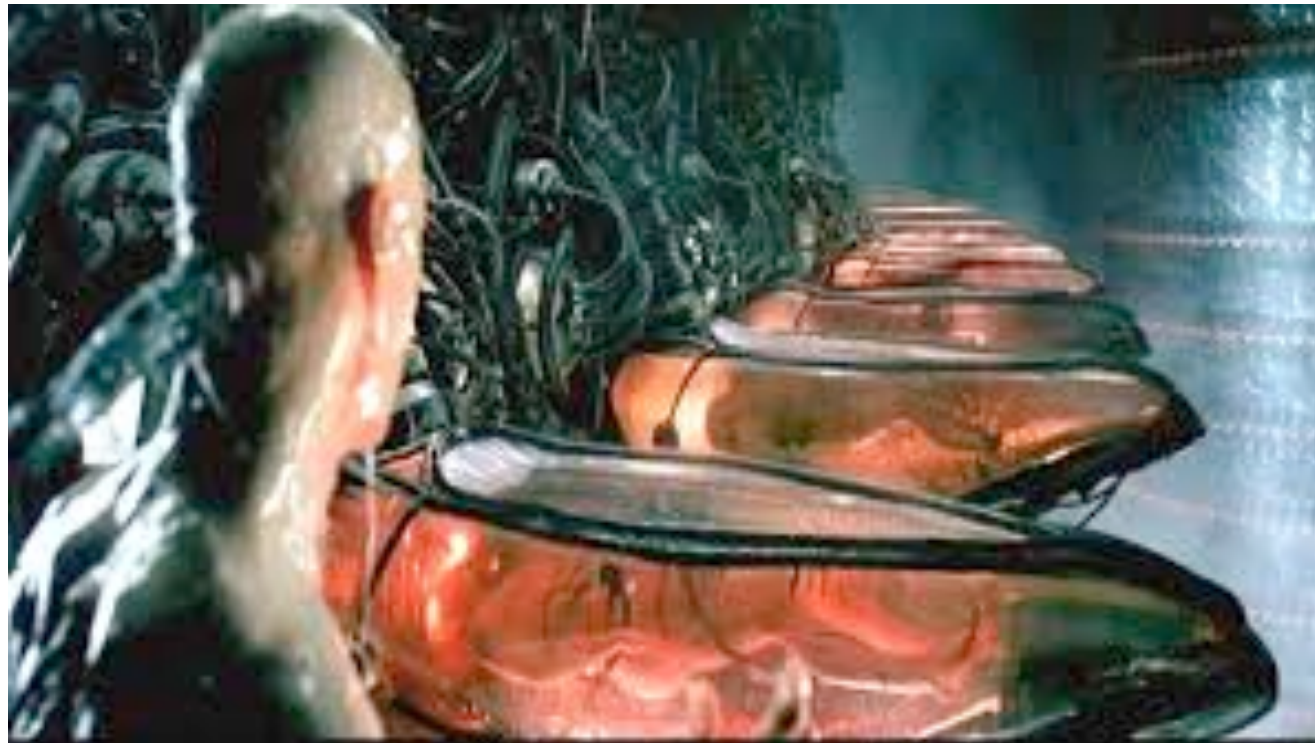
