\newenvironment{#1}[1][]
      {%
        \\par\\vspace{-0.7\\baselineskip}%
        \\textcolor{#1}{#3}
    \\textcolor{#1}{\\textbf{\\def\\temp{##1}\\ifx\\temp\\empty#4\\else##1\\fi}}%
        \\vspace{-0.8\\baselineskip}
        \\begin{addmargin}[1em]{1em}
      }{%
        \\end{addmargin}
        \\vspace{-0.5\\baselineskip}
      }%
    }
    "
  "Preamble that provides a macro for custom boxes.")
```

```
(defvar org-latex-feature-implementations
  '((image         :snippet "\\usepackage{graphicx}" :order 2)
    (svg           :snippet "\\usepackage{svg}" :order 2)
    (table         :snippet "\\usepackage{longtable}\n\\usepackage{booktabs}" :order 2)
    (cleveref      :snippet "\\usepackage[capitalize]{cleveref}" :order 1)
    (underline     :snippet "\\usepackage[normalem]{ulem}" :order 0.5)
    (float-wrap    :snippet "\\usepackage{wrapfig}" :order 2)
    (rotate        :snippet "\\usepackage{rotating}" :order 2)
    (caption       :snippet org-latex-caption-preamble :order 2.1)
    (acronym       :snippet "\\newcommand{\\acr}[1]{\\protect\\textls*[110]{\\scshape
    ↪  #1}}\n\\newcommand{\\acrs}{\\protect\\scalebox{.91}[.84]\\hspace{0.15ex}s}"
    ↪  :order 0.4)
    (italic-quotes :snippet "\\renewcom-
    ↪  mand{\\quote}{\\list{}{\\rightmargin\\leftmargin}\\item\\relax\\em}\n" :order
    ↪  0.5)
    (par-sep       :snippet
    ↪  "\\setlength{\\parskip}{\\baselineskip}\n\\setlength{\\parindent}{0pt}\n"
    ↪  :order 0.5)
    (.pifont       :snippet "\\usepackage{pifont}")
    (checkbox      :requires .pifont :order 3
                   :snippet (concat (unless (memq 'maths features)
                                      "\\usepackage{amssymb} % provides \\square")
                                    org-latex-checkbox-preamble))
    (.fancy-box    :requires .pifont    :snippet org-latex-box-preamble :order 3.9)
    (box-warning   :requires .fancy-box :snippet
    ↪  "\\defsimplebox{warning}{e66100}{\\ding{68}}{Warning}" :order 4)
    (box-info      :requires .fancy-box :snippet
    ↪  "\\defsimplebox{info}{3584e4}{\\ding{68}}{Information}" :order 4)
    (box-success   :requires .fancy-box :snippet
    ↪  "\\defsimplebox{success}{26a269}{\\ding{68}}{\\vspace{-\\baselineskip}}"
    ↪  :order 4)
    (box-error     :requires .fancy-box :snippet
    ↪  "\\defsimplebox{error}{c01c28}{\\ding{68}}{Important}" :order 4))
```

```
  "LaTeX features and details required to implement them.
     List where the car is the feature symbol, and the rest forms a plist with the
     following keys:
     - :snippet, which may be either
       - a string which should be included in the preamble
       - a symbol, the value of which is included in the preamble
       - a function, which is evaluated with the list of feature flags as its
         single argument. The result of which is included in the preamble
       - a list, which is passed to `eval', with a list of feature flags available
         as \"features\"
     - :requires, a feature or list of features that must be available
     - :when, a feature or list of features that when all available should cause this
         to be automatically enabled.
     - :prevents, a feature or list of features that should be masked
     - :order, for when ordering is important. Lower values appear first.
         The default is 0.
     Features that start with ! will be eagerly loaded, i.e. without being detected.")
```

```
(defun org-latex-detect-features (&optional buffer info)
  "List features from `org-latex-conditional-features' detected in BUFFER."
  (let ((case-fold-search nil))
    (with-current-buffer (or buffer (current-buffer))
      (delete-dups
       (mapcan (lambda (construct-feature)
                 (when (let ((out (pcase (car construct-feature)
                                    ((pred stringp) (car construct-feature))
                                    ((pred functionp) (funcall (car construct-feature)
                                    ↪  info))
                                    ((pred listp) (eval (car construct-feature)))
                                    ((pred symbolp) (symbol-value (car
                                    ↪  construct-feature)))
                                    (_ (user-error "org-latex-conditional-features key
                                    ↪  %s unable to be used" (car
                                    ↪  construct-feature))))))
                         (if (stringp out)
                             (save-excursion
                               (goto-char (point-min))
                               (re-search-forward out nil t))
                           out))
                   (if (listp (cdr construct-feature)) (cdr construct-feature) (list
                   ↪  (cdr construct-feature)))))
               org-latex-conditional-features)))))
```

