The Shell

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Unix?

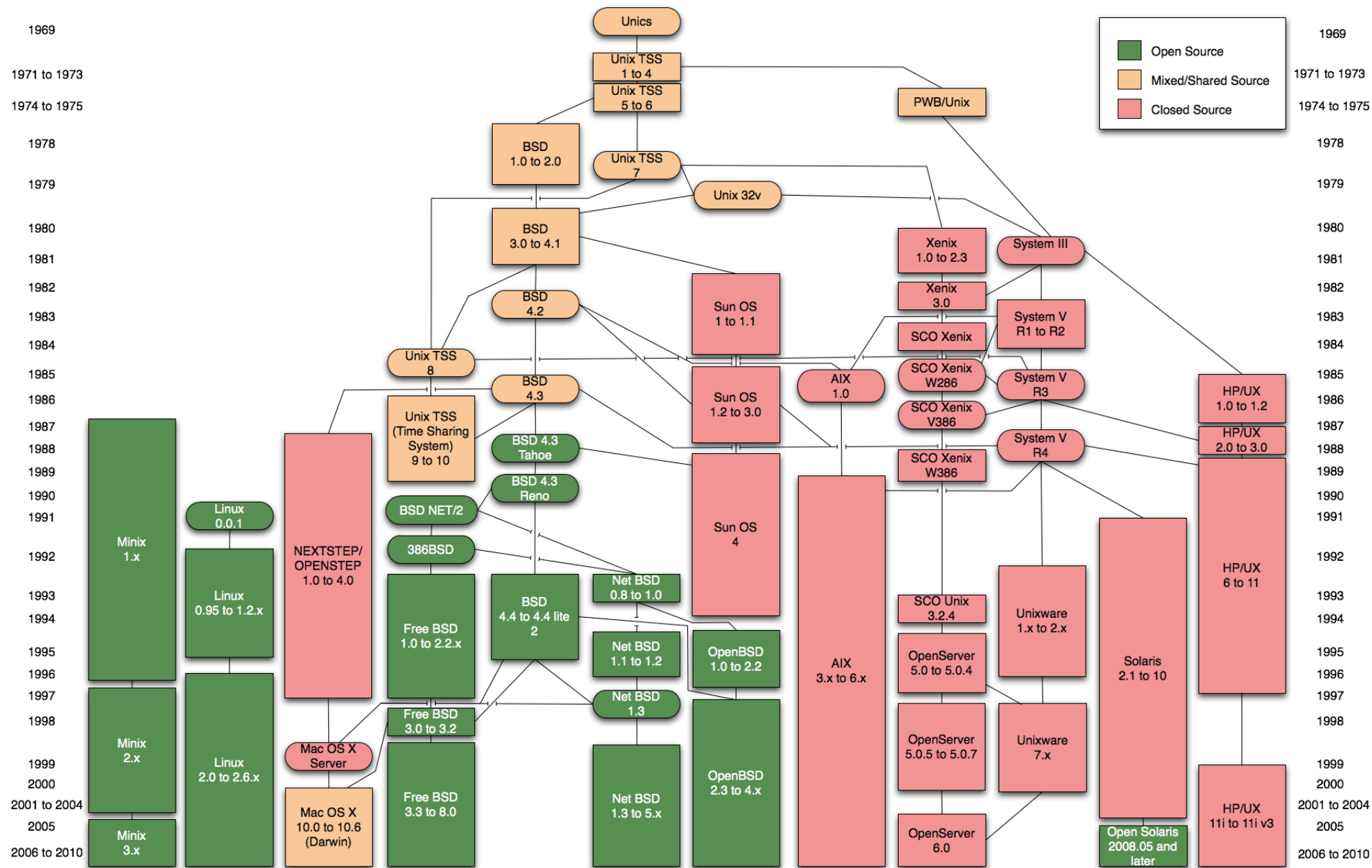
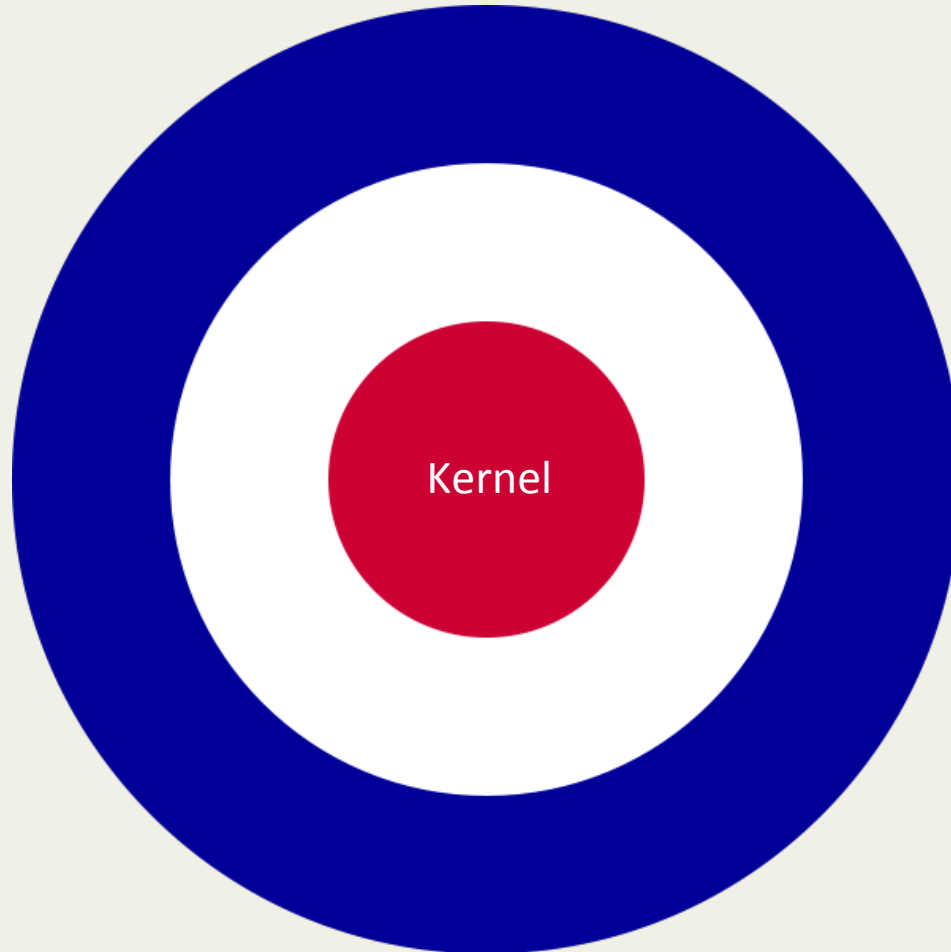Terminal, shell, GNU/Linux, Mac OSX?

