



Conceptual Models

Lecture 15, Week 9

March 2, 2015

CSC318HIS

Velian Pandeliev

Announcements

- Phase 3 is due TODAY at noon
- Assignment 4 is due Friday at 6 pm
- No elevator pitch on Wednesday!

Strike Information: How?

- I will continue to teach as normal (I am not in CUPE this term)
- Assignment due dates will not change.
- You will *NOT* have TA-led tutorials.
- This classroom is available in the tutorial slot so you can come here and work on your projects.
- Please direct any marking-related inquiries to me.
- You are expected to continue working on your courses.
- You cannot be penalized for not attending class if you feel unsafe or uncomfortable crossing a picket line.
- Assignment grading has been suspended for the duration of the strike.

Strike Information: Why?

CUPE3902 represents ~8000 TA's and sessional instructors.

The University's offer was rejected by a 90%+ margin.

I) Wages

Graduate student TA's make 42\$ / hour
but are only given ~200 hours per semester

Take-home pay is ~15 000\$ / year.

Not adjusted to inflation, fixed since 2008.

Poverty line in Toronto is ~20 000\$ / year.

2) Job security and health care benefits

35% of courses are taught by sessional instructors.

Strike Information: What do?

1) Read the CUPE 3902 position here:
<http://cupe3902.org/strike-documents/>

2) If you support CUPE 3902 and wish for the strike to end sooner, you may write a letter to the Provost (info above).

3) Picketers have been instructed to be courteous and respectful. They cannot stop you entering a building. Still, do not do anything that makes you uncomfortable.

No elevator pitch this week!

Questions on the board
Suggestions on the board

Conceptual Models

Conceptual model components

A conceptual model is built from:

- **Affordances** (what things can do) and **signifiers** (what things look like they can do)
- **Constraints** (what things are made not to do)
- **Mappings** (how actions relate to results)
- **Metaphors** (how things relate to user's prior knowledge)
- **Standards** and **norms** (how things should be)
- **Instructions** (what users are told to do)
- **Interactions** (what users learn by interacting with the system)

Affordances



4GIFs
.com

Signifiers vs Affordances

Affordances are **fixed** and somewhat incidental.

"Not necessarily perceived or knowable, they simply exist." [Gibson 1977]

Signifiers are **deliberate**: designers use them to highlight perceived affordances for the user.

Signifiers separate the important **information** (object is for sitting) from the **noise** (object is throwable, breakable, tippable, burnable, etc.)



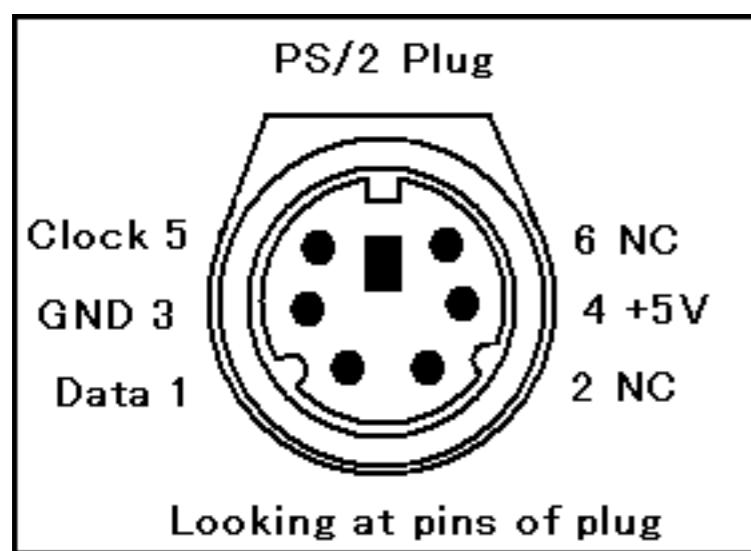
Constraints

Constraints limit the set of possible actions with an object or system to make proper use more likely.