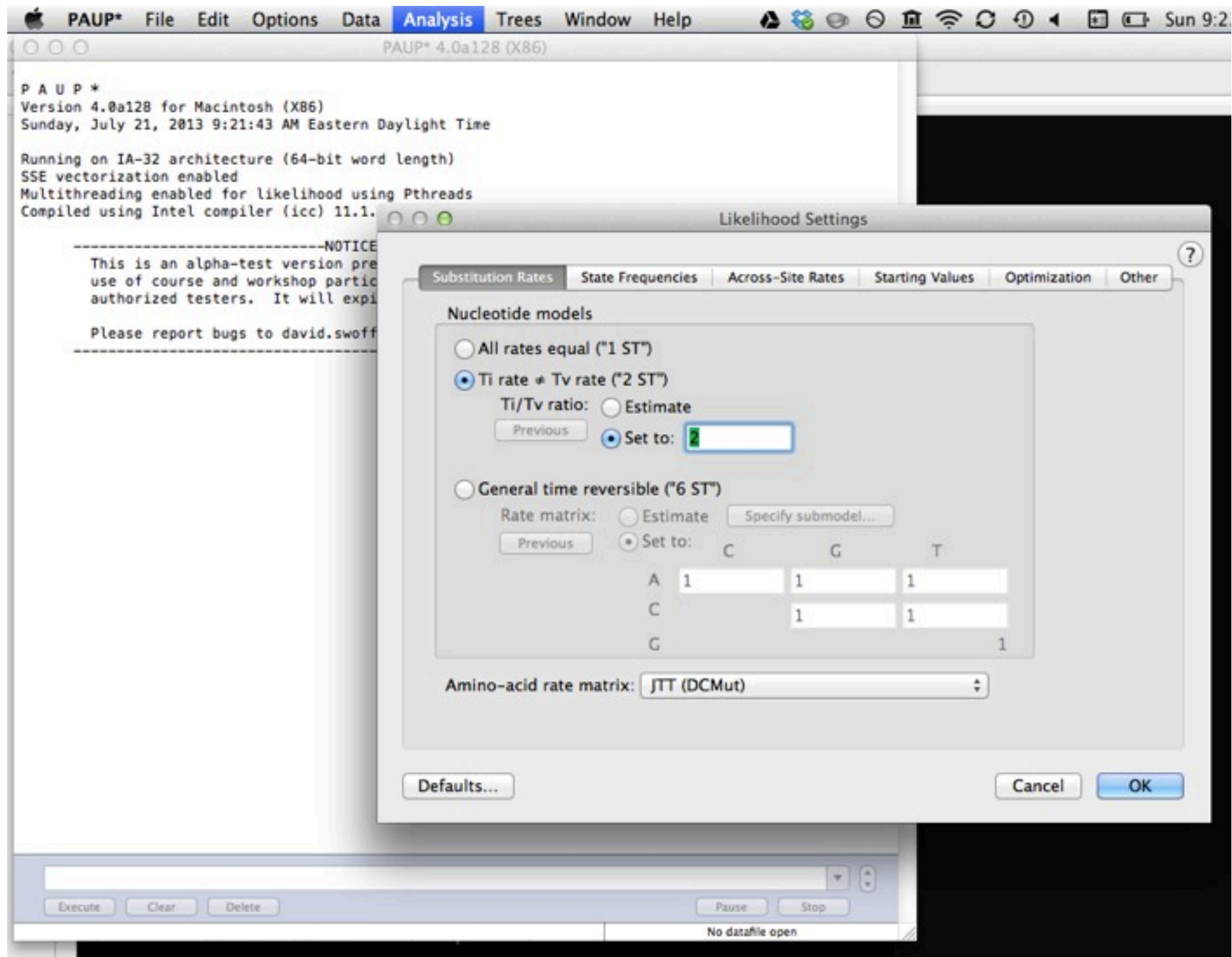