Ken Tompson & Dennis Rithcie
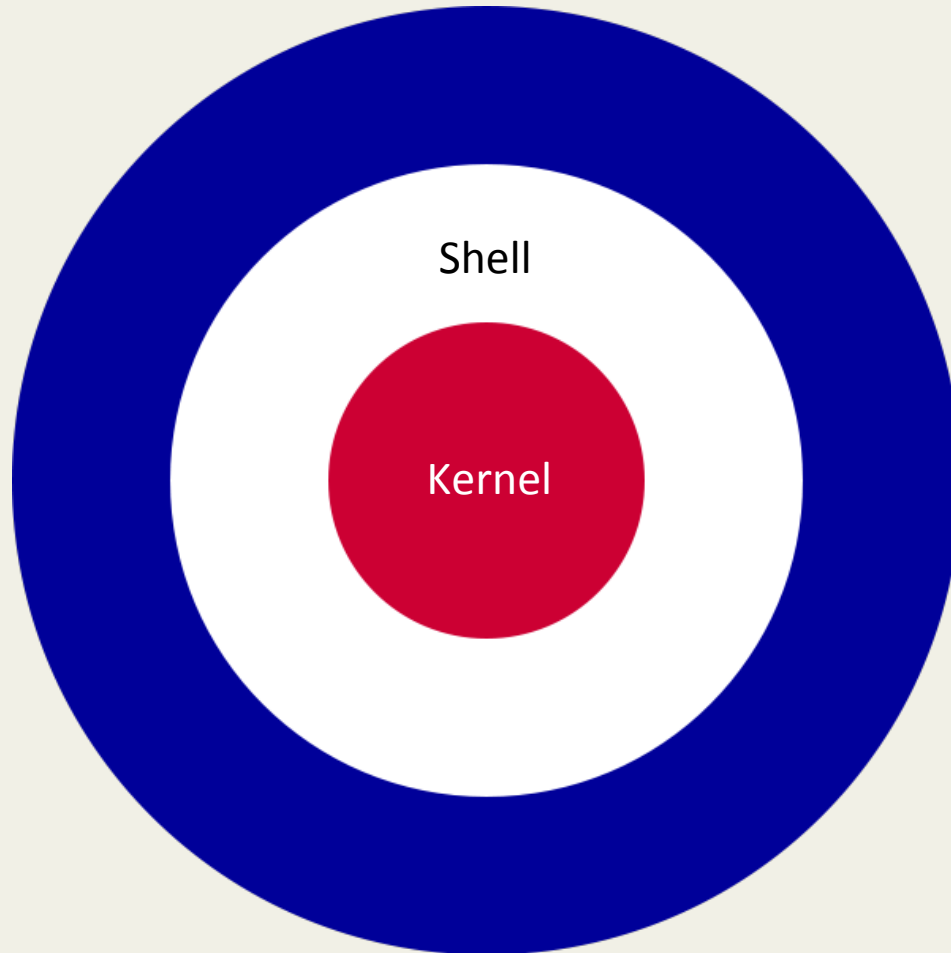
Evolution of UNIX-like systems