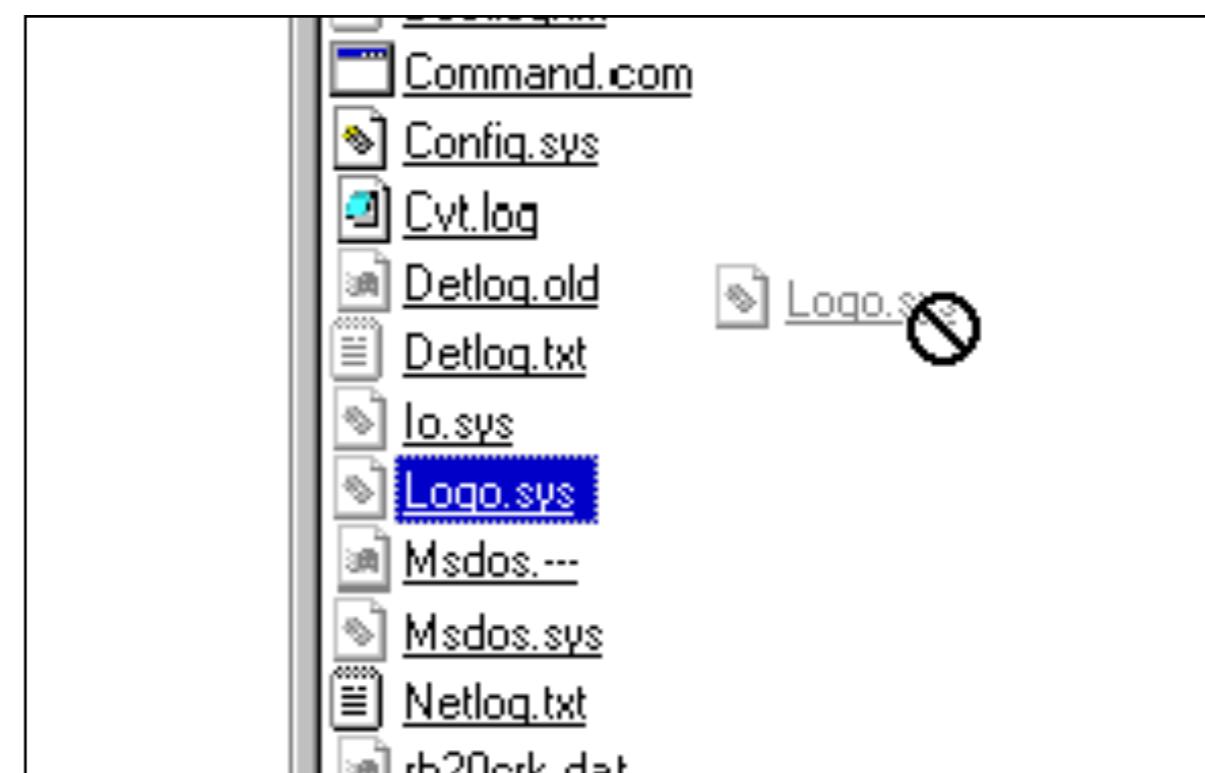
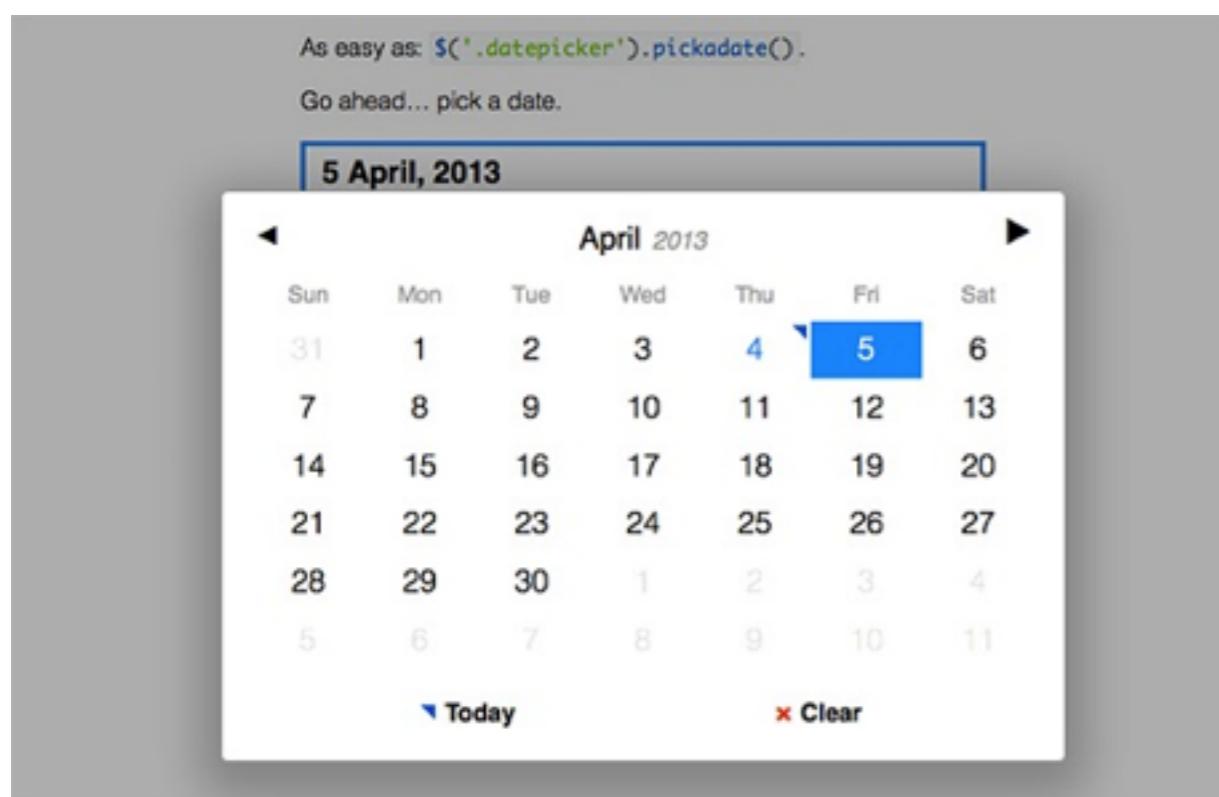
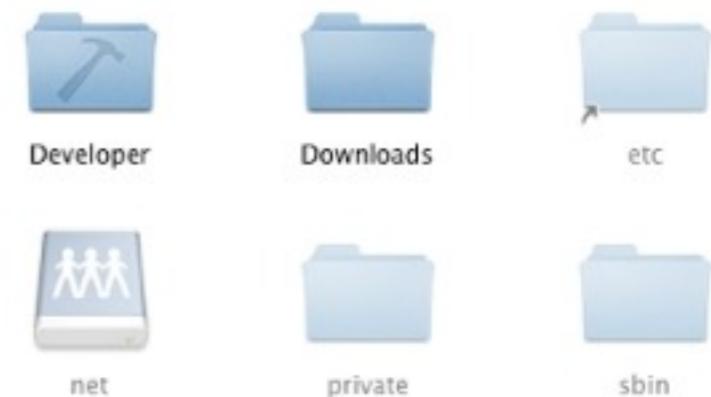
They help make perceived affordances a subset of safe affordances.



