Org mode example

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December 16, 2021

Contents

1 Key strokes

1. I use lower-case letter `a` for the `A`-key.

2. I use upper-case letter `C-` for the `Ctrl` key, `M-` for the Alt (meta) key and `S-` for the `Shift` key.

   - hence `C-c` is `Ctrl-C`, `C-c C-c` is twice that and `C-M-a` means simultaneously press `Ctrl`, `Alt` and `A`.

   - note that you can type e.g. `C-c C-x C-l` without releasing the `Ctrl` key (i.e., keep `Ctrl` pressed while typing `c x l`).

3. `ENTER`, `TAB` and `ESC` are the keys you'd expect.

4. Got confused? Press `ESC ESC ESC` and you should be good to start typing again.

5. See also `http://pub.vandersluys.nl/download/GettingStartedWithEmacs.pdf` (in particular section 1.2 and the start of 1.3)

2 TODO To do [1/3]

2.1 DONE What to use Org mode for [8/8]

1. ☒ note taking, personal wiki, writing documentation

2. ☒ the brainstorm phase of a project, paper:

   (a) Overview in Org mode

   (b) then export to LaTeX to finish

3. ☒ clock tasks, projects

4. ☒ agenda, planning, task lists (TODO/PROGRESS/DONE), issues (OPEN/ASSIGNED/CLOSED), idea lists, . . .

5. ☒ (internal) links

6. ☒ tables, simple spreadsheets

7. ☒ export, publish: plain text (ASCII, UTF-8), html, md, LaTeX/PDF (+Beamer!), odt, reST, . . .

8. ☒ equations, code

2.2 PROGRESS Add file with simple examples [5/6]

2.2.1 DONE Text style

- **bold**
- *italics*
- underlined
- ~~strike through~~
- `code` or `verbatim`

2.2.2 DONE Task lists and headings [33%]

☒ see 2

☒ indent:

- put the cursor on an item (e.g. in this list) and press `Alt-arrow right/left`
- same for headers

☐ drag:

- put the cursor on an item and press `Alt-arrow up/down`
- up/down swaps items (with the same indentation and if possible)
- the same for headers (of the same level)

☐ change list symbols:

- put the cursor on an item and press `Shift right/left`
- symbols change between `+/-/*/1./1)` (* if possible)

☒ (de)select item (radio button):

- put the cursor on the item and press `C-c C-c`
- the number or percentage in the parent header (created by typing `[/]` or `[%]`) changes as well

☐ change TODO:

- put the cursor on a header and press `Shift right/left`
- if all subheaders are DONE, the parent header changes from TODO to DONE as well

☐ new item in a list:

- `Alt-ENTER`

☐ new header in a document:

– `Ctrl-ENTER`

☐ Create new list

1. Enumerated:

    (a) type `1.` or `1)` followed by a space and the description

    (b) press `Alt-ENTER` for the next item (counts automatically)

2. Bullets (unnumbered):

    (a) type a `+`, `-` or (if subitem) `*` followed by a space and the description

    (b) press `Alt-ENTER` for the next item with the same symbol

3. Definition:

    Definition a definition is an **unnumbered** item with a keyword, followed by a double colon (`::`) and the definition.

    `Alt-ENTER` asks for the next definition with the same symbol

4. Check box/Radio button:

    (a) type an item symbol or number, followed by a space, `[ ]`, another space and the description

    (b) the `[ ]` lights up to show that the check box is active

    (c) `Alt-ENTER` produces a new item, but **no** empty check box (bug?)

    (d) `C-c C-c` on the line toggles between `[ ]` and `[X]`

2.2.3 DONE Links

- Internal link: see 2

- External link: `https://github.com/MarcvdSluys/`

- External link with description: My GitHub page

2.2.4 DONE Table/spreadsheet

1. type `|- TAB` for a horizontal line

2. type `x|x^2|x^3 TAB` in the new line for the header

3. type `-` right against the `|` for another line

4. in the left column, type `1 ENTER 2 ENTER` etc.

5. under x^2, type `=$1**2 TAB`. `$1` represents column 1.

6. under x^3, type `=$1**3 TAB`

7. go to the line with `TBLFM` (table formula) under the table and press `C-c C-c`

x	x^2	x^3
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125

2.3 PROGRESS More advanced examples

2.3.1 DONE Equations

LaTeX must be installed to display formatted equations in emacs.

1. Lazy symbols outside equations using inline LaTeX, like $\int$, ∞ and ∇_ϕ will show up nicely in LaTeX.

2. inline: type `$\int_0^\infty \frac{\sin x}{x} dx$` and press `C-c C-x C-l` to display in emacs. This is a nice equation $\int_0^\infty \frac{\sin x}{x} dx$, but complicated.

3. between the lines: type `\[\int_0^\infty \frac{\sin x}{x} dx\]` and press `C-c C-x C-l` to display in emacs.

$$\int_0^\infty \frac{\sin x}{x} dx$$

2.3.2 ACTIVE Code

- Elisp always works?

