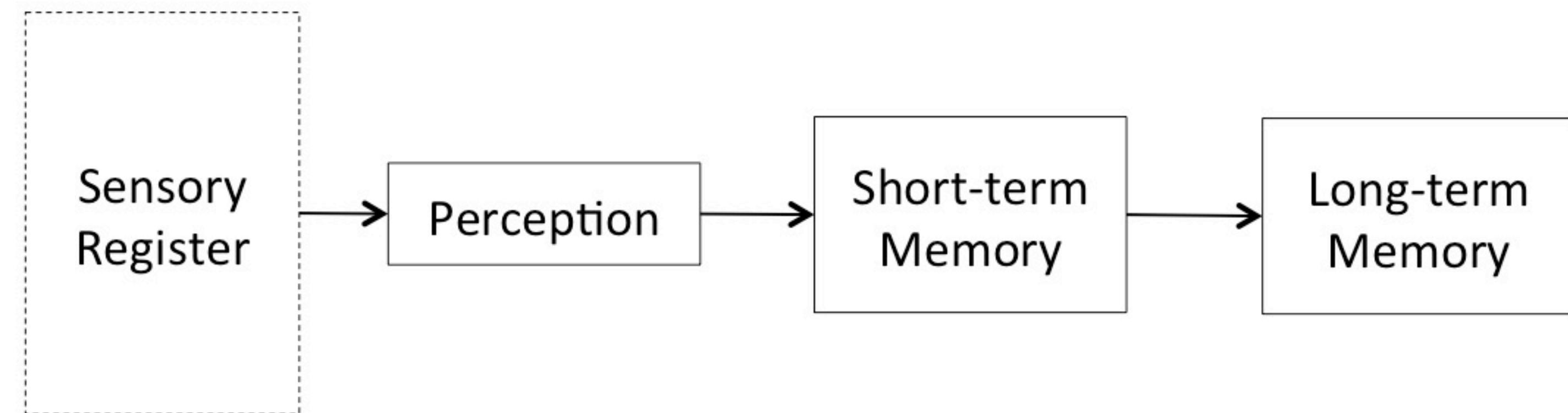


Long Term Memory

Long Term Memory



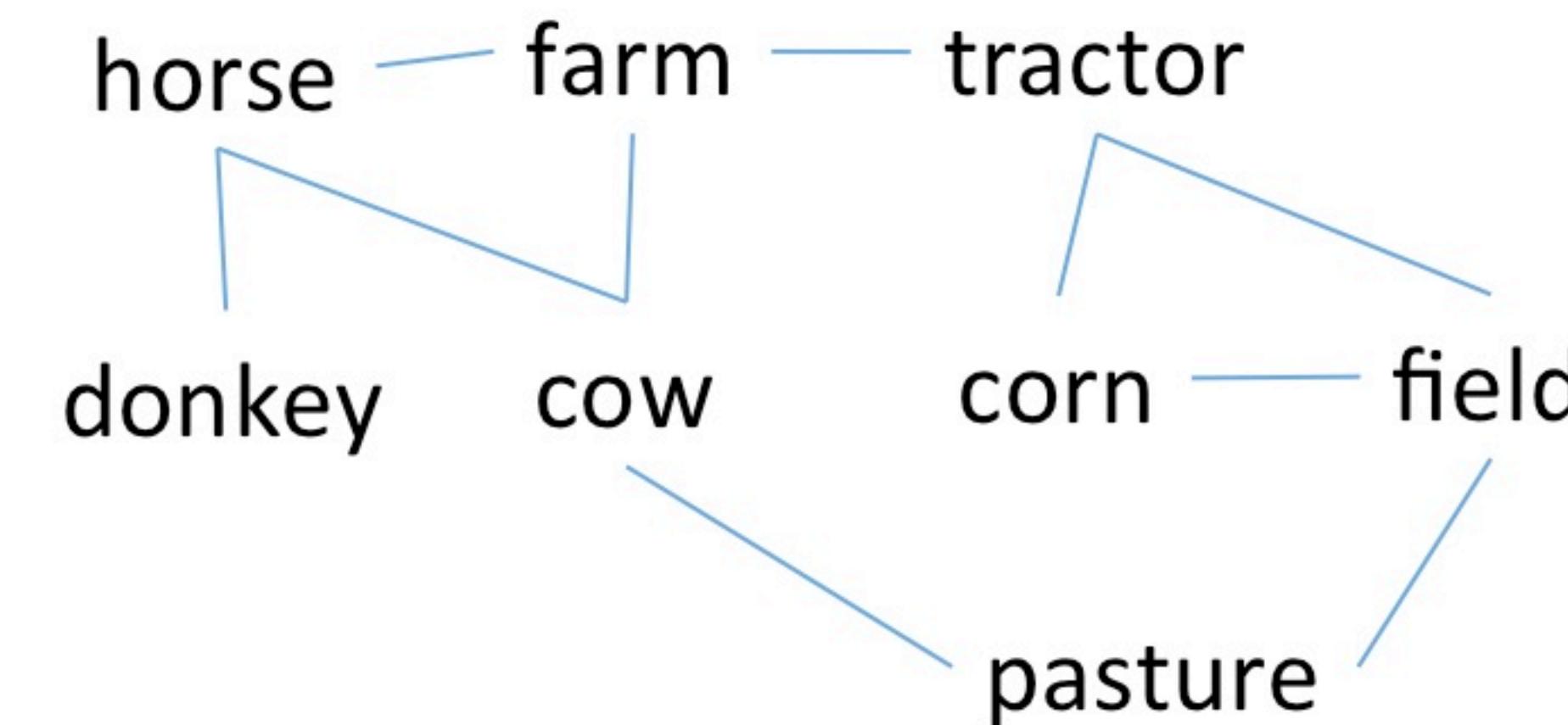
Long Term Memory

- Anything remembered for more than a few seconds
- Must be “copied” from short-term memory to long-term memory
 - Called “learning”