```
(defun org-latex-expand-features (features)
  "For each feature in FEATURES process :requires, :when, and :prevents keywords and
  ↪  sort according to :order."
  (dolist (feature features)
    (unless (assoc feature org-latex-feature-implementations)
      (error "Feature %s not provided in org-latex-feature-implementations" feature)))
  (setq current features)
  (while current
    (when-let ((requirements (plist-get (cdr (assq (car current)
    ↪  org-latex-feature-implementations)) :requires)))
```

```
    (setcdr current (if (listp requirements)
                        (append requirements (cdr current))
                      (cons requirements (cdr current)))))
  (setq current (cdr current)))
(dolist (potential-feature
         (append features (delq nil (mapcar (lambda (feat)
                                              (when (plist-get (cdr feat) :eager)
                                                (car feat)))
                                            org-latex-feature-implementations))))
  (when-let ((prerequisites (plist-get (cdr (assoc potential-feature
  ↪  org-latex-feature-implementations)) :when)))
    (setf features (if (if (listp prerequisites)
                           (cl-every (lambda (preq) (memq preq features)) prerequisites)
                         (memq prerequisites features))
                       (append (list potential-feature) features)
                     (delq potential-feature features)))))
(dolist (feature features)
  (when-let ((prevents (plist-get (cdr (assoc feature
  ↪  org-latex-feature-implementations)) :prevents)))
    (setf features (cl-set-difference features (if (listp prevents) prevents (list
    ↪  prevents))))))
(sort (delete-dups features)
      (lambda (feat1 feat2)
        (if (< (or (plist-get (cdr (assoc feat1 org-latex-feature-implementations))
        ↪  :order) 1)
               (or (plist-get (cdr (assoc feat2 org-latex-feature-implementations))
               ↪  :order) 1))
            t nil))))
```

```
(defun org-latex-generate-features-preamble (features)
  "Generate the LaTeX preamble content required to provide FEATURES.
     This is done according to `org-latex-feature-implementations'"
  (let ((expanded-features (org-latex-expand-features features)))
    (concat
     (format "\n%% features: %s\n" expanded-features)
     (mapconcat (lambda (feature)
                  (when-let ((snippet (plist-get (cdr (assoc feature
                  ↪  org-latex-feature-implementations)) :snippet)))
                    (concat
                     (pcase snippet
                       ((pred stringp) snippet)
                       ((pred functionp) (funcall snippet features))
                      ((pred listp) (eval `(let ((features ',features)) (,@snippet))))
                       ((pred symbolp) (symbol-value snippet))
                      (_ (user-error "org-latex-feature-implementations :snippet value
                      ↪  %s unable to be used" snippet)))
                     "\n")))
                expanded-features
                "")
     "% end features\n")))
```

```
(defvar info--tmp nil)

(defadvice! org-latex-save-info (info &optional t_ s_)
  :before #'org-latex-make-preamble
  (setq info--tmp info))

(defadvice! org-splice-latex-header-and-generated-preamble-a (orig-fn tpl def-pkg pkg
↪  snippets-p &optional extra)
  "Dynamically insert preamble content based on `org-latex-conditional-preambles'."
  :around #'org-splice-latex-header
  (let ((header (funcall orig-fn tpl def-pkg pkg snippets-p extra)))
    (if snippets-p header
      (concat header
              (org-latex-generate-features-preamble (org-latex-detect-features nil
              ↪  info--tmp))
              "\n"))))
```

7.3.2 Embed Externally Linked Images

I don't like to keep images downloaded to my laptop, it clutters up everything. Org has a handy feature where you can pass a link instead, and org will display it inline as usual.

HTML export handles this use case just fine, if the image isn't named then it will display the image. However, latex doesn't have support for this. What we do is instead of linking the image, we can have emacs download the linked image and export that!

```
(defadvice! +org-latex-link (orig-fn link desc info)
  "Acts as `org-latex-link', but supports remote images."
  :around #'org-latex-link
  (setq o-link link
        o-desc desc
        o-info info)
  (if (and (member (plist-get (cadr link) :type) '("http" "https"))
           (member (file-name-extension (plist-get (cadr link) :path))
                   '("png" "jpg" "jpeg" "pdf" "svg")))
      (org-latex-link--remote link desc info)
    (funcall orig-fn link desc info)))

(defun org-latex-link--remote (link _desc info)
  (let* ((url (plist-get (cadr link) :raw-link))
         (ext (file-name-extension url))
         (target (format "%s%s.%s"
                         (temporary-file-directory)
                         (replace-regexp-in-string "[./]" "-"
                                                   (file-name-sans-extension (substring
                                                    ↪  (plist-get (cadr link) :path)
                                                    ↪  2)))
                         ext)))
    (unless (file-exists-p target)
```

```
      (url-copy-file url target))
    (setcdr link (--> (cadr link)
                      (plist-put it :type "file")
                      (plist-put it :path target)
                      (plist-put it :raw-link (concat "file:" target))
                      (list it)))
    (concat "% fetched from " url "\n"
            (org-latex--inline-image link info))))
```

7.3.3 LatexMK

Tectonic is the hot new thing, which also means I can get rid of my tex installation. Dependencies are nice and auto-installed, and I don't need to bother with ascii stuff

On the other hand, it still refuses to work with previews and just sucks with emacs overall. Back to LatexMK for me