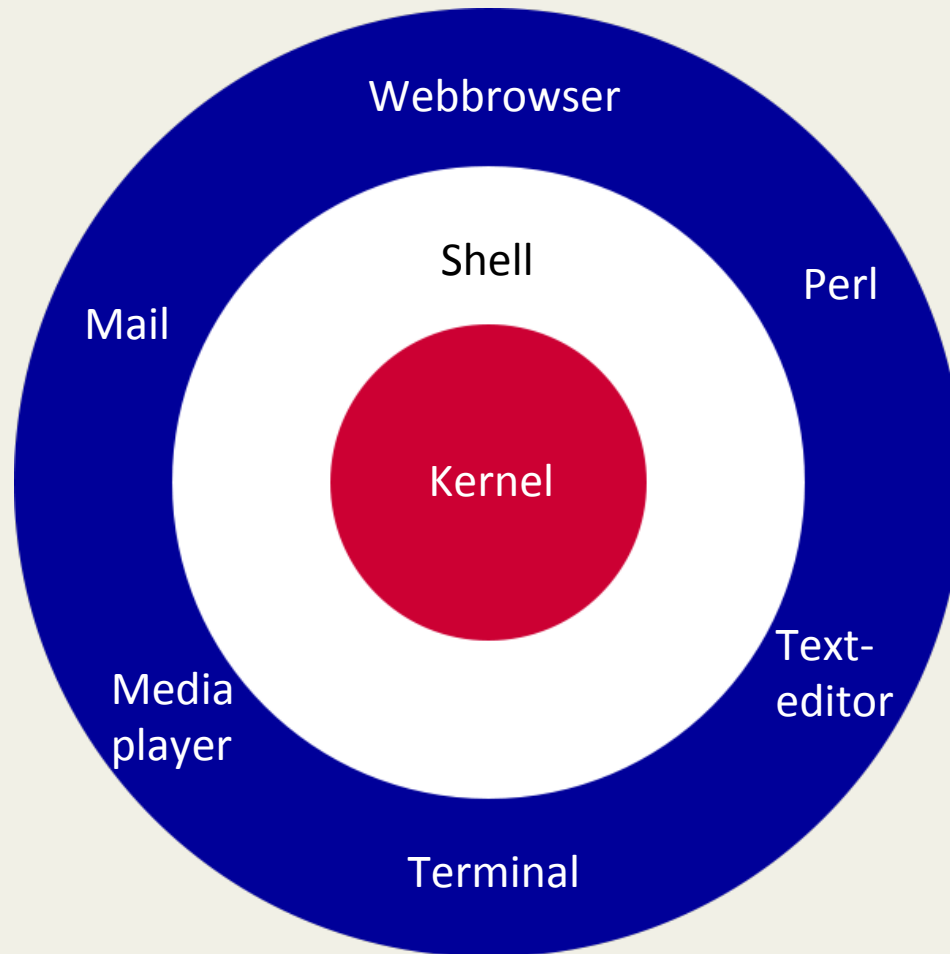
The Unix system
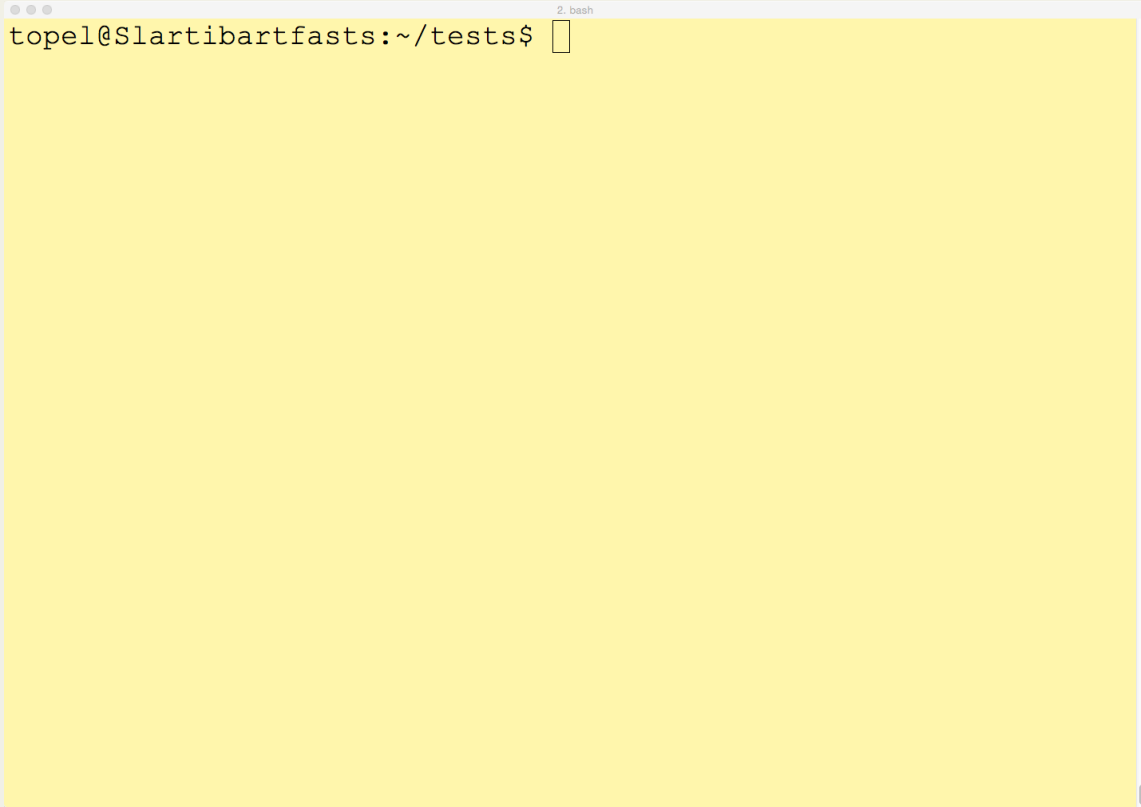
The Unix system