Transfer to Long-term Memory

- Association
- Repetition

Associative Memory



Top Bar Reserved for U-M Branding and Course Information



horse

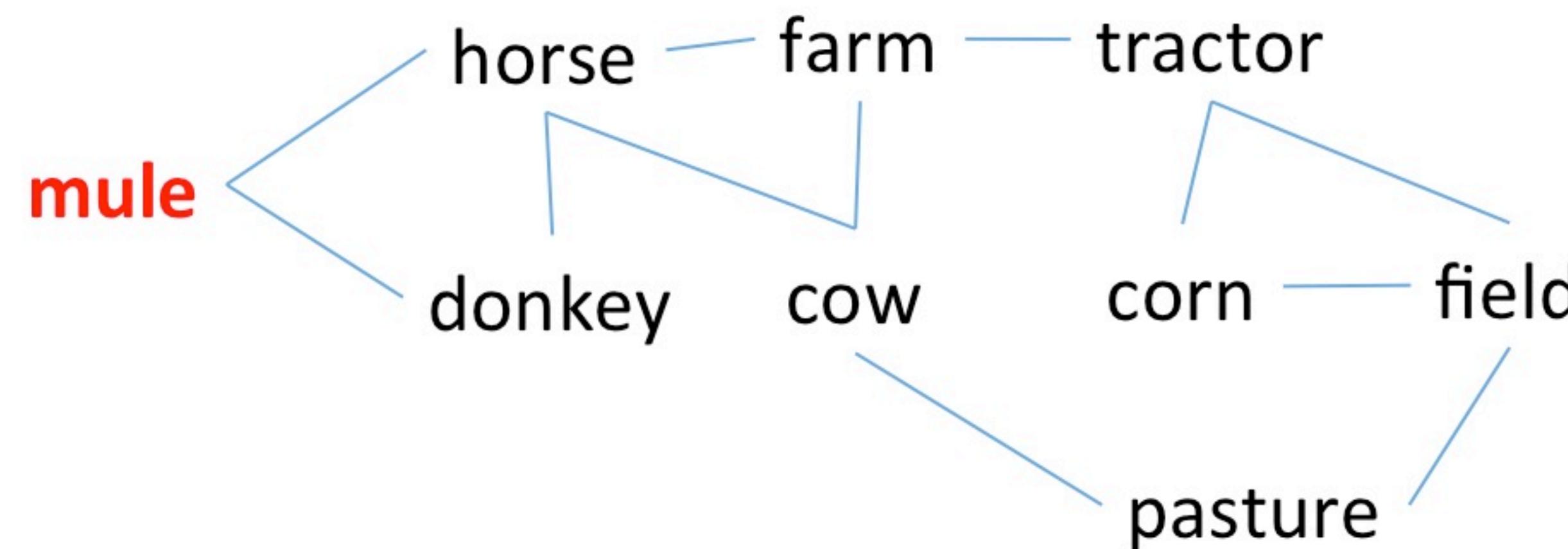


donkey



mule

Associative Memory





plzykofwkblu

Memorization

- “**Elaborative rehearsal**”
 - **Expendig effort to commit something to long-term memory**

Memorization

- “**Elaborative rehearsal**”
 - **Expendig effort to commit something to long-term memory**

Call us at 1-895-555-9368

Memorization

- “**Elaborative rehearsal**”
 - **Expendig effort to commit something to long-term memory**

Your user id is 76277,303

Memorization

- “**Elaborative rehearsal**”
 - **Expendig effort to commit something to long-term memory**

```
dhcp3-213:~ mwnewman$ ps auxw | grep launchd
```

Memorization

- “**Elaborative rehearsal**”
 - **Expendig effort to commit something to long-term memory**



Associative vs Elaborative

- Which is easier for a user?
- Which is more likely to be remembered?

Associative vs Elaborative

- Which is easier for a user?
- Which is more likely to be remembered?

Associative!

Likelihood of Remembering

- **Strength of association**
- **Recency**
- **Frequency**

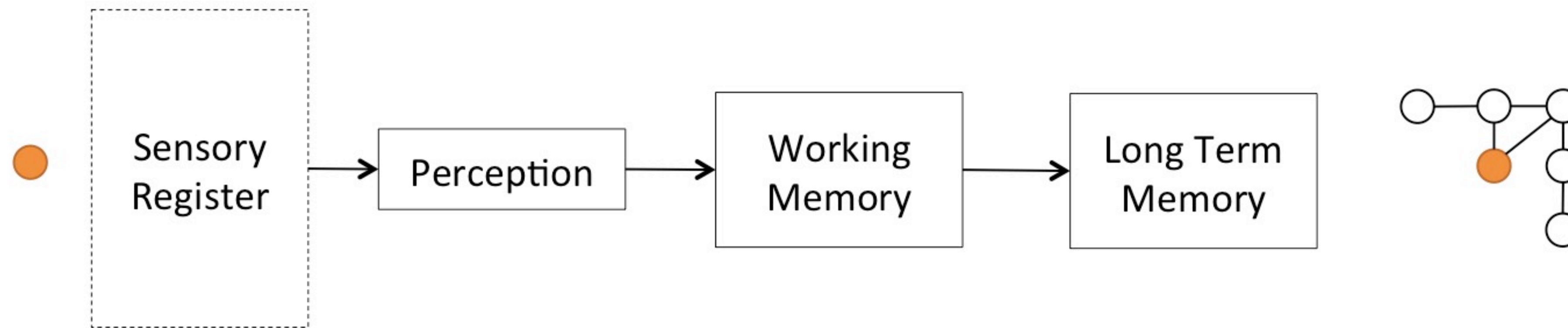
Likelihood of Remembering

- **Strength of association**
 - Fit with schema
 - Emotional valence
- **Recency**
- **Frequency**

Likelihood of Remembering

- **Strength of association**
- **Recency**
- **Frequency**
 - **Memories not “exercised” will fade away**