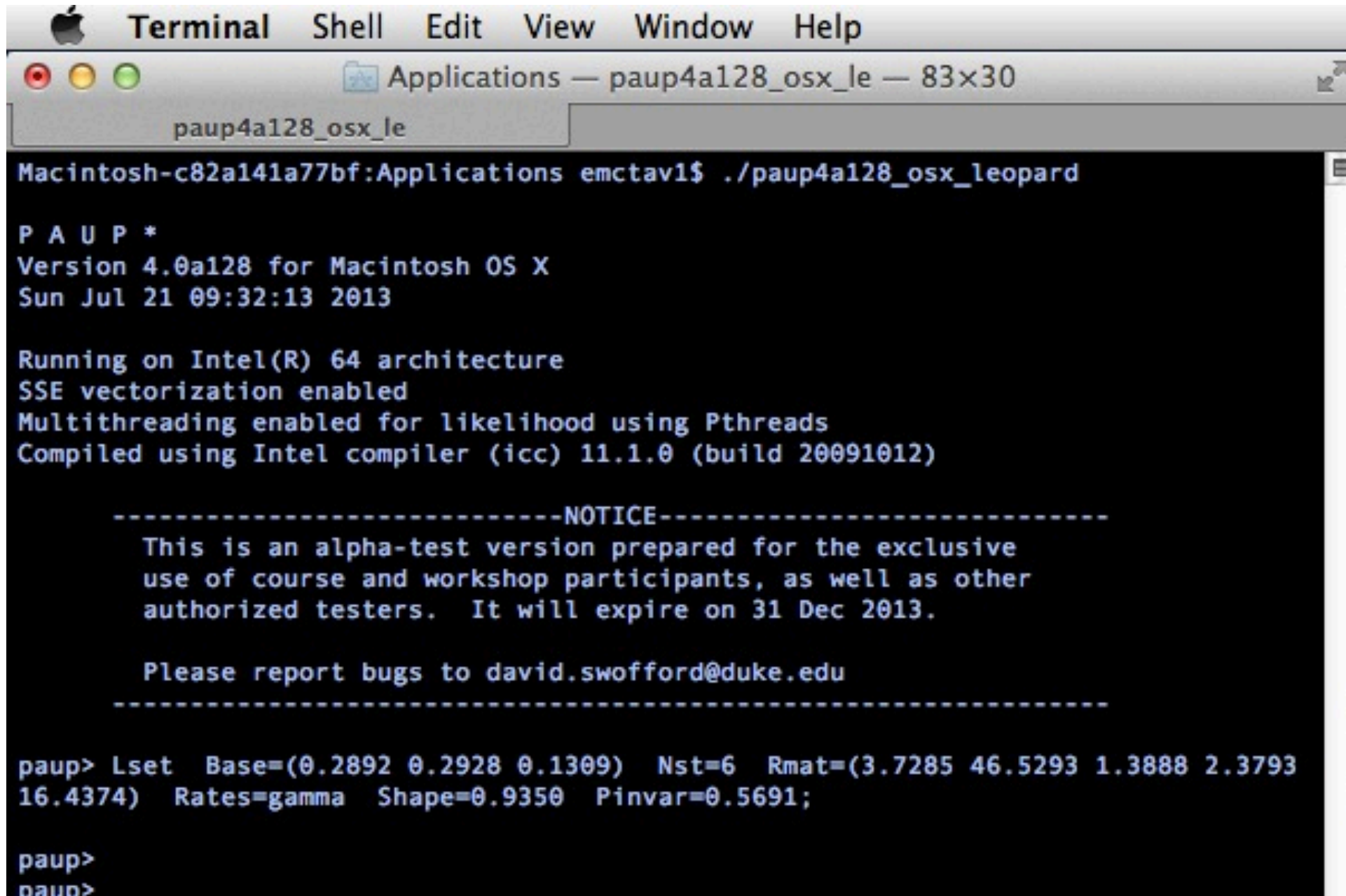
There are many ways to interact with your computer