The Unix system

The Unix system

(virtual) Terminal *vs.* shell *vs.* bash

```
                                        2. bash
topel@Slartibartfasts:~/tests$ █
```

Terminal window (Graphical
User Interface [GUI] that runs
the shell)
e.g. iTerm, Terminal, Konsole,
gnome-terminal
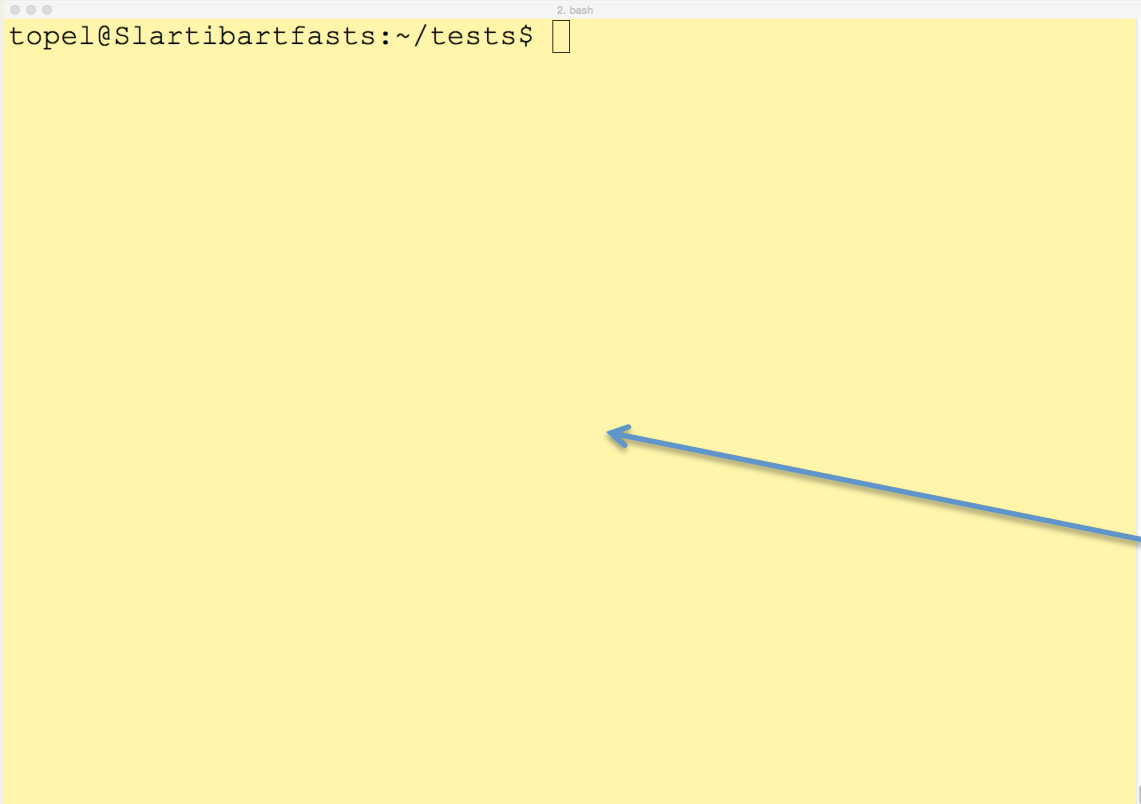
(virtual) Terminal *vs.* shell *vs.* bash

```
topel@Slartibartfasts:~/tests$ ▯
```

Terminal window (Graphical
User Interface [GUI] that runs
the shell)
e.g. iTerm, Terminal, Konsole,
gnome-terminal

The shell (a.k.a Comand Line
Interface [CLI]. Program that
starts other programs)
e.g. bash, sh, tcsh

(virtual) Terminal *vs.* shell *vs.* bash

```
topel@Slartibartfasts:~/tests$ []
```

"Prompt"

Terminal window (Graphical User Interface [GUI] that runs the shell)
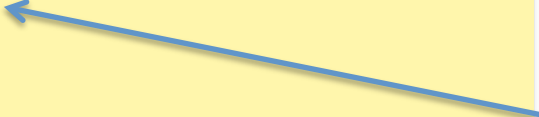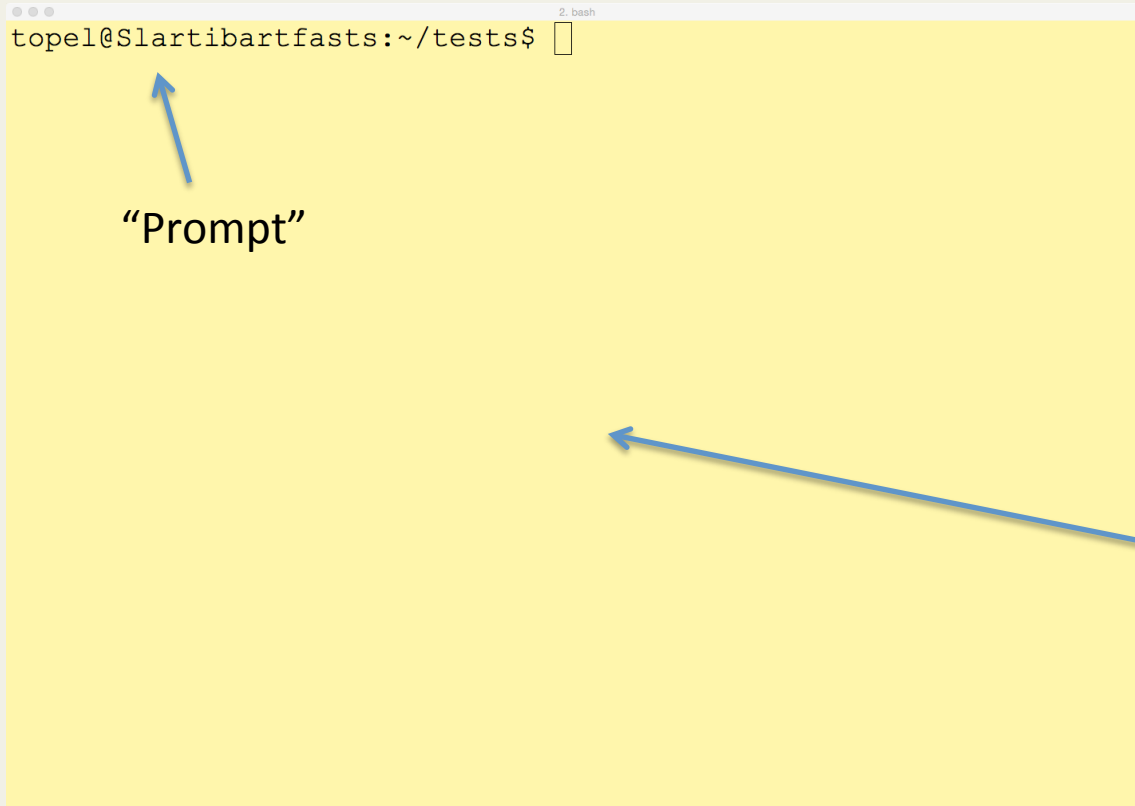e.g. iTerm, Terminal, Konsole, gnome-terminal