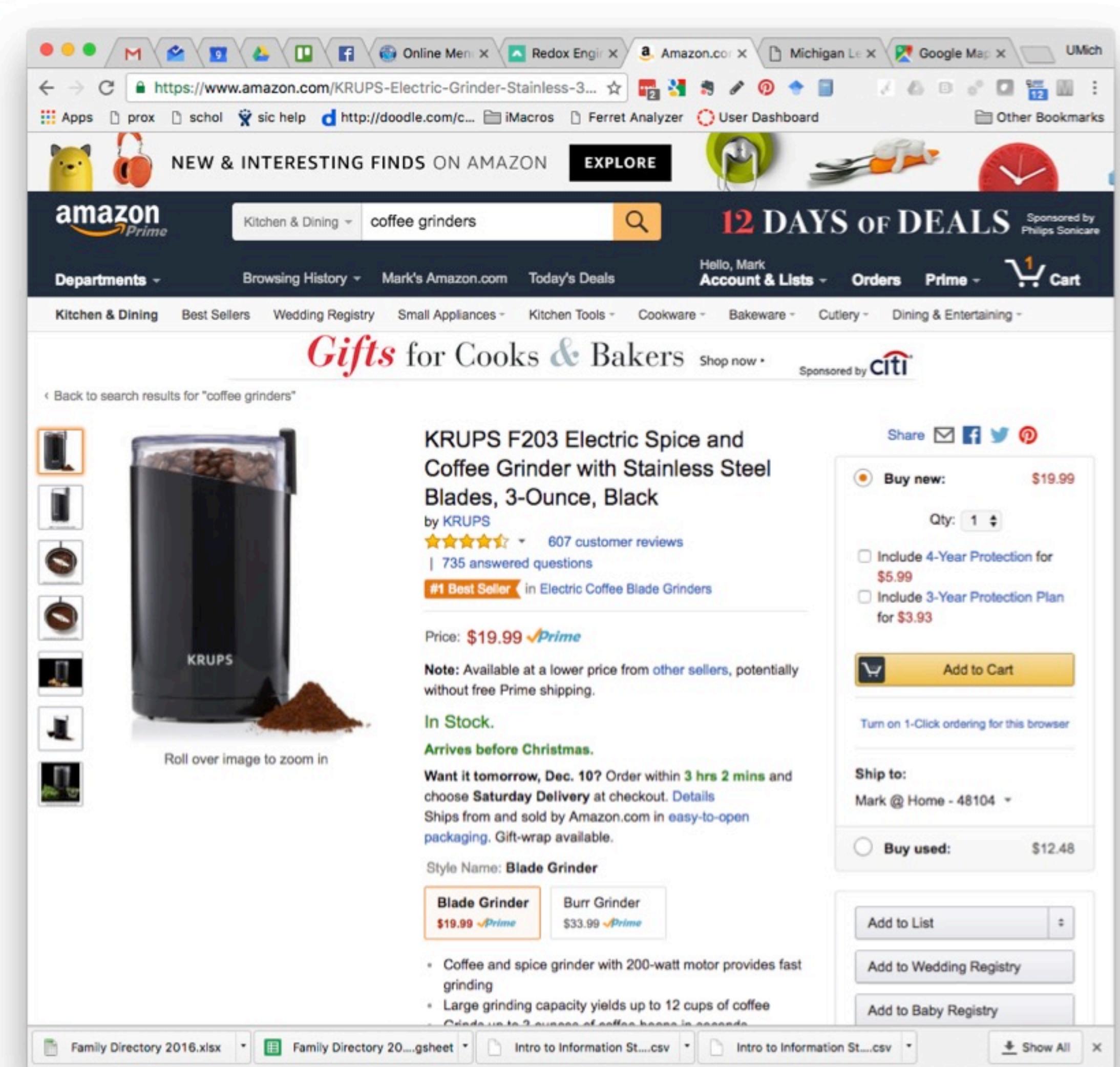
Remembering is often “primed”