Graphical User Interface (GUI)



Command line



```
Terminal  Shell  Edit  View  Window  Help
Applications — paup4a128_osx_le — 83x30
paup4a128_osx_le
Macintosh-c82a141a77bf:Applications emctav1$ ./paup4a128_osx_leopard

P A U P *
Version 4.0a128 for Macintosh OS X
Sun Jul 21 09:32:13 2013

Running on Intel(R) 64 architecture
SSE vectorization enabled
Multithreading enabled for likelihood using Pthreads
Compiled using Intel compiler (icc) 11.1.0 (build 20091012)

-----NOTICE-----
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use of course and workshop participants, as well as other
authorized testers.  It will expire on 31 Dec 2013.

Please report bugs to david.swofford@duke.edu
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paup> Lset  Base=(0.2892 0.2928 0.1309)  Nst=6  Rmat=(3.7285 46.5293 1.3888 2.3793
16.4374)  Rates=gamma  Shape=0.9350  Pinvar=0.5691;

paup>
paup>
```

127.0.0.1:8889/2d83e099-922a-4b9e-919f-884bef1c7e56

Most Visited Google Maps Scholar Geodendron Library Google translate Xsede whitenoise dev.o

IP[y]: Notebook

RegEx

Last saved: Aug 22 11:37 AM

File Edit View Insert Cell Kernel Help

Code

Open your file of interest

```
In [2]: struct=open("structureoutput.txt").readlines()
```

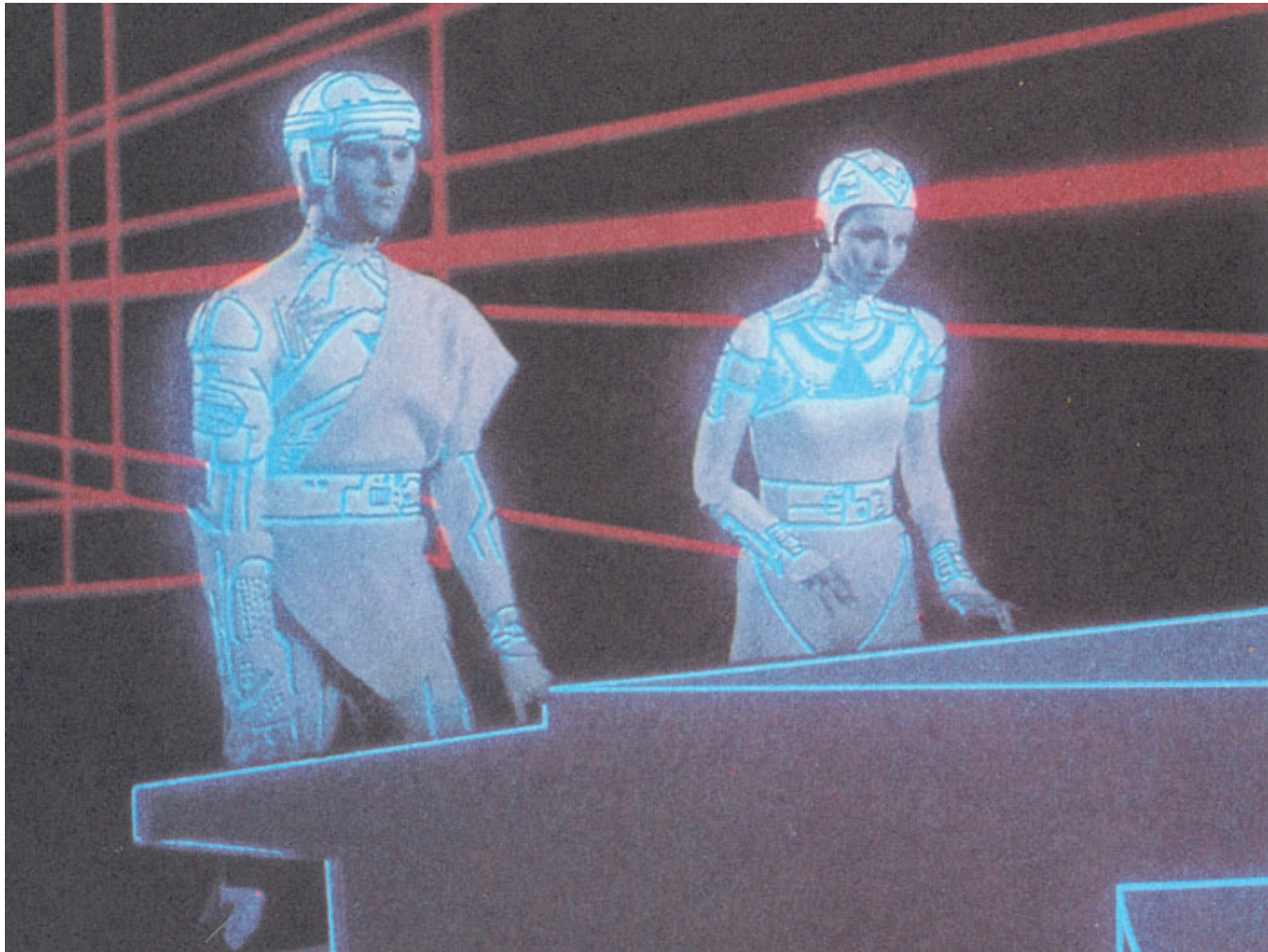
Import the regular expression module

```
In [3]: import re
```

I like to take a look to make sure I opened the right thing

Advantages of command line

- Ease of repetition
- Batch processing
- Cluster computing
- Makes you a hacker.
- Sometimes you just have to!