The shell (a.k.a Comand Line Interface [CLI]. Program that starts other programs)
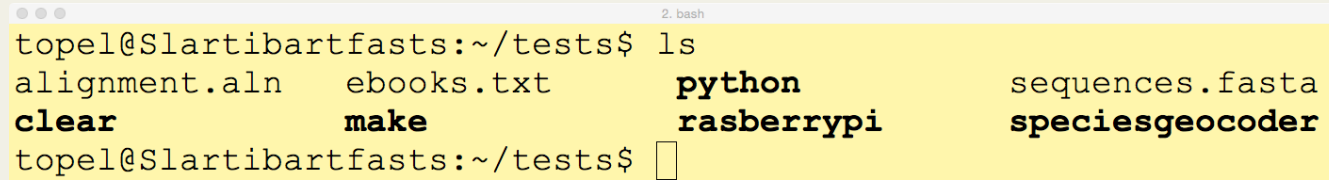e.g. bash, sh, tcsh

ls

```
topel@Slartibartfasts:~/tests$ ls
alignment.aln    ebooks.txt      python          sequences.fasta
clear            make            rasberrypi      speciesgeocoder
topel@Slartibartfasts:~/tests$ 
```

ls -l

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topel@Slartibartfasts:~/tests$ ls -l
total 40
-rw-r--r--    1 topel   staff   1254 Aug 31 10:54 alignment.aln
drwxr-xr-x    2 topel   staff     68 Aug 31 11:16 clear
-rw-r--r--    1 topel   staff   9537 Aug 31 10:53 ebooks.txt
drwxr-xr-x    8 topel   staff    272 May 23  2014 make
drwxr-xr-x    4 topel   staff    136 Jun 12  2014 python
drwxr-xr-x    3 topel   staff    102 Sep 13  2014 rasberrypi
-rw-r--r--    1 topel   staff   3179 Aug 31 10:51 sequences.fasta
drwxr-xr-x   24 topel   staff    816 Jul 17  2014 speciesgeocoder
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File permissions (more on this later)

ls -l

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```

User and group that owns the file

ls -l

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topel@Slartibartfasts:~/tests$ 
```

File size in bytes

ls -l