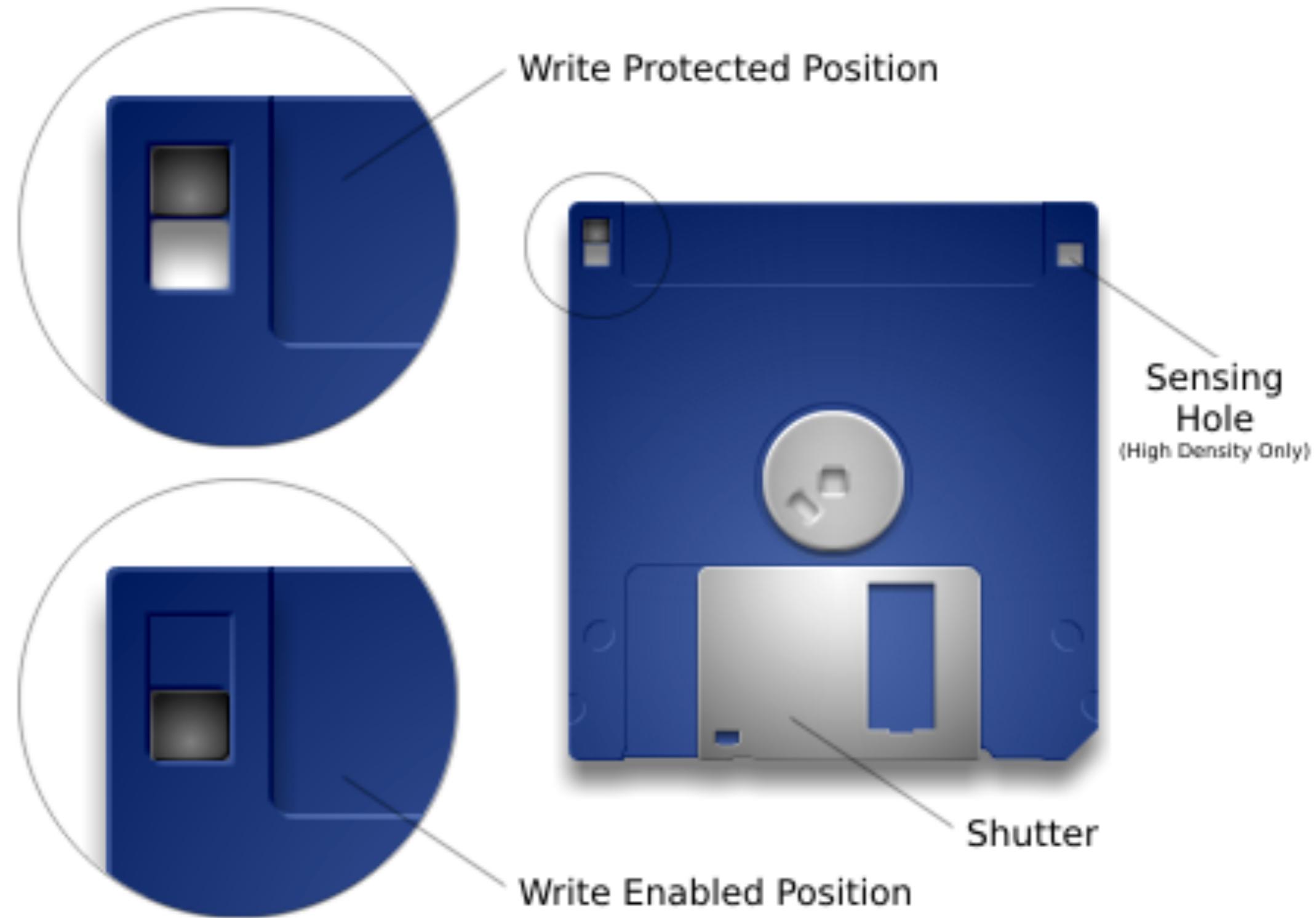
Physical Interface Constraints



Digital Interface Constraints



Digital/Physical Constraints



Mappings

Mappings connect controls and their movements to the outcomes of their use.

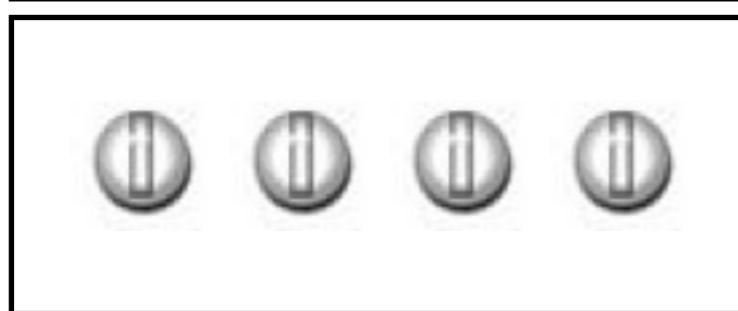
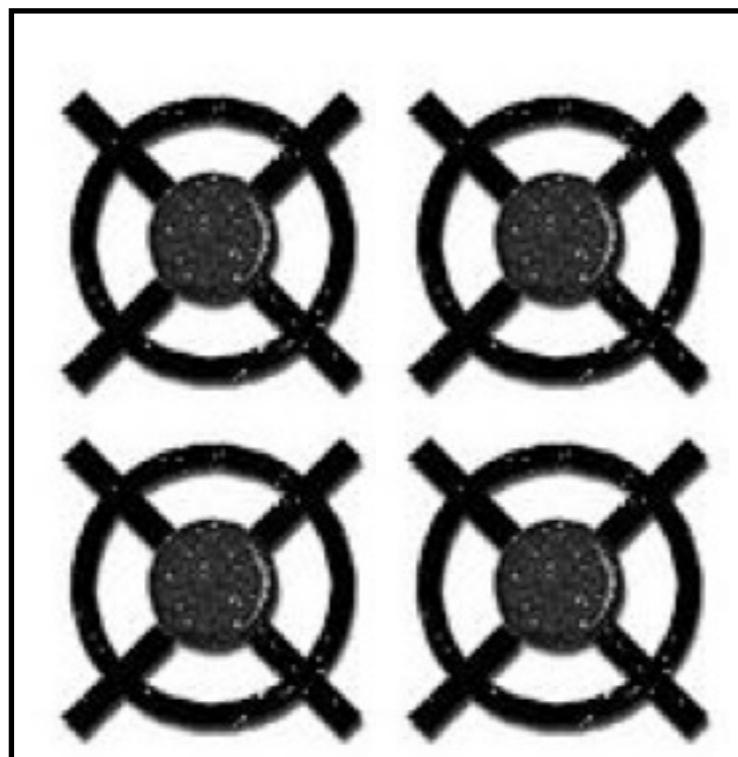
They indicate the causal relationships between action and outcome.

Mappings should clearly communicate:

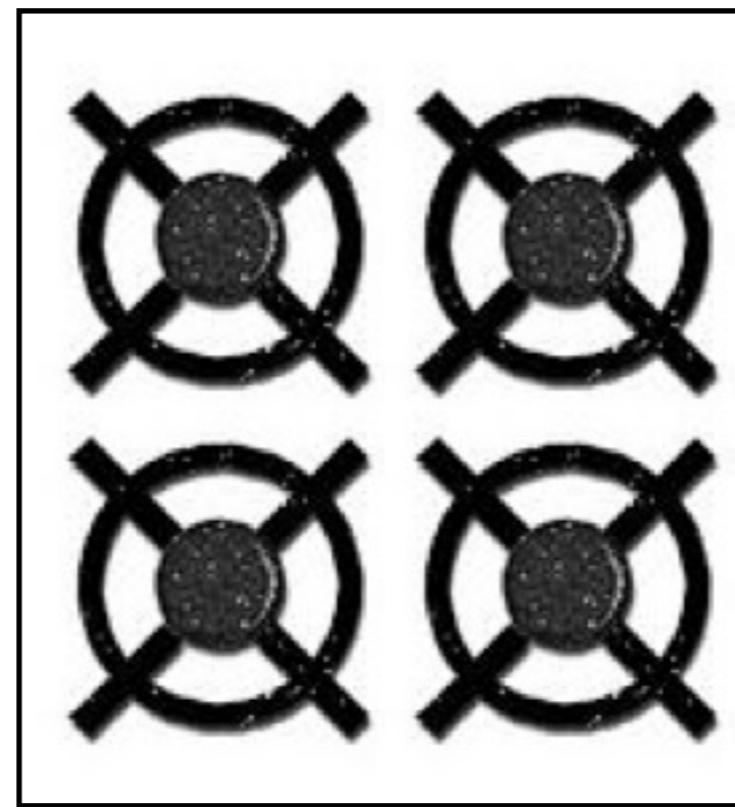
- **Target:** what will this control affect
- **Outcome:** how will this control affect it

Mapping Targets

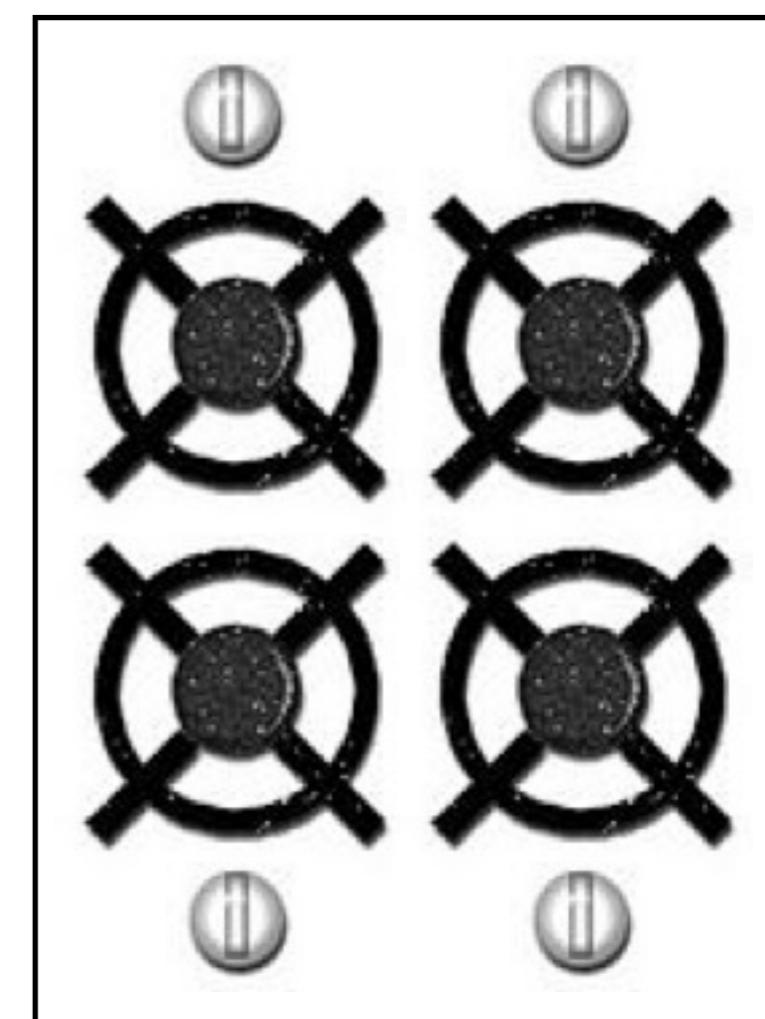
Natural mappings reduce cognitive load on the user by making it immediately obvious which control is associated with which object.



arbitrary



natural



natural, direct

Mapping Target Principles

Proximity

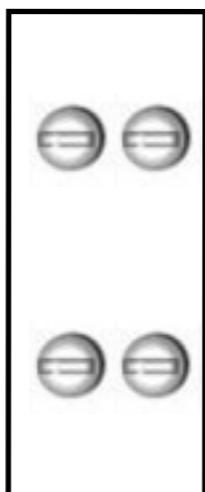
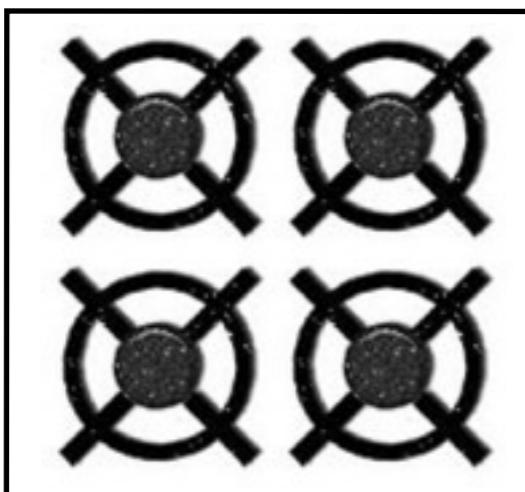
Phone 636.284.6564 (mobile)
Address Saint Charles, MO 63301