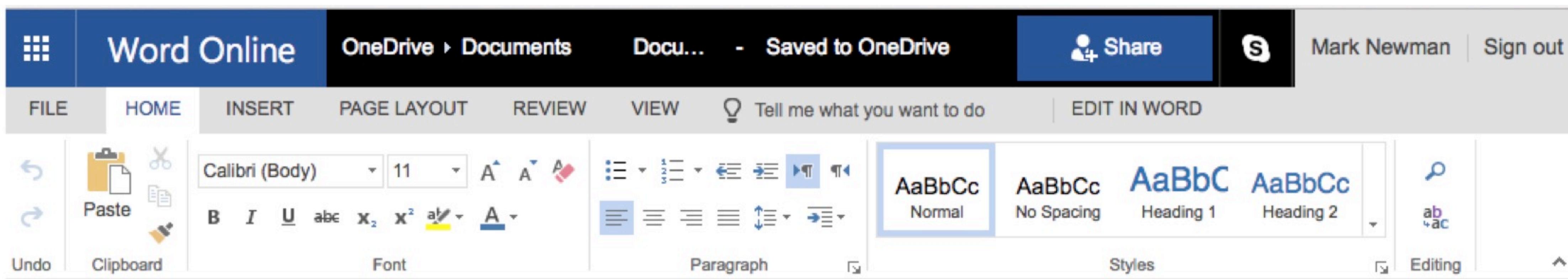
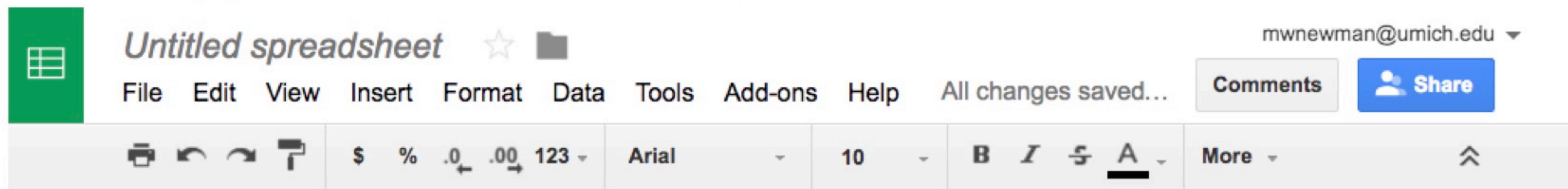
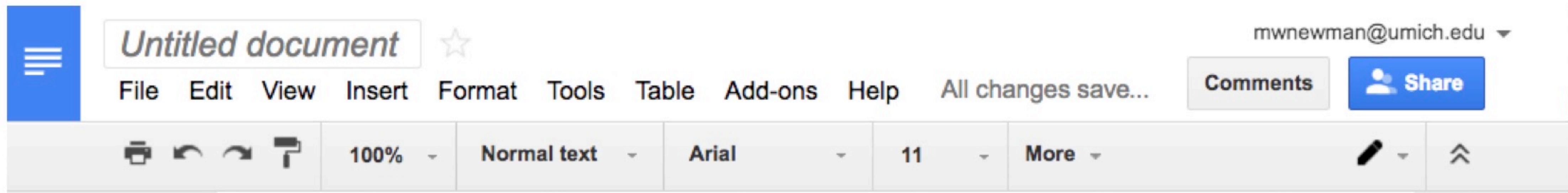
Principles

- Learning will work better if learner can fit into a schema
 - Use metaphors
 - Leverage standards and consistency
 - Avoid asking users to memorize stuff
- Prefer recognition over recall

