(Text?) Editors

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Administrative

- Last week's attendance
  - http://tinyurl.com/c4cs-w17-wk03

Learning Basic Math

```
% echo "#include <iostream>
> using namespace std;
>
> int main() {
>     cout << "2 + 2 = " << 4 << endl;
>
>     return 0;
> } " > math.cpp
```

- That was cheap!
- Let's check it out...

Quick Game: Name an editor

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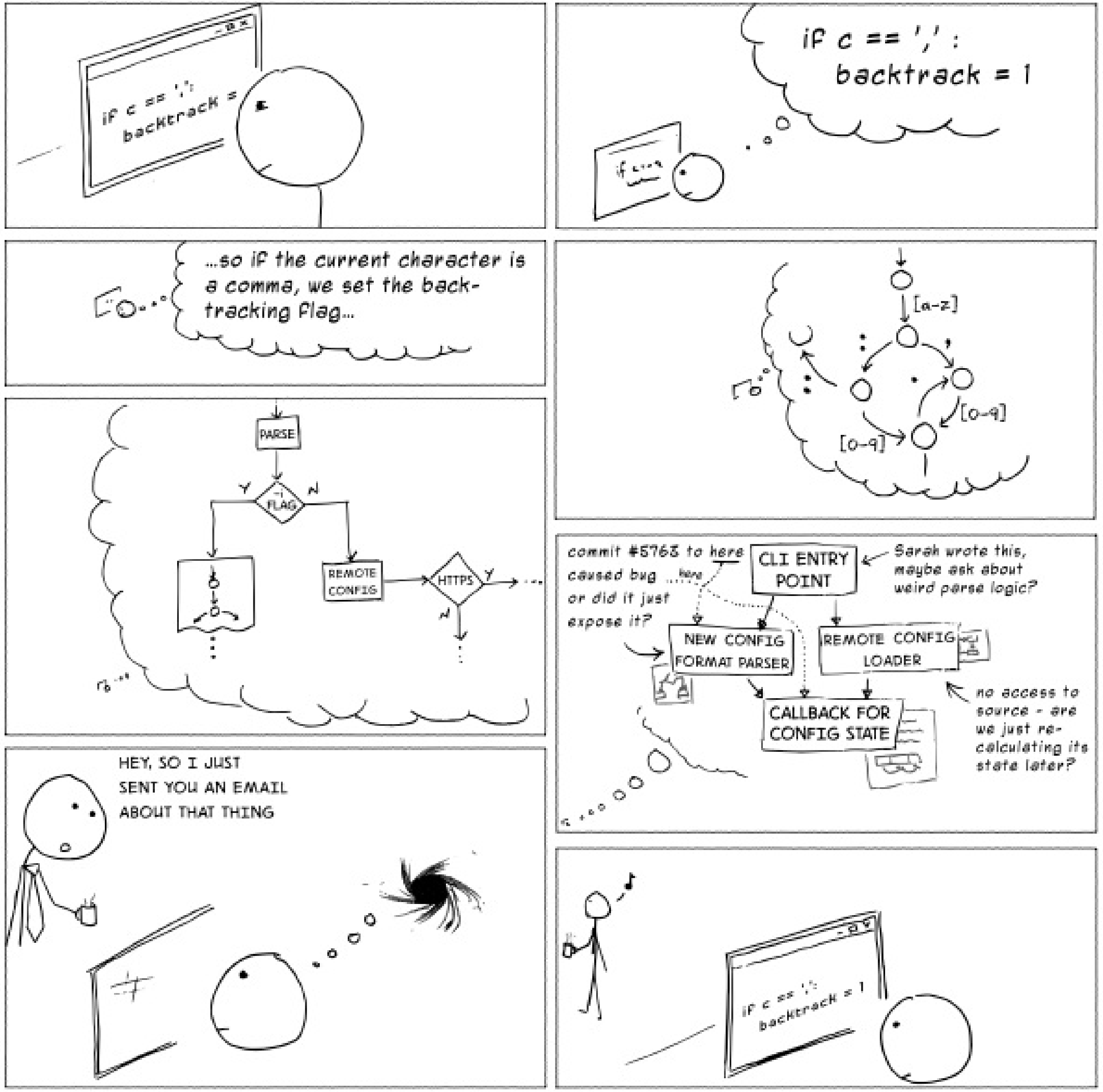
- https://en.wikipedia.org/wiki/Comparison_of_text_editors

THIS IS WHY YOU SHOULDN'T INTERRUPT A PROGRAMMER


if c == ',':
backtrack =
if c == ',' :
backtrack = 1
...so if the current character is a comma, we set the backtracking flag...
[a-z]
[0-9]
[0-9]
PARSE
Y
N
FLAG
REMOTE CONFIG
HTTPS
Y
N
commit #5763 to here caused bug ...here or did it just expose it?
CLI ENTRY POINT
Sarah wrote this, maybe ask about weird parse logic?
NEW CONFIG FORMAT PARSER
REMOTE CONFIG LOADER
CALLBACK FOR CONFIG STATE
no access to source - are we just recalculating its state later?
HEY, SO I JUST SENT YOU AN EMAIL ABOUT THAT THING
if c == ',':
backtrack = 1

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Editors are the stuff between your head and the screen

- You can walk and talk
- You can walk and read
- Could you walk and code?