320-The_Beatles-
Another...no).mp3



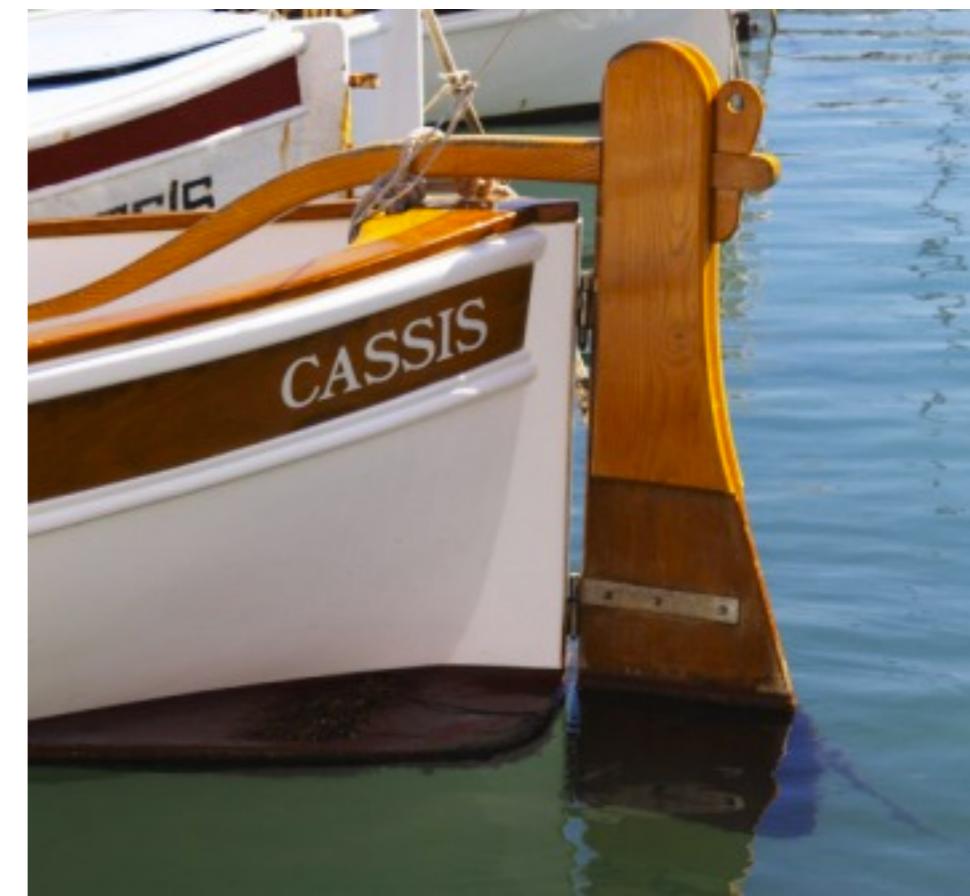
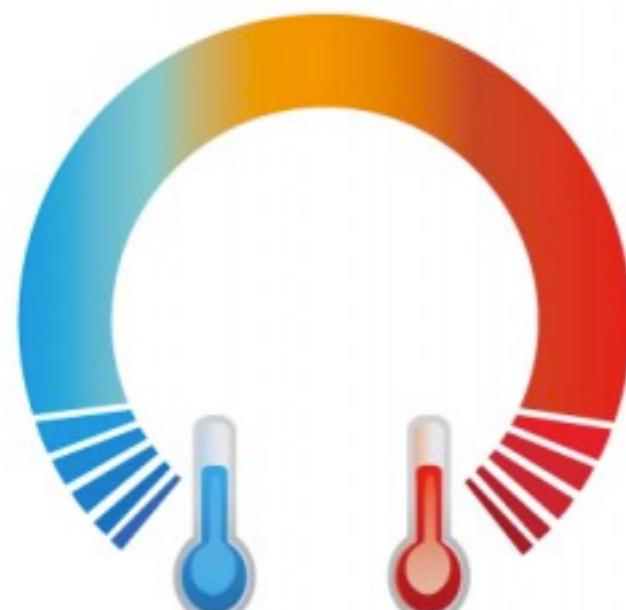
Correspondence



Experience



Mapping Outcome



Standards and Norms

Standards in interface design are expectations that are binding and explicitly stated.