```
(setq org-latex-pdf-process (list "latexmk -f -pdflatex='xelatex -shell-escape
↪  -interaction nonstopmode' -pdf -output-directory=%o %f"))

(setq xdvsvgm
        '(xdvsvgm
          :programs ("xelatex" "dvisvgm")
          :description "xdv > svg"
          :message "you need to install the programs: xelatex and dvisvgm."
          :use-xcolor t
          :image-input-type "xdv"
          :image-output-type "svg"
          :image-size-adjust (1.7 . 1.5)
          :latex-compiler ("xelatex -no-pdf -interaction nonstopmode -output-directory
          ↪  %o %f")
          :image-converter ("dvisvgm %f -n -b min -c %S -o %O")))

(after! org
    (add-to-list 'org-preview-latex-process-alist xdvsvgm)
    (setq org-format-latex-options
      (plist-put org-format-latex-options :scale 1.4))
    (setq org-preview-latex-default-process 'xdvsvgm))
```

Looks crisp!

$$f(x) = x^2$$
$$g(x) = \frac{1}{x}$$
$$F(x) = \int_b^a \frac{1}{3}x^3$$

1. Compilation

```
(setq TeX-save-query nil
      TeX-show-compilation t
      TeX-command-extra-options "-shell-escape")

(after! latex
  (add-to-list 'TeX-command-list '("XeLaTeX" "%`xelatex%(mode)%' %t" TeX-run-TeX
  ↪  nil t)))
```

7.3.4 Classes

Now for some class setup

```
(after! ox-latex
  (add-to-list 'org-latex-classes
               '("cb-doc" "\\documentclass{scrartcl}"
                 ("\\section{%s}" . "\\section*{%s}")
                 ("\\subsection{%s}" . "\\subsection*{%s}")
                 ("\\subsubsection{%s}" . "\\subsubsection*{%s}")
                 ("\\paragraph{%s}" . "\\paragraph*{%s}")
                 ("\\subparagraph{%s}" . "\\subparagraph*{%s}"))))
```

And some saner defaults for them

```
(after! ox-latex
  (setq org-latex-default-class "cb-doc"
        org-latex-tables-booktabs t
        org-latex-hyperref-template "\\colorlet{greenyblue}{blue!70!green}
            \\colorlet{blueygreen}{blue!40!green}
            \\providecolor{link}{named}{greenyblue}
            \\providecolor{cite}{named}{blueygreen}
            \\hypersetup{
              pdfauthor={%a},
              pdftitle={%t},
              pdfkeywords={%k},
              pdfsubject={%d},
              pdfcreator={%c},
              pdflang={%L},
              breaklinks=true,
              colorlinks=true,
              linkcolor=,
              urlcolor=link,
              citecolor=cite\n}
            \\urlstyle{same}
            "
        org-latex-reference-command "\\cref{%s}"))
```

7.3.5 Packages

Add some packages. I'm trying to keep it basic for now, Alegreya for non-monospace and SF-Mono for code

```
(setq org-latex-default-packages-alist
      `(("AUTO" "inputenc" t
         ("pdflatex"))
        ("T1" "fontenc" t
         ("pdflatex"))
        ("" "fontspec" t)
        ("" "graphicx" t)
        ("" "grffile" t)
        ("" "longtable" nil)
        ("" "wrapfig" nil)
        ("" "rotating" nil)
        ("normalem" "ulem" t)
        ("" "amsmath" t)
        ("" "textcomp" t)
        ("" "amssymb" t)
        ("" "capt-of" nil)
        ("dvipsnames" "xcolor" nil)
        ("colorlinks=true, linkcolor=Blue, citecolor=BrickRed, urlcolor=PineGreen"
        ↪  "hyperref" nil)
    ("" "indentfirst" nil)))
    ;; "\\setmainfont[Ligatures=TeX]{Alegreya}"
    ;; "\\setmonofont[Ligatures=TeX]{Liga SFMono Nerd Font}"))
```

7.3.6 Pretty code blocks

Teco is the goto for this, so basically just ripping off him. Engrave faces ftw

```
(use-package! engrave-faces-latex
  :after ox-latex
  :config
  (setq org-latex-listings 'engraved
        engrave-faces-preset-styles (engrave-faces-generate-preset)))
```

```
(defadvice! org-latex-src-block-engraved (orig-fn src-block contents info)
  "Like `org-latex-src-block', but supporting an engraved backend"
  :around #'org-latex-src-block
  (if (eq 'engraved (plist-get info :latex-listings))
      (org-latex-scr-block--engraved src-block contents info)
    (funcall orig-fn src-block contents info)))

(defadvice! org-latex-inline-src-block-engraved (orig-fn inline-src-block contents
↪  info)
  "Like `org-latex-inline-src-block', but supporting an engraved backend"
```

```
  :around #'org-latex-inline-src-block
  (if (eq 'engraved (plist-get info :latex-listings))
      (org-latex-inline-scr-block--engraved inline-src-block contents info)
    (funcall orig-fn src-block contents info)))