```
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Modification date

ls -l

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topel@Slartibartfasts:~/tests$ ▯
```

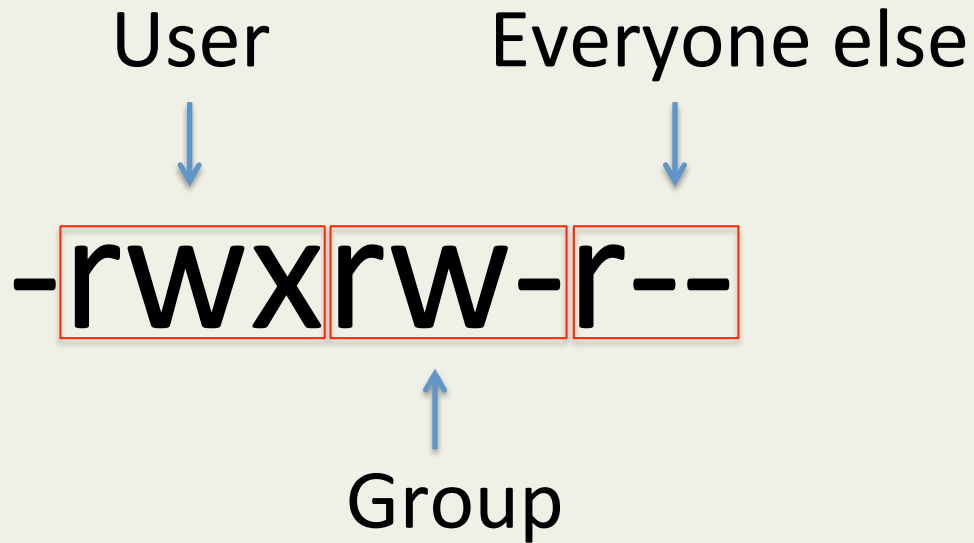Filenames

File permissions

-rwxrw-r--

File permissions

-rwxrw-r--

r = read
w = write
x = execute

File permissions

User   Everyone else

↓   ↓

-rwxrw-r--

↑

Group

r = read
w = write
x = execute

File permissions

-rwxrw-r--

↑

Type (file, link, directory etc.)

r = read
w = write
x = execute

File permissions
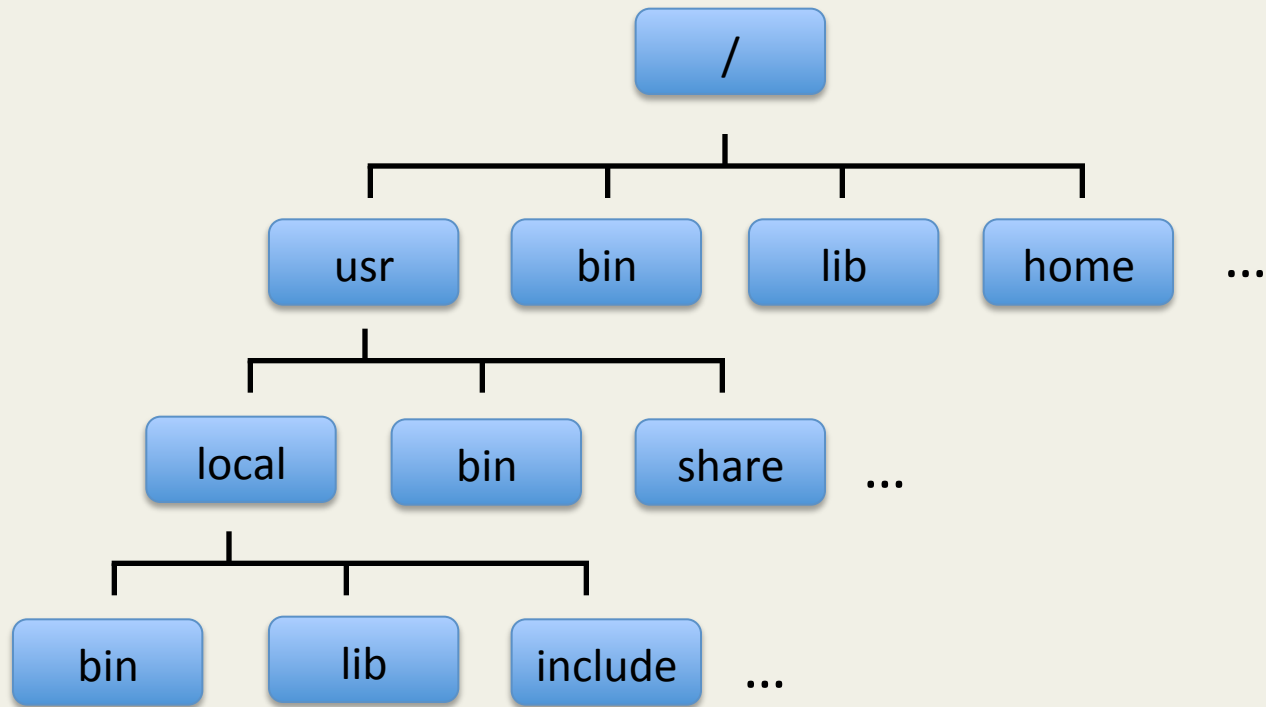