Directory Structure

You should be in your home directory

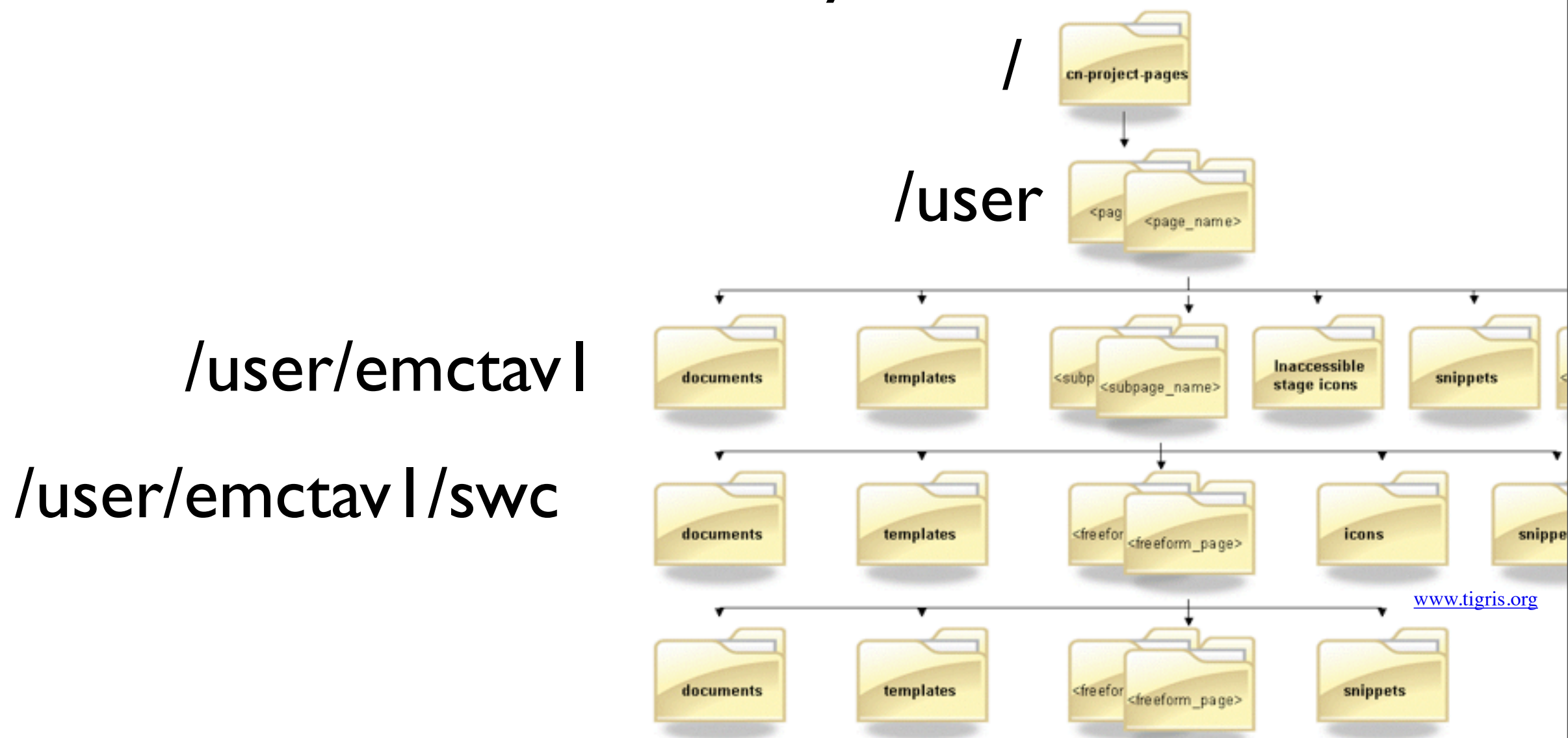
Use `pwd` to show where you are.