(defvar-local org-export-has-code-p nil)

(defadvice! org-export-expect-no-code (&rest _)
  :before #'org-export-as
  (setq org-export-has-code-p nil))

(defadvice! org-export-register-code (&rest _)
  :after #'org-latex-src-block-engraved
  :after #'org-latex-inline-src-block-engraved
  (setq org-export-has-code-p t))

(setq org-latex-engraved-code-preamble "
    \\usepackage{fvextra}
    \\fvset{
      commandchars=\\\\\\{\\},
      highlightcolor=white!95!black!80!blue,
      breaklines=true,
      breaksymbol=\\color{white!60!black}\\tiny\\ensuremath{\\hookrightarrow}}
    \\renewcommand\\theFancyVerbLine{\\footnotesize\\color{black!40!white}\\arabic{FancyVerbLine}}
    \\definecolor{codebackground}{HTML}{f7f7f7}
    \\definecolor{codeborder}{HTML}{f0f0f0}
    % TODO have code boxes keep line vertical alignment
    \\usepackage[breakable,xparse]{tcolorbox}
    \\DeclareTColorBox[]{Code}{o}%
    {colback=codebackground, colframe=codeborder,
      fontupper=\\footnotesize,
      colupper=EFD,
      IfNoValueTF={#1}%
      {boxsep=2pt, arc=2.5pt, outer arc=2.5pt,
        boxrule=0.5pt, left=2pt}%
      {boxsep=2.5pt, arc=0pt, outer arc=0pt,
        boxrule=0pt, leftrule=1.5pt, left=0.5pt},
      right=2pt, top=1pt, bottom=0.5pt,
      breakable}
    ")

(add-to-list 'org-latex-conditional-features '((and org-export-has-code-p "^[
↪  \t]*#\\+begin_src\\|^[ \t]*#\\+BEGIN_SRC\\|src_[A-Za-z]") . engraved-code) t)
(add-to-list 'org-latex-conditional-features '("^[ \t]*#\\+begin_example\\|^[
↪  \t]*#\\+BEGIN_EXAMPLE" . engraved-code-setup) t)
(add-to-list 'org-latex-feature-implementations '(engraved-code :requires
↪  engraved-code-setup :snippet (engrave-faces-latex-gen-preamble) :order 99) t)
(add-to-list 'org-latex-feature-implementations '(engraved-code-setup :snippet
↪  org-latex-engraved-code-preamble :order 98) t)

(defun org-latex-scr-block--engraved (src-block contents info)
  (let* ((lang (org-element-property :language src-block))
         (attributes (org-export-read-attribute :attr_latex src-block))
```

```
 (float (plist-get attributes :float))
 (num-start (org-export-get-loc src-block info))
 (retain-labels (org-element-property :retain-labels src-block))
 (caption (org-element-property :caption src-block))
 (caption-above-p (org-latex--caption-above-p src-block info))
 (caption-str (org-latex--caption/label-string src-block info))
(placement (or (org-unbracket-string "[" "]" (plist-get attributes :placement))
               (plist-get info :latex-default-figure-position)))
 (float-env
  (cond
   ((string= "multicolumn" float)
    (format "\\begin{listing*}[%s]\n%s%%s\n%s\\end{listing*}"
            placement
            (if caption-above-p caption-str "")
            (if caption-above-p "" caption-str)))
   (caption
    (format "\\begin{listing}[%s]\n%s%%s\n%s\\end{listing}"
            placement
            (if caption-above-p caption-str "")
            (if caption-above-p "" caption-str)))
   ((string= "t" float)
    (concat (format "\\begin{listing}[%s]\n"
                    placement)
            "%s\n\\end{listing}"))
   (t "%s")))
 (options (plist-get info :latex-minted-options))
 (content-buffer
  (with-temp-buffer
    (insert
     (let* ((code-info (org-export-unravel-code src-block))
            (max-width
             (apply 'max
                    (mapcar 'length
                            (org-split-string (car code-info)
                                              "\n")))))
       (org-export-format-code
        (car code-info)
        (lambda (loc _num ref)
          (concat
           loc
           (when ref
             ;; Ensure references are flushed to the right,
             ;; separated with 6 spaces from the widest line
             ;; of code.
             (concat (make-string (+ (- max-width (length loc)) 6)
                                  ?\s)
                     (format "(%s)" ref)))))
        nil (and retain-labels (cdr code-info)))))
    (funcall (org-src-get-lang-mode lang))
    (engrave-faces-latex-buffer)))
 (content
  (with-current-buffer content-buffer
    (buffer-string)))
```

```
         (body
          (format
           "\\begin{Code}\n\\begin{Verbatim}[%s]\n%s\\end{Verbatim}\n\\end{Code}"
           ;; Options.
           (concat
            (org-latex--make-option-string
             (if (or (not num-start) (assoc "linenos" options))
                 options
               (append
                `(("linenos")
                  ("firstnumber" ,(number-to-string (1+ num-start))))
                options)))
            (let ((local-options (plist-get attributes :options)))
              (and local-options (concat "," local-options))))
           content)))
    (kill-buffer content-buffer)
    ;; Return value.
    (format float-env body)))