Editors are the stuff between your head and the screen

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Writing code is like writing text, until it isn't

- Organize an outline
- Choose a section, author a cohesive narrative
    - How long of a paragraph can you hold in your head?
    - How many lines of code can you hold in your head?

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Programmers are translating all the time

- Between what you want the machine to do (concept/spec) and *how* you tell the machine to do it (code)

Editor Wars: An Educated Guess

- Programmers fight about silly things
    - Tabs vs Spaces, Where to put Braces
- That may not be so silly

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It is all about what best minimizes the friction between what's in your head and what's on the screen

- People tell me DVORAK is faster than QWERTY[1], but probably not for me

[1] Cool article questioning the "origin of QWERTY was to slow down typists" myth

Lecture Today

- **The Basics**
  1. Marcus struggles mightily with emacs
  2. And then does great in vim
  3. We cover where the mouse is a winner
  - *Goal:* Minimal competency in everything, so you can work with others
- **The Fancy Stuff**
  1. In "old" editors
  2. In "new" editors
  3. And what each other can't do
  - *Goal:* Exposure to the kind of things you can do. What is most useful is very personal.

Chart? Chart.

	emacs	**vim**	**gedit**
Save file	`C-x C-s`	`:w`	click save

Quit **without** saving	`C-x C-c n yes`
	`M-x kill-emacs`
		`:q!`	click quit
			click no

Save and quit	`C-x C-s` then `C-x C-c`
	`C-x C-c y`
		`:w` then `:q`
		`:wq`
		`:x`
		`ZZ`
			click save
			click quit

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Save and quit	`C-x C-s` then `C-x C-c`
	`C-x C-c y`
		`:w` then `:q`
		`:wq`
		`:x`
		`ZZ`
			click save
			click quit

A digression: w vs x (vs ZZ)

- `:w` always writes, `:x` only if changed
  - Why do you care?
  - It's a bit annoying to need to care

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			click no

Save and quit	`C-x C-c y`	`:x` or `ZZ`
		`:wq`
			click save
			click quit

Enter some text	…just type	`i` then type	…just type
Search for a string	`C-s`	`/`	make search appear click search

"Enter some text" in vim, oh the many ways

`i` is the easiest, yet probably least used, way to enter text

- `i` - Go into insert mode here
- `I` - Go into insert mode at the beginning of the line
- `a` - Go into insert mode right after here
- `A` - Go into insert mode at the end of the line
- `o` - Insert a new line below and go into insert mode
- `O` - Insert a new line above and go into insert mode
- `s` - Delete this character and go into insert mode
- `S` - Delete this line and go into insert mode
- `C` - Delete the line from here and go into insert mode
- `R` - Enter *replace* mode

Let's get attendance

www.tinyurl.com/c4cs-w17-ed

Reviewing some old magic

Remember Homework 2?

```
$ wget 'https://drive.google.com/uc?id=0B4qlH840ZwikbkZLS3Z5YTVSeW8&export=download' -O eecs280-w15-p2.tgz
$ tar -xf eecs280-w15-p2.tgz
$ echo -e '#include <cassert>\n#include "p2.h"\n' > p2.cpp
$ grep ';' p2.h | grep -v ' \*' >> p2.cpp

$ vim p2.cpp
# press 'jjj'   so that your cursor is on the i of int sum(...
# press 'qq'    to begin recording a macro into the vim register q
# press 'f;'    jump to the ';' character
# press 's'     remove character under the cursor and enter insert mode
# insert the needed text:
# '<space>{<enter>assert(false);<enter>}<enter><escape>'
# press 'j'     so that your cursor is on the i of int product(...
# press 'q'     to finish recording the macro
# press '16@q'  16 times play the commands stored in register q
```

"Vim sucks because"...

it can't copy / paste

- Yes it can, you just `y`ank and `p`aste instead
- And to cut you off, you can use `"+y` and `"+p` to yank and paste from the system clipboard

you can't use the mouse

- Yes you can, you just have to `set mouse=a`

the defaults are ~~terrible~~ not great

- Now you're getting somewhere

the time and pain required to learn it aren't worth the payoff

- I am honestly unsure.

This class in a nutshell:

- You are willing to type the same command over and over until you aren't
  - So you learn about the up arrow
- You master the game of up-up-up-enter up-up-up-enter until you drive yourself nuts
  - So you learn how to put these commands in a script
- *You might be willing to master a new skill faster if you knew it was out there, and someone guided you towards how to do it*

The goal is to expose you to many things, hope you master half, and can come back and pick up the rest when you're ready

- We do try to emphasize the ones worth mastering first
- Like version control. Seriously. Version control. All the things. Always.

A quick tour of some other editors and what they can do

- "General purpose" editors
  - Atom
  - Sublime
- Integrated development environments
  - XCode
  - Eclipse
  - Visual Studio