- File permissions can be changed using the command "chmod"
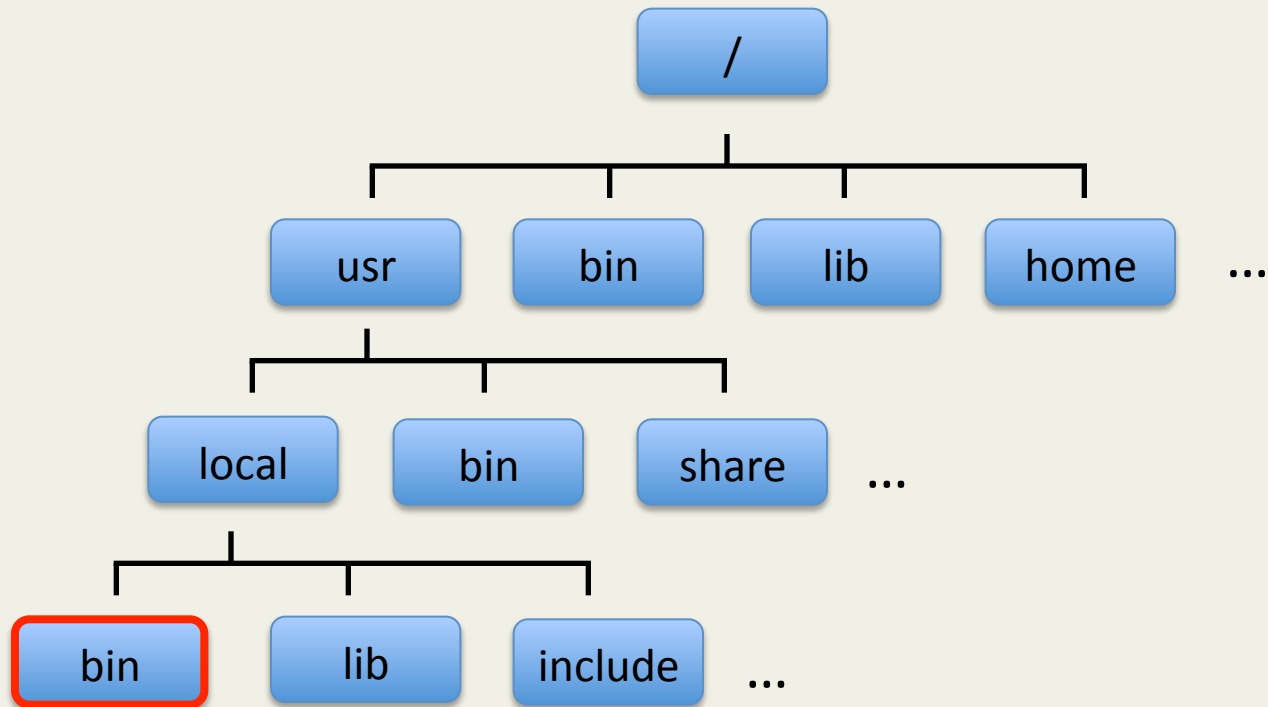
The command…

chmod +x my_file.txt

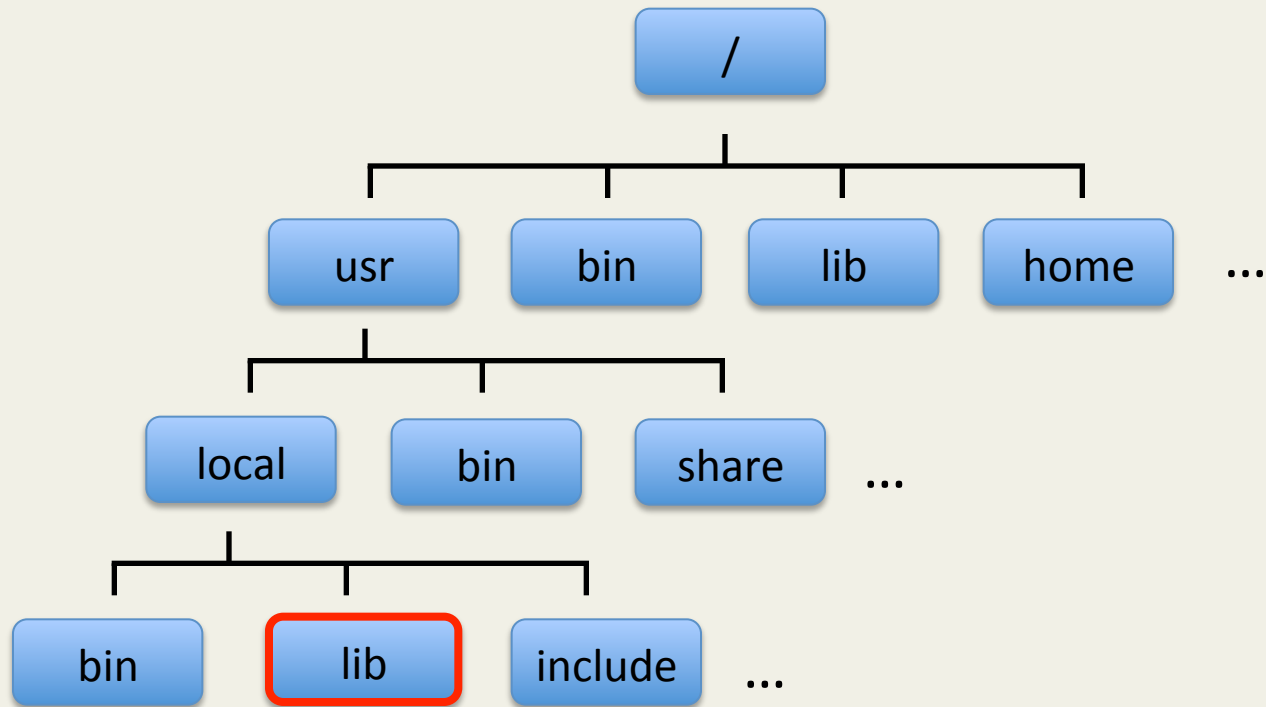…will make "my_file.txt" executable

UNIX file system

UNIX file system

/usr/local/bin

UNIX file system
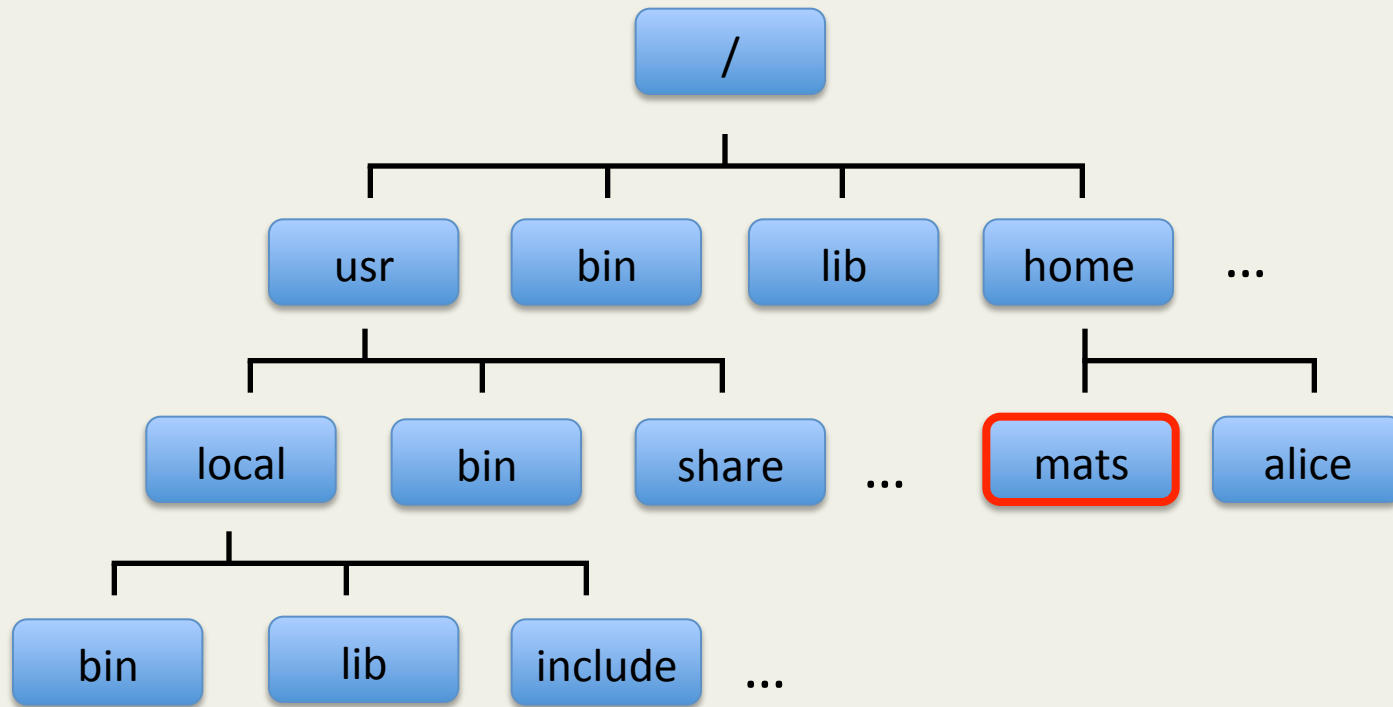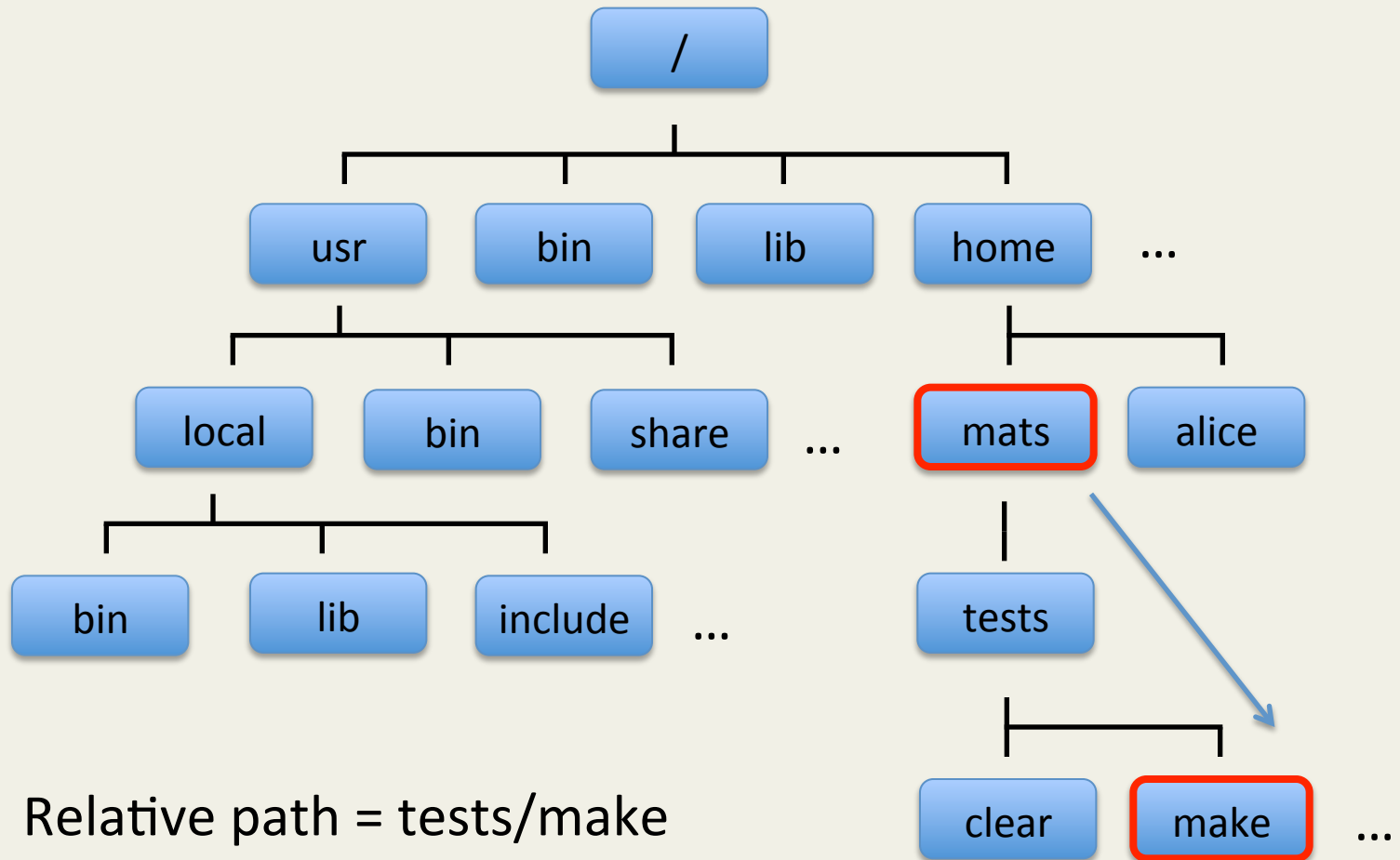

/usr/local/lib

UNIX file system

cd /usr/local/bin

cd – Change Directory

UNIX file system

/home/mats = ~

UNIX file system

Relative path = tests/make
cd tests/make
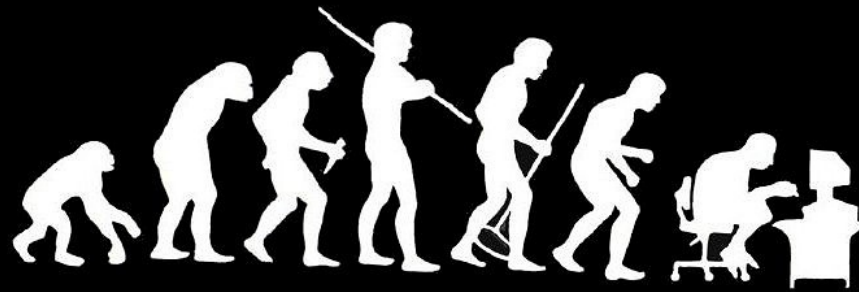
Something, somewhere went terribly wrong

Thank you for your attention!

Bash on Windows computers

I suggest you use the mobaxterm program. Go to …

http://mobaxterm.mobatek.net/download-home-edition.html

…and download the portable edition.

Suggested tutorials

To start with:

- Do tutorial One, Two, Three, Four, Five [up to 5.2] (and optionally Six) at

http://www.ee.surrey.ac.uk/Teaching/Unix/

Codecademy

- https://www.codecademy.com/en/courses/learn-the-command-line

For experienced users:

https://wikis.utexas.edu/display/bioiteam/Shell+Script