(defun org-latex-inline-scr-block--engraved (inline-src-block _contents info)
  (let ((options (org-latex--make-option-string
                  (plist-get info :latex-minted-options)))
        code-buffer code)
    (setq code-buffer
          (with-temp-buffer
            (insert (org-element-property :value inline-src-block))
            (funcall (org-src-get-lang-mode
                      (org-element-property :language inline-src-block)))
            (engrave-faces-latex-buffer)))
    (setq code (with-current-buffer code-buffer
                 (buffer-string)))
    (kill-buffer code-buffer)
    (format "\\Verb%s{%s}"
            (if (string= options "") ""
              (format "[%s]" options))
            code)))

(defadvice! org-latex-example-block-engraved (orig-fn example-block contents info)
  "Like `org-latex-example-block', but supporting an engraved backend"
  :around #'org-latex-example-block
  (let ((output-block (funcall orig-fn example-block contents info)))
    (if (eq 'engraved (plist-get info :latex-listings))
        (format "\\begin{Code}[alt]\n%s\n\\end{Code}" output-block)
      output-block)))
```

7.3.7 ox-chameleon

Nice little package to color stuff for us.

```
(use-package! ox-chameleon
  :after ox)
```

7.3.8 Async

Run export processes in a background … process

```
(setq org-export-in-background t)
```

7.3.9 (sub|super)script characters

Annoying having to gate these, so let's fix that

```
(setq org-export-with-sub-superscripts '{})
```

7.4 Calc

Everybody knows that mathematical expressions look best with LaTeX, so `calc`'s ability to create LaTeX representations of its expressions provides a lovely opportunity which is taken advantage of in the CalcTeX package.

We'd like to use CalcTeX too, so let's set that up, and fix some glaring inadequacies — why on earth would you commit a hard-coded path to an executable that *only works on your local machine*, consequently breaking the package for everyone else!?

```
(use-package! calctex
  :commands calctex-mode
  :init
  (add-hook 'calc-mode-hook #'calctex-mode)
  :config
  (setq calctex-imagemagick-enabledp nil)
```

```
(setq calctex-additional-latex-packages "
    \\usepackage[usenames]{xcolor}
    \\usepackage{soul}
    \\usepackage{adjustbox}
    \\usepackage{amsmath}
    \\usepackage{amssymb}
    \\usepackage{siunitx}
    \\usepackage{cancel}
    \\usepackage{mathtools}
    \\usepackage{mathalpha}
    \\usepackage{xparse}
    \\usepackage{arevmath}"
      calctex-additional-latex-macros
      (concat calctex-additional-latex-macros
              "\n\\let\\evalto\\Rightarrow"))
(defadvice! no-messaging-a (orig-fn &rest args)
  :around #'calctex-default-dispatching-render-process
  (let ((inhibit-message t) message-log-max)
    (apply orig-fn args)))
;; Fix hardcoded dvichop path (whyyyyyyy)
(let ((vendor-folder (concat (file-truename doom-local-dir)
                             "straight/"
                             (format "build-%s" emacs-version)
                             "/calctex/vendor/")))
  (setq calctex-dvichop-sty (concat vendor-folder "texd/dvichop")
        calctex-dvichop-bin (concat vendor-folder "texd/dvichop")))
(unless (file-exists-p calctex-dvichop-bin)
  (message "CalcTeX: Building dvichop binary")
  (let ((default-directory (file-name-directory calctex-dvichop-bin)))
    (call-process "make" nil nil nil)))
```

7.4.1 Embedded calc

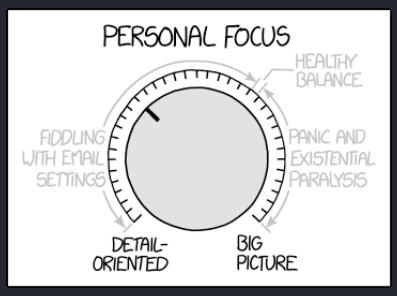
Embedded calc is a lovely feature which let's us use calc to operate on LaTeX maths expressions. The standard keybinding is a bit janky however (`C-x * e`), so we'll add a localleader-based alternative.

```
(map! :map calc-mode-map
      :after calc
      :localleader
      :desc "Embedded calc (toggle)" "e" #'calc-embedded)
(map! :map org-mode-map
      :after org
      :localleader
      :desc "Embedded calc (toggle)" "E" #'calc-embedded)
(map! :map latex-mode-map
      :after latex
      :localleader
      :desc "Embedded calc (toggle)" "e" #'calc-embedded)
```

Unfortunately this operates without the (rather informative) calculator and trail buffers, but we can advice it that we would rather like those in a side panel.