Standards may be imposed by an OS, by the underlying technology, by human factors research, etc.

E.g., QWERTY vs DVORAK, minimal size of clickable elements, "Material design"

Norms are expectations that are implicit and may be different for different cultures or groups.

E.g., left-to-right progress, colour preference, etc.

Metaphors

Metaphors are ways of relating aspects of an interface to familiar objects or concepts.

In literature, a metaphor is "*a figure of speech in which a term or phrase is applied to something to which it is not literally applicable in order to suggest a resemblance*" [reference.com]

They make an interface easier to understand by relying on users' specific knowledge about other domains.

They are especially useful when your app's domain knowledge is too difficult to acquire or too complex to describe in simple terms.

Metaphors

SOCIAL MEDIA EXPLAINED

TWITTER I'M EATING A #DONUT

FACEBOOK I LIKE DONUTS

FOURSQUARE THIS IS WHERE
I EAT DONUTS

INSTAGRAM HERE'S A VINTAGE
PHOTO OF MY DONUT

YOUTUBE HERE I AM EATING A DONUT

LINKEDIN MY SKILLS INCLUDE DONUT EATING

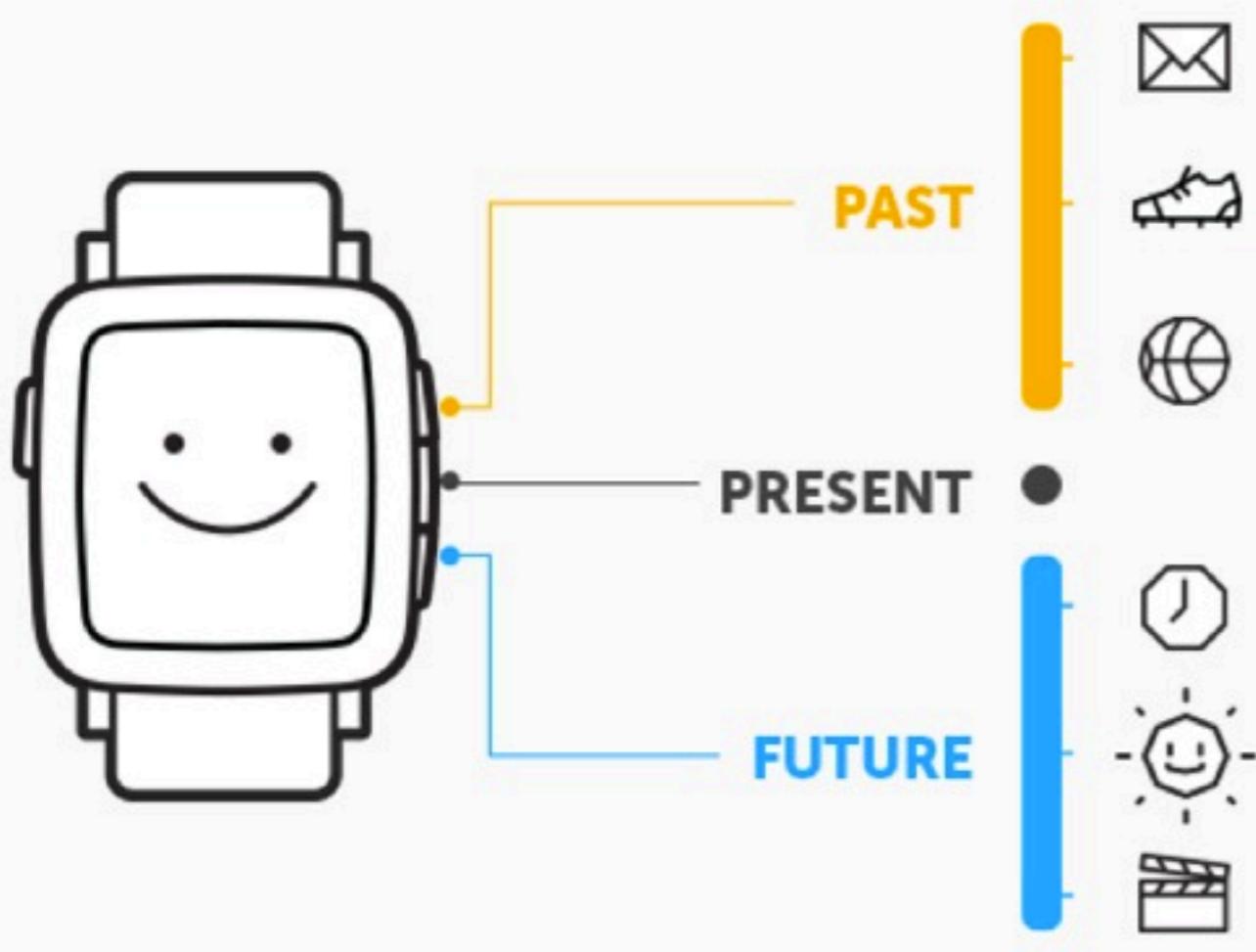
PINTEREST HERE'S A DONUT RECIPE

LAST FM NOW LISTENING TO "DONUTS"