This is your “working directory”

Directory Structure

cd to move around

mkdir to make a new directory



Directory Structure

absolute paths start with '/'

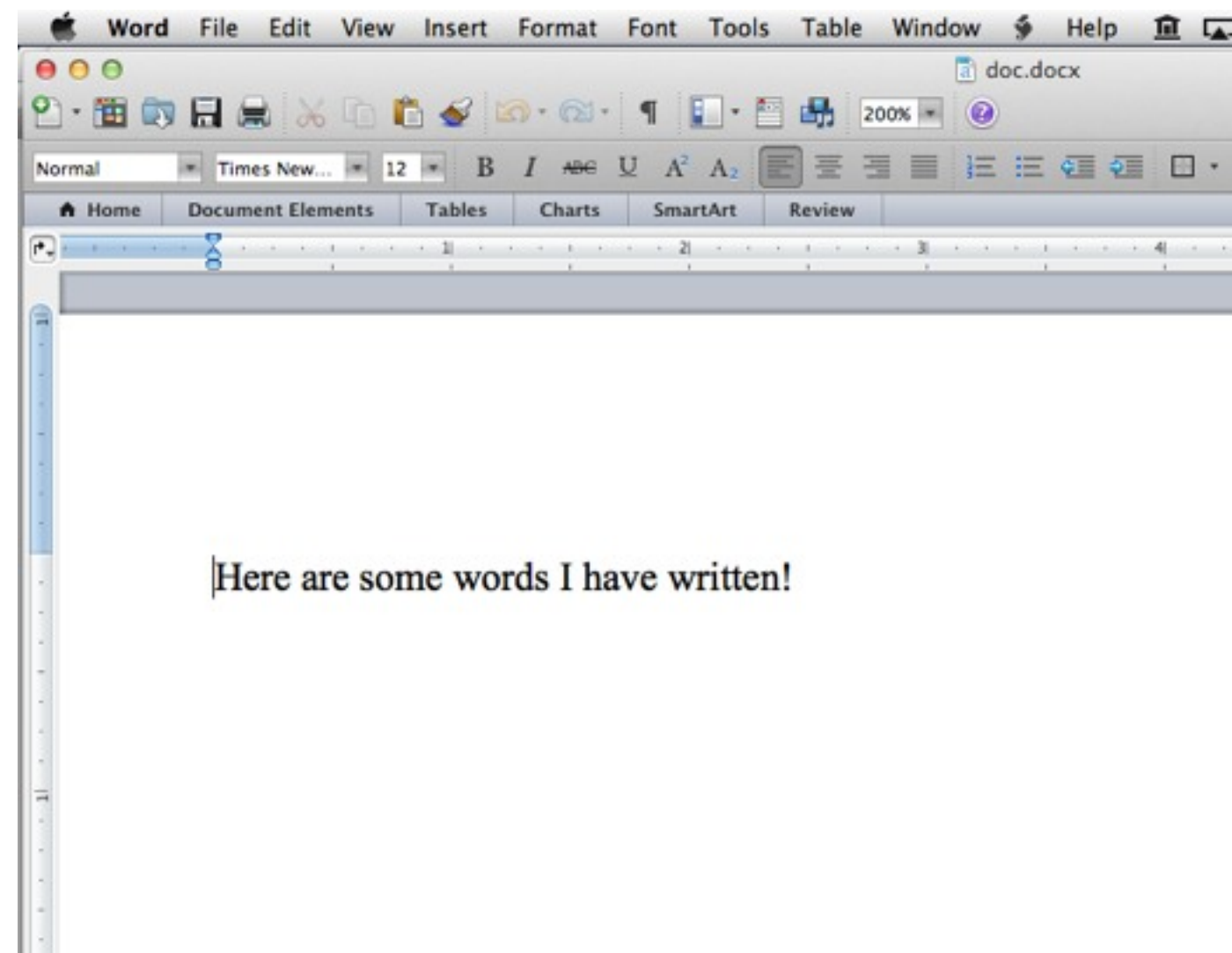
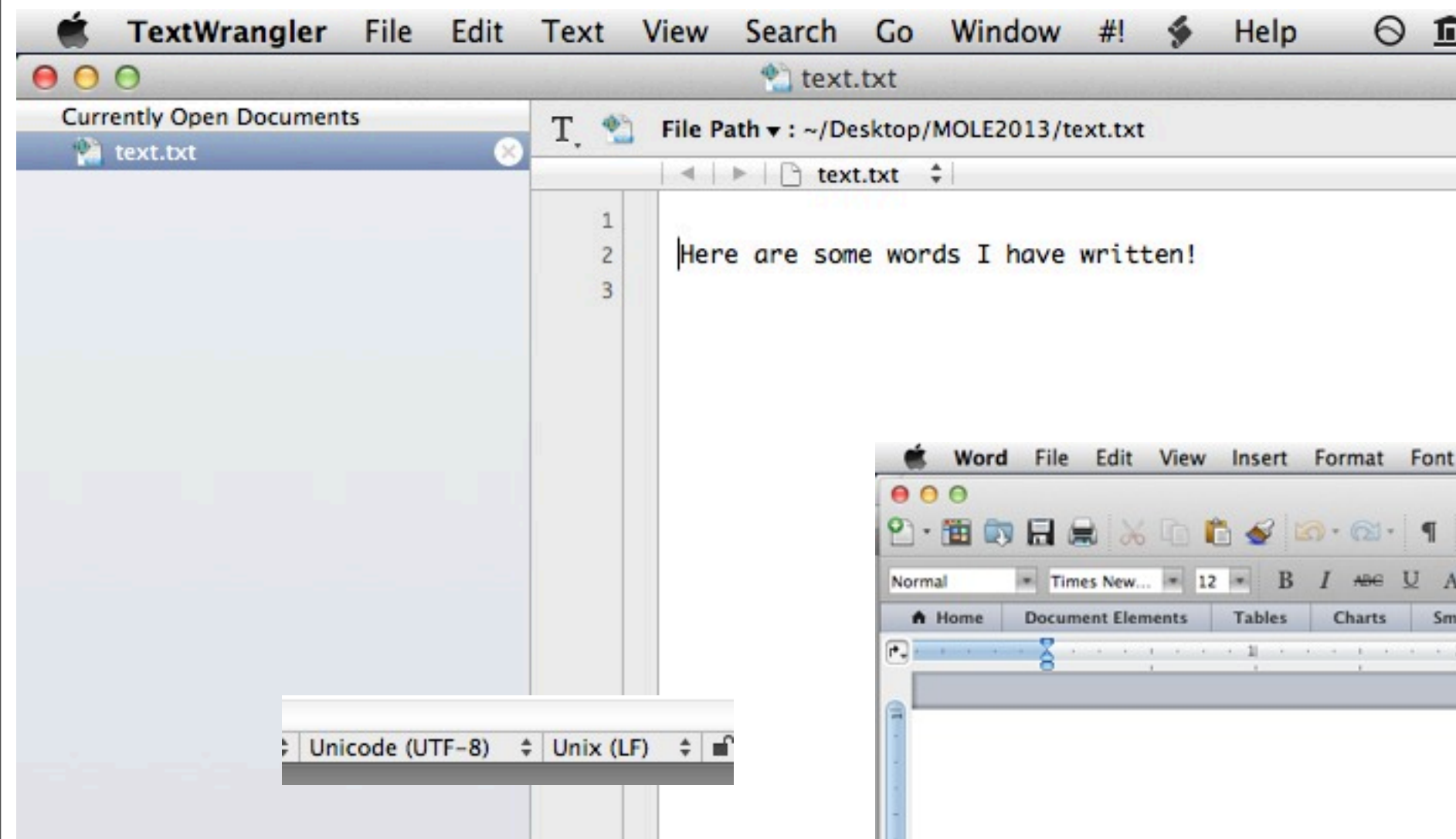
relative paths are relative to your current working directory.