```
(defvar calc-embedded-trail-window nil)
(defvar calc-embedded-calculator-window nil)

(defadvice! calc-embedded-with-side-pannel (&rest _)
  :after #'calc-do-embedded
  (when calc-embedded-trail-window
    (ignore-errors
      (delete-window calc-embedded-trail-window))
    (setq calc-embedded-trail-window nil))
  (when calc-embedded-calculator-window
    (ignore-errors
      (delete-window calc-embedded-calculator-window))
    (setq calc-embedded-calculator-window nil))
  (when (and calc-embedded-info
             (> (* (window-width) (window-height)) 1200))
    (let ((main-window (selected-window))
          (vertical-p (> (window-width) 80)))
      (select-window
       (setq calc-embedded-trail-window
             (if vertical-p
                 (split-window-horizontally (- (max 30 (/ (window-width) 3))))
               (split-window-vertically (- (max 8 (/ (window-height) 4)))))))
      (switch-to-buffer "*Calc Trail*")
      (select-window
       (setq calc-embedded-calculator-window
             (if vertical-p
                 (split-window-vertically -6)
               (split-window-horizontally (- (/ (window-width) 2))))))
      (switch-to-buffer "*Calculator*")
      (select-window main-window))))
```

8 Mu4e



Focus Knob Maybe if I spin it back and forth really fast I can do some kind of pulse-width modulation.

I'm trying out emails in emacs, should be nice. Related, check .mbsyncrc to setup your emails

first

10 minutes is a reasonable update time

```
(setq mu4e-update-interval 300)
```

```
(set-email-account! "shaunsingh0207"
  '((mu4e-sent-folder       . "/Sent Mail")
    (mu4e-drafts-folder     . "/Drafts")
    (mu4e-trash-folder      . "/Trash")
    (mu4e-refile-folder     . "/All Mail")
    (smtpmail-smtp-user     . "shaunsingh0207@gmail.com")))

;; don't need to run cleanup after indexing for gmail
(setq mu4e-index-cleanup nil
      mu4e-index-lazy-check t)

(after! mu4e
  (setq mu4e-headers-fields
        '((:flags . 6)
          (:account-stripe . 2)
          (:from-or-to . 25)
          (:folder . 10)
          (:recipnum . 2)
          (:subject . 80)
          (:human-date . 8))
        +mu4e-min-header-frame-width 142
        mu4e-headers-date-format "%d/%m/%y"
        mu4e-headers-time-format "⧖ %H:%M"
        mu4e-headers-results-limit 1000
        mu4e-index-cleanup t)

  (add-to-list 'mu4e-bookmarks
               '(:name "Yesterday's messages" :query "date:2d..1d" :key ?y) t)

  (defvar +mu4e-header--folder-colors nil)
  (appendq! mu4e-header-info-custom
            '((:folder .
              (:name "Folder" :shortname "Folder" :help "Lowest level folder" :function
                (lambda (msg)
                  (+mu4e-colorize-str
                   (replace-regexp-in-string "\\`.*/" "" (mu4e-message-field msg
                   ↪  :maildir))
                   '+mu4e-header--folder-colors)))))))
```

We can also send messages using msmtp

```
(after! mu4e
  (setq sendmail-program "msmtp"
        send-mail-function #'smtpmail-send-it
        message-sendmail-f-is-evil t
        message-sendmail-extra-arguments '("--read-envelope-from")
```

```
        message-send-mail-function #'message-send-mail-with-sendmail))
```

Notifications are quite nifty, especially if I'm as lazy as I am

```
;;(setq alert-default-style 'osx-notifier)
```

9 Browsing

9.1 Webkit

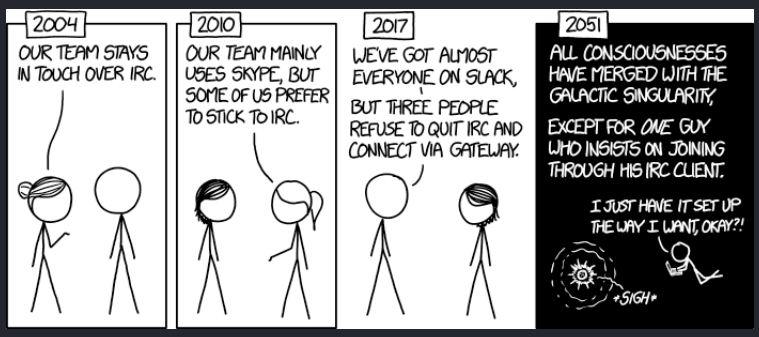
Eventually I want to use emacs for everything. Instead of using xwidgets, which requires a custom (non-cached) build of emacs. Emacs-webkit is a good alternative, but is quite buggy right now. Once its stable, I'll fix this config

```
;;(use-package org
;;  :demand t)

;; (use-package webkit
;;   :defer t
;;   :commands webkit
;;   :init
;;   (setq webkit-search-prefix "https://google.com/search?q="
;;         webkit-history-file nil
;;         webkit-cookie-file nil
;;         browse-url-browser-function 'webkit-browse-url
;;         webkit-browse-url-force-new t
;;         webkit-download-action-alist '(("\\.pdf\\'" . webkit-download-open)
;;                                        ("\\.png\\'" . webkit-download-save)
;;                                        (".*" . webkit-download-default)))