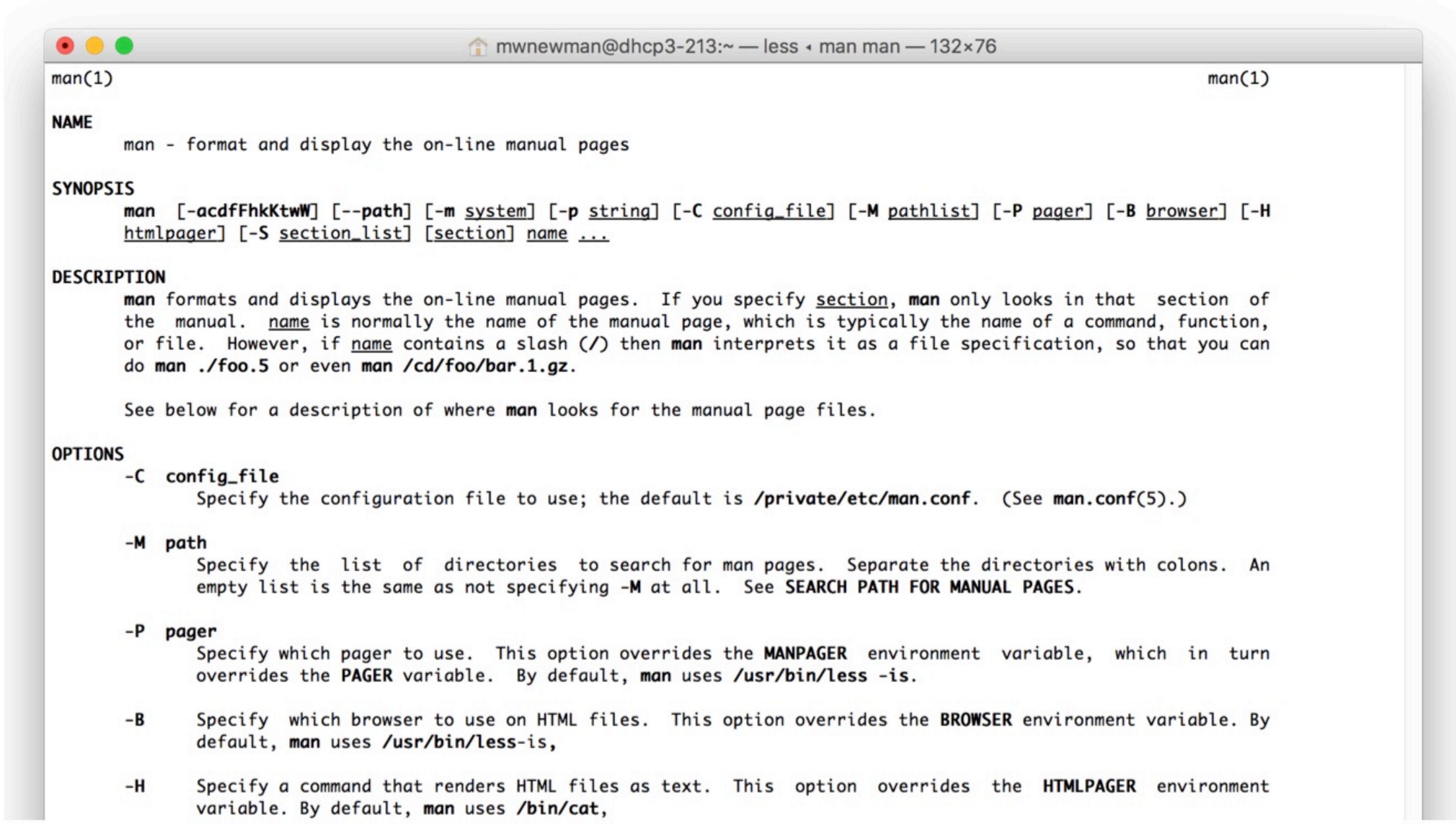
Use Metaphor



Leverage Consistency and Standards



Avoid asking users to memorize stuff



The screenshot shows a terminal window with a light gray background and a dark gray title bar. The title bar has three colored window control buttons (red, yellow, green) on the left and the text "mwnewman@dhcp3-213:~ — less < man man — 132x76" in the center. The main area of the terminal contains the man(1) manual page for the man command. The page is structured as follows:

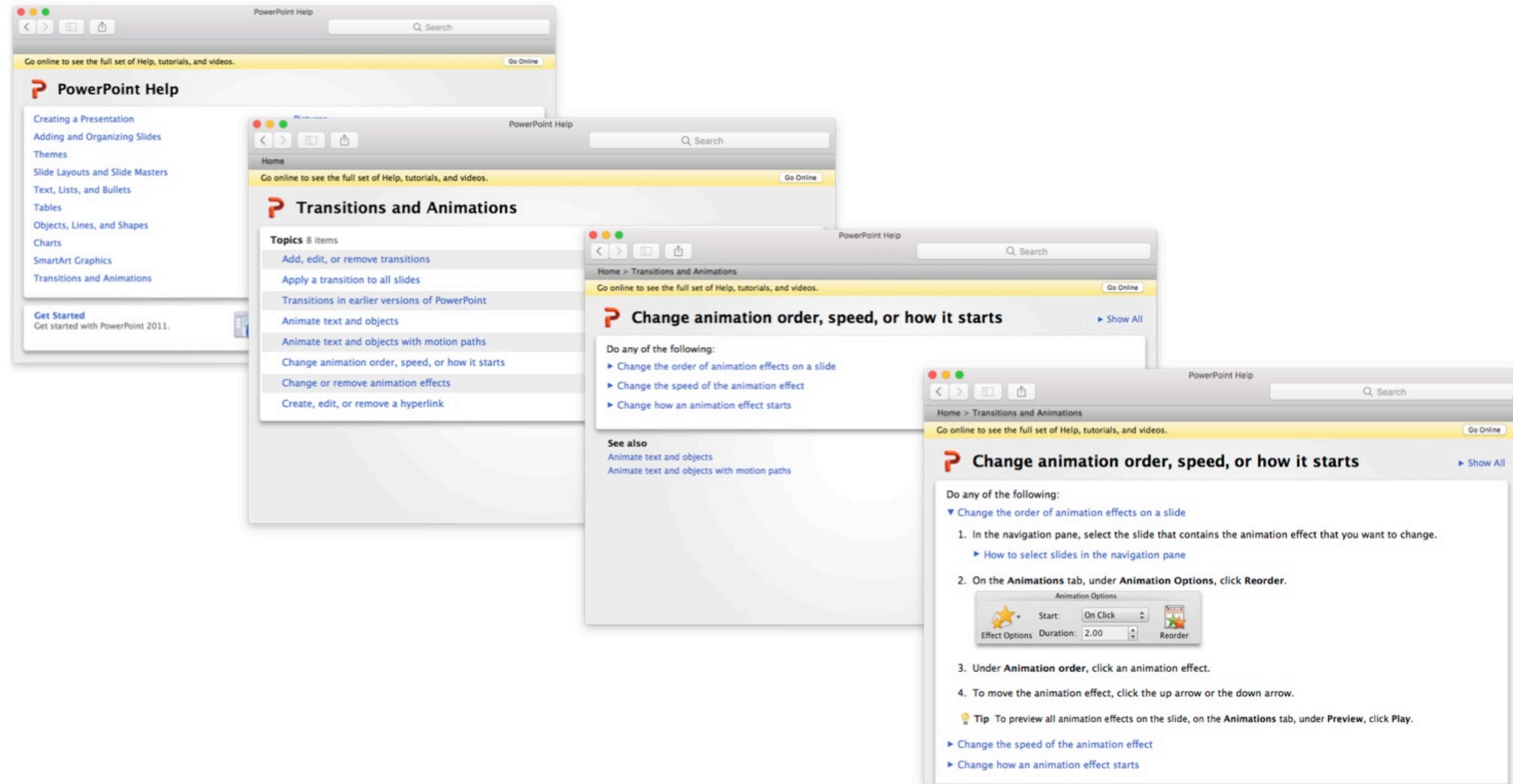
- NAME**
man - format and display the on-line manual pages
- SYNOPSIS**
`man [-acdfFhkKtwW] [--path] [-m system] [-p string] [-C config_file] [-M pathlist] [-P pager] [-B browser] [-H htmlpager] [-S section_list] [section] name ...`
- DESCRIPTION**
The `man` command formats and displays the on-line manual pages. If you specify `section`, `man` only looks in that section of the manual. `name` is normally the name of the manual page, which is typically the name of a command, function, or file. However, if `name` contains a slash (/) then `man` interprets it as a file specification, so that you can do `man ./foo.5` or even `man /cd/foo/bar.1.gz`.