1. Elisp (emacs lisp script)

    (a) press `C-c C-, s` for a `#+begin/end_src`-block and add `elisp` yourself

    (b) type some code and return a value (see example below)

    (c) in the code block, press `C-c C-c` and answer the question in the minibuffer below with `yes` `ENTER`

    (d) the result appears in a `RESULTS` block under the code, a bit like in a Jupyter notebook.

```
(concat  (emacs-version)
         "\nOrgmode " (org-version))
```

```
GNU Emacs 27.2 (build 1, x86_64-pc-linux-gnu, GTK+ Version 3.24.29, cairo version 1.16.0)
 of 2021-10-01
Orgmode N/A
```

2. Bash Bash must be installed and Babel must be activated for Bash. . .

```
echo "My home directory is $HOME"
```

```
My home directory is /home/sluys
```

3. Python Python must be installed and Babel must be activated for Python. . .

    (a) press `C-c C-, s` for a `#+begin/end_src`-block and type `python` yourself

    (b) type some code and return a value

    (c) In the code block, press `C-c C-c` and answer the question in the minibuffer below with `yes` `ENTER`

    (d) the return value appears below the code in a `RESULTS` block

```
x=3
y=5
z=x*y
return z
```

```
15
```

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-15,15)
```

```
plt.plot(x, np.sin(x)/x)
plt.savefig('Orgmode_example.png')
return 'Orgmode_example.png'   # Return filename to Org mode
```
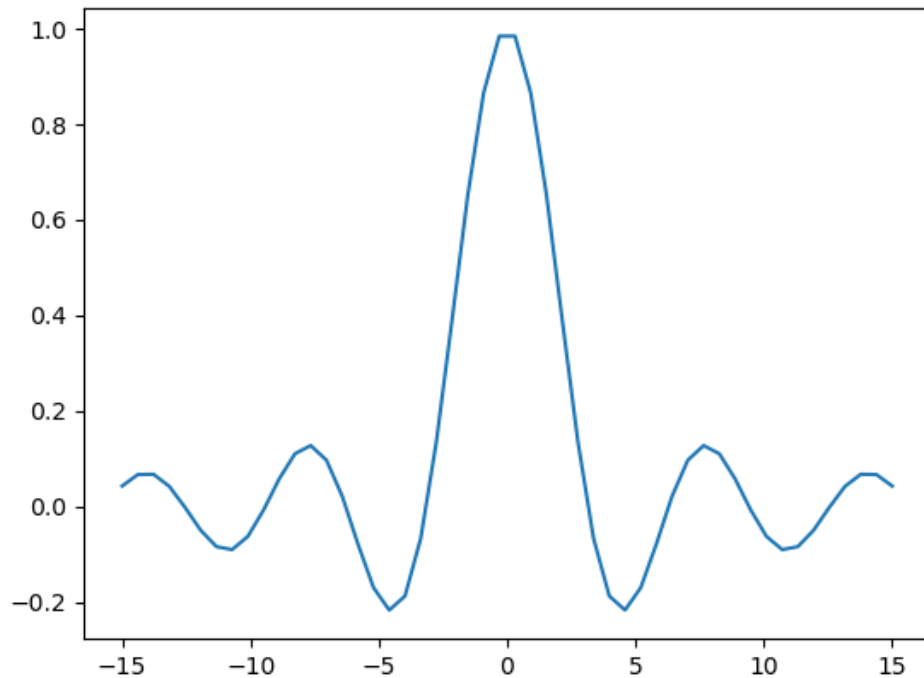

4. Python + Bash

    - Nicked from https://jherrlin.github.io/posts/emacs-orgmode-source-code-blocks/

Print a list with a selection of files in the current directory in bash. I will export both (`both`) the code and the result (to e.g. `.md` or `.pdf`). Also, I will give the code a name (`ls`) so that the output can be used later:

```
ls -lb Orgmode_example.*
```

```
-rw-r--r-- 1 sluys sluys   9431 Dec 16 20:45 Orgmode_example.md
-rw-r--r-- 1 sluys sluys  37346 Dec 16 20:40 Orgmode_example.odt
-rw-r--r-- 1 sluys sluys   7945 Dec 16 20:48 Orgmode_example.org
-rw-r--r-- 1 sluys sluys 321571 Dec 16 20:45 Orgmode_example.pdf
-rw-r--r-- 1 sluys sluys  23293 Dec 16 20:49 Orgmode_example.png
-rw-r--r-- 1 sluys sluys   9647 Dec 16 20:41 Orgmode_example.rst
-rw-r--r-- 1 sluys sluys  12347 Dec 16 20:45 Orgmode_example.tex
-rw-r--r-- 1 sluys sluys   9178 Dec 16 20:41 Orgmode_example.txt
```

Use `awk` to take the file names and sizes from `ls` and create a table:

```
BEGIN { OFS="|" }; { print $5, $9}
```

9431	Orgmode$_{\text{example.md}}$
37346	Orgmode$_{\text{example.odt}}$
7945	Orgmode$_{\text{example.org}}$
321571	Orgmode$_{\text{example.pdf}}$
23293	Orgmode$_{\text{example.png}}$
9647	Orgmode$_{\text{example.rst}}$
12347	Orgmode$_{\text{example.tex}}$
9178	Orgmode$_{\text{example.txt}}$

Use Python to o.a. find the smallest and largest file in the table from `awk`:

```python
print(table[0])                        # First row of the table as read
print("Number of files: %i"          % len(table))
print("Smallest file:   (%i b) %s"  % tuple(min(table)))
print("Largest file:    (%i b) %s"  % tuple(max(table)))
print("Total size:      %0.3f kb"   % (sum([x for x,y in table]) / 1000))
```

```
[9431, 'Orgmode_example.md']
Number of files: 8
Smallest file:   (7945 b) Orgmode_example.org
Largest file:    (321571 b) Orgmode_example.pdf
Total size:      430.758 kb
```