;;   (defun webkit--display-progress (progress)
;;     (setq webkit--progress-formatted
;;           (if (equal progress 100.0)
;;               ""
;;             (format "%s%.0f%%  " (all-the-icons-faicon "spinner") progress)))
;;    (force-mode-line-update)))
```

I also want to use evil bindings with this. It's not upstreamed yet, so I'll steal the ones from the repo

```
;; (use-package evil-collection-webkit
;;    :defer t
;;    :config
;;    (evil-collection-xwidget-setup))
```

9.2 IRC



Team Chat 2078: He announces that he's finally making the jump from screen+irssi to tmux+weechat.

I'm trying to move everything to emacs, and discord is the one electron app I need to ditch. With bitlbee and circe it should be possible

To make this easier, I

1. Have everything (serverinfo and passwords) in an authinfo.gpg file
2. Tell circe to use it
3. Use org syntax for formatting
4. Add emoji support
5. Set it up with discord

```
(defun auth-server-pass (server)
  (if-let ((secret (plist-get (car (auth-source-search :host server)) :secret)))
      (if (functionp secret)
          (funcall secret) secret)
    (error "Could not fetch password for host %s" server)))

(defun register-irc-auths ()
  (require 'circe)
  (require 'dash)
  (let ((accounts (-filter (lambda (a) (string= "irc" (plist-get a :for)))
                           (auth-source-search :require '(:for) :max 10))))
    (appendq! circe-network-options
              (mapcar (lambda (entry)
                        (let* ((host (plist-get entry :host))
                               (label (or (plist-get entry :label) host))
                               (_ports (mapcar #'string-to-number
                                               (s-split "," (plist-get entry :port))))
                               (port (if (= 1 (length _ports)) (car _ports) _ports))
```

```
                              (user (plist-get entry :user))
                              (nick (or (plist-get entry :nick) user))
                              (channels (mapcar (lambda (c) (concat "#" c))
                                                (s-split "," (plist-get entry
                                                ↪  :channels)))))
                         `(,label
                           :host ,host :port ,port :nick ,nick
                           :sasl-username ,user :sasl-password auth-server-pass
                           :channels ,channels)))
                     accounts))))
```

We'll just call `(register-irc-auths)` on a hook when we start Circe up.

Now we're ready to go, let's actually wire-up Circe, with one or two configuration tweaks.

```
(after! circe
  (setq-default circe-use-tls t)
  (setq circe-notifications-alert-icon
  ↪  "/usr/share/icons/breeze/actions/24/network-connect.svg"
        lui-logging-directory "~/.emacs.d/.local/etc/irc"
        lui-logging-file-format "{buffer}/%Y/%m-%d.txt"
        circe-format-self-say "{nick:+13s} ┃ {body}")

  (custom-set-faces!
    '(circe-my-message-face :weight unspecified))

  (enable-lui-logging-globally)
  (enable-circe-display-images)

  <<org-emph-to-irc>>

  <<circe-emojis>>
  <<circe-emoji-alists>>

  (defun named-circe-prompt ()
    (lui-set-prompt
     (concat (propertize (format "%13s > " (circe-nick))
                         'face 'circe-prompt-face)
             "")))
  (add-hook 'circe-chat-mode-hook #'named-circe-prompt)

  (appendq! all-the-icons-mode-icon-alist
            '((circe-channel-mode all-the-icons-material "message" :face
            ↪  all-the-icons-lblue)
              (circe-server-mode all-the-icons-material "chat_bubble_outline" :face
              ↪  all-the-icons-purple))))

<<irc-authinfo-reader>>

(add-transient-hook! #'=irc (register-irc-auths))
```

Let's do our **bold**, *italic*, and underline in org-syntax, using IRC control characters.

```
(defun lui-org-to-irc ()
  "Examine a buffer with simple org-mode formatting, and converts the empasis:
      *bold*, /italic/, and _underline_ to IRC semi-standard escape codes.
      =code= is converted to inverse (highlighted) text."
  (goto-char (point-min))
  (while (re-search-forward
  ↪  "\\_<\\(?1:[*/_=]\\)\\(?2:[^[:space:]]\\(?:.*?[^[:space:]]\\)?\\)\\1\\_>" nil t)
    (replace-match
     (concat (pcase (match-string 1)
               ("*" "")
               ("/" "")
               ("_" "")
               ("=" ""))
             (match-string 2)
             "") nil nil)))

(add-hook 'lui-pre-input-hook #'lui-org-to-irc)
```

Let's setup Circe to use some emojis

```
(defun lui-ascii-to-emoji ()
  (goto-char (point-min))
  (while (re-search-forward "\\( \\)?::?\\([^[:space:]:]+\\):\\( \\)?" nil t)
    (replace-match
     (concat
      (match-string 1)
      (or (cdr (assoc (match-string 2) lui-emojis-alist))
          (concat ":" (match-string 2) ":"))
      (match-string 3))
     nil nil)))