. refers to the directory you are in

.. is the directory above

Running programs: need to tell the computer where they are! (i.e /Applications/paup)

Text editors vs. word processors



```
MOLE2013 — bash — 80x24
bash
Macintosh-c82a141a77bf:MOLE2013 emctav1$ head text.txt
Here are some words I have written!
Macintosh-c82a141a77bf:MOLE2013 emctav1$
```

Text editors vs. word processors

```
MOLE2013 — bash — 126x41
bash
??;B?????l?((?X???B???f:MOLE2013 emctav1$ head doc.docx
?"M??5h>?S??S?)/))?6:?????|7`??M0?@??&??f???]?`??pP<*???v
"?|h?5)????6Sf????c??`?و?I?(zi?N??}f??_,?
?l????????:0T["?p'اء??tn??&? QS?X?????.???,?_WF?L8W()???
??}'????F????G????? ?Y,ك??c??? ?sB`
????Ih??/YfS
????Y9??wr??F??JB?/?;?"?+Z(?e?daU?=????????<I?H?<4?e?:bG@AN ???mCAs+??_??bÉ$??4??
0???n?#?W?????H:#o???h{?JuLG
?&??????_?ao?? .8??t?????q????Uc??H<2??l???o??P!Jc?word/document.xml?UMs?0?w????l???
4?Is?L??e[???H????l1??vHr???{0?????,?=7V?Z?x??+?P????~;????:RZ??
?
r??\/?WI
l?'rB(?T?-H?N?B?Kj?R027d C?2?xX?I?QG??6???X?3U{j?N?eh??xE?PR?:?sF??B?I????l?lwz?
:U>'A?^??b??si3?gH6)???5??? ????'^??~--?? ??H?C???n ???]??0???$J<?J?J?Q5ub#J??/?v0???U?)?r?????Dbt;?H?????
u??QjmH"???
?eR&R????p??>?{d?I?e?o?S?G 8\B?iI????Ys?J?|'33?*-?/`M?_p6+7' ?%??C7%2B?i??_uP%8??o$3?????<???)???4/?????cT?Z?
?? L7???P!hu? word/_rels/document.xml.rels ?(????N?0??H???;qR? T@??8??:????^~???T??Z?%K?+?|kE???H??V<????H|3???n?Ld?d>??
?x??0???!H?3PT"?wpC??_T?Bi???d5?{ok???7BU8?G?q]????
?:????x?,1"/)?Eu??y
?<?E
NS?N}d3?{?wh???)A?X?j?P?0i?5?j??σ???????P!!Z???!word/theme/theme1.xml?Y0o
?G$SDA?c*???iEP?~???w?q??4??;{o?????g?\=J: BR?6??{??4?MG??v?{i5@R?4??L?
?n?????b??\?? V*[_X?!
c??H
?\$X??-D? ,?j+
?k??F????1UR?L??j?H1?_9?m&?f???a??1,?h5?,l\Y??Ssd+r]???????S???nc??V?????u:?v?^?33? ???]??
Macintosh-c82a141a77bf:MOLE2013 emctav1$
```

The prompt

```
Macintosh-c82a141a77bf:MOLE2013 emctav1$
```

```
Macintosh-c82a141a77bf:MOLE2013 emctav1$ '  
>
```

```
Multithreading enabled for likelihood using Pthreads  
Compiled using Intel compiler (icc) 11.1.0 (build 20091012)
```

```
-----NOTICE-----
```

```
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```

```
Please report bugs to david.swofford@duke.edu
```

```
-----
```

```
paup> █
```


Ctrl-C

tab ↑



Key commands

pwd

head

ls

cat

mkdir

less

mv

>

cp

>>

cd

|

Mini Exercise!

- Make a directory
- Try navigating
- Make a file saying anything a text editor (text wrangler/notepad ++)
- look at it using head or less in command line
- Download the structureoutput.txt file