See below for a description of where `man` looks for the manual page files.
- OPTIONS**
 - C config_file**
Specify the configuration file to use; the default is `/private/etc/man.conf`. (See `man.conf(5)`.)
 - M path**
Specify the list of directories to search for man pages. Separate the directories with colons. An empty list is the same as not specifying `-M` at all. See **SEARCH PATH FOR MANUAL PAGES**.
 - P pager**
Specify which pager to use. This option overrides the `MANPAGER` environment variable, which in turn overrides the `PAGER` variable. By default, `man` uses `/usr/bin/less -is`.
 - B**
Specify which browser to use on HTML files. This option overrides the `BROWSER` environment variable. By default, `man` uses `/usr/bin/less-is`,
 - H**
Specify a command that renders HTML files as text. This option overrides the `HTMLPAGER` environment variable. By default, `man` uses `/bin/cat`,

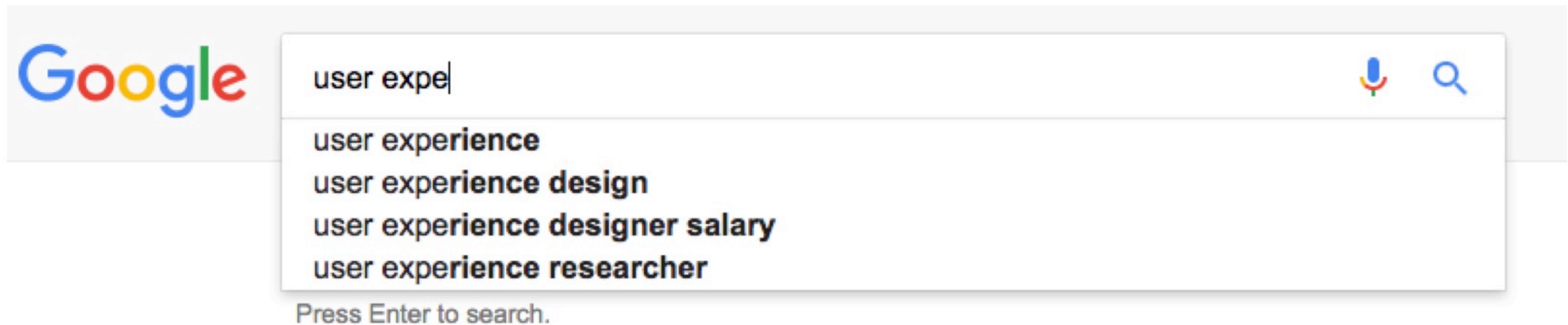
Avoid asking users to memorize stuff

Test Your Password		Minimum Requirements
Password: <input type="button" value="..."/>	<ul style="list-style-type: none">• Minimum 8 characters in length
Hide:	<input checked="" type="checkbox"/>	<ul style="list-style-type: none">• Contains 3/4 of the following items:<ul style="list-style-type: none">- Uppercase Letters- Lowercase Letters- Numbers- Symbols
Score:	9%	
Complexity:	Very Weak	

Prioritize recognition over recall



Prioritize recognition over recall



Principles

- Learning will work better if learner can fit into a schema
 - Use metaphors
 - Leverage standards and consistency
 - Avoid asking users to memorize stuff
- Prefer recognition over recall

Lesson 1 Wrap-up?

- Perception, Attention, Memory work together
 - A basic understanding of each can lead to better designs
 - We will return to these principles in Lesson 4
-
- Next up: a higher level look at how people ACT in the world