(defun lui-emoticon-to-emoji ()
  (dolist (emoticon lui-emoticons-alist)
    (goto-char (point-min))
    (while (re-search-forward (concat " " (car emoticon) "\\( \\)?") nil t)
      (replace-match (concat " "
                             (cdr (assoc (cdr emoticon) lui-emojis-alist))
                             (match-string 1))))))

(define-minor-mode lui-emojify
  "Replace :emojis: and ;) emoticons with unicode emoji chars."
  :global t
  :init-value t
  (if lui-emojify
      (add-hook! lui-pre-input #'lui-ascii-to-emoji #'lui-emoticon-to-emoji)
    (remove-hook! lui-pre-input #'lui-ascii-to-emoji #'lui-emoticon-to-emoji)))
```

Now, some actual emojis to use.

```
(defvar lui-emojis-alist
  '(("grinning"                    . "😀")
    ("smiley"                      . "😃")
    ("smile"                       . "😄")
```

```
("grin"                           . "")
("laughing"                       . "")
("sweat_smile"                    . "")
("joy"                            . "")
("rofl"                           . "")
("relaxed"                        . "☺")
("blush"                          . "")
("innocent"                       . "")
("slight_smile"                   . "")
("upside_down"                    . "")
("wink"                           . "")
("relieved"                       . "")
("heart_eyes"                     . "")
("yum"                            . "")
("stuck_out_tongue"               . "")
("stuck_out_tongue_closed_eyes"   . "")
("stuck_out_tongue_wink"          . "")
("zanzy"                          . "")
("raised_eyebrow"                 . "")
("monocle"                        . "")
("nerd"                           . "")
("cool"                           . "")
("star_struck"                    . "")
("party"                          . "")
("smirk"                          . "")
("unamused"                       . "")
("disapointed"                    . "")
("pensive"                        . "")
("worried"                        . "")
("confused"                       . "")
("slight_frown"                   . "")
("frown"                          . "")
("persevere"                      . "")
("confounded"                     . "")
("tired"                          . "")
("weary"                          . "")
("pleading"                       . "")
("tear"                           . "")
("cry"                            . "")
("sob"                            . "")
("triumph"                        . "")
("angry"                          . "")
("rage"                           . "")
("exploding_head"                 . "")
("flushed"                        . "")
("hot"                            . "")
("cold"                           . "")
("scream"                         . "")
("fearful"                        . "")
("disapointed"                    . "")
("relieved"                       . "")
("sweat"                          . "")
("thinking"                       . "")
```

```
("shush"                    . "🤫")
("liar"                     . "🤥")
("blank_face"               . "😶")
("neutral"                  . "😐")
("expressionless"           . "😑")
("grimace"                  . "😬")
("rolling_eyes"             . "🙄")
("hushed"                   . "😯")
("frowning"                 . "😦")
("anguished"                . "😧")
("wow"                      . "😮")
("astonished"               . "😲")
("sleeping"                 . "😴")
("drooling"                 . "🤤")
("sleepy"                   . "😪")
("dizzy"                    . "😵")
("zipper_mouth"             . "🤐")
("woozy"                    . "🥴")
("sick"                     . "🤢")
("vomiting"                 . "🤮")
("sneeze"                   . "🤧")
("mask"                     . "😷")
("bandaged_head"            . "🤕")
("money_face"               . "🤑")
("cowboy"                   . "🤠")
("imp"                      . "😈")
("ghost"                    . "👻")
("alien"                    . "👽")
("robot"                    . "🤖")
("clap"                     . "👏")
("thumpup"                  . "👍")
("+1"                       . "👍")
("thumbdown"                . "👎")
("-1"                       . "👎")
("ok"                       . "👌")
("pinch"                    . "🤏")
("left"                     . "👈")
("right"                    . "👉")
("down"                     . "👇")
("wave"                     . "👋")
("pray"                     . "🙏")
("eyes"                     . "👀")
("brain"                    . "🧠")
("facepalm"                 . "🤦")
("tada"                     . "🎉")
("fire"                     . "🔥")
("flying_money"             . "💸")
("lighbulb"                 . "💡")
("heart"                    . "❤")
("sparkling_heart"          . "💖")
("heartbreak"               . "💔")
("100"                      . "💯")))
```

```
(defvar lui-emoticons-alist
  '((":)"   . "slight_smile")
    (";)"   . "wink")
    (":D"   . "smile")
    ("=D"   . "grin")
    ("xD"   . "laughing")
    (";("   . "joy")
    (":P"   . "stuck_out_tongue")
    (";D"   . "stuck_out_tongue_wink")
    ("xP"   . "stuck_out_tongue_closed_eyes")
    (":("   . "slight_frown")
    (";("   . "cry")
    (";'("  . "sob")
    (">:("  . "angry")
    (">>:(" . "rage")
    (":o"   . "wow")
    (":O"   . "astonished")
    (":/"   . "confused")
    (":-/"  . "thinking")
    (":|"   . "neutral")
    (":-|"  . "expressionless")))
```