G+ I'M A GOOGLE EMPLOYEE
WHO EATS DONUTS.

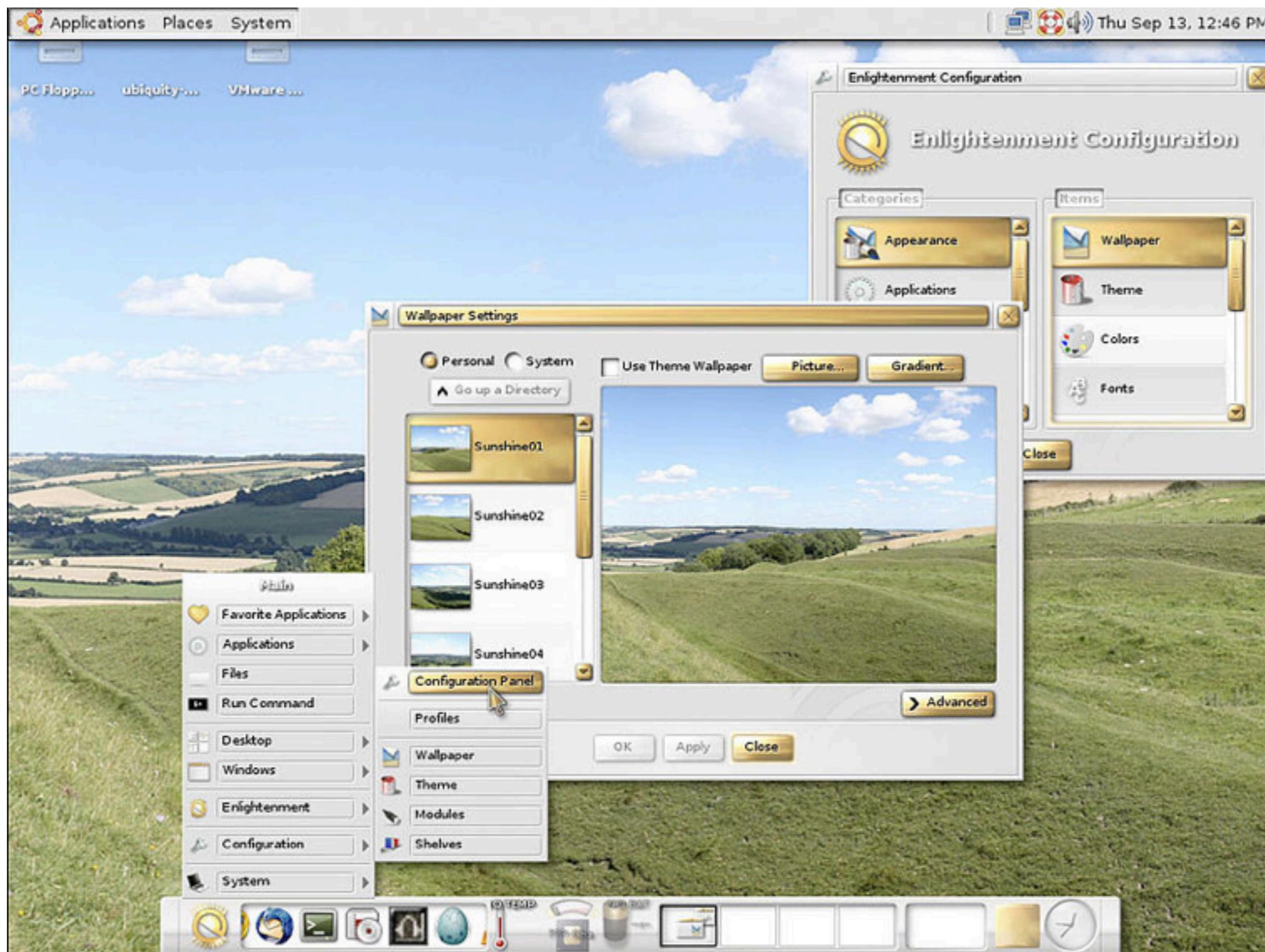
Metaphor: Pebble Time

**One click
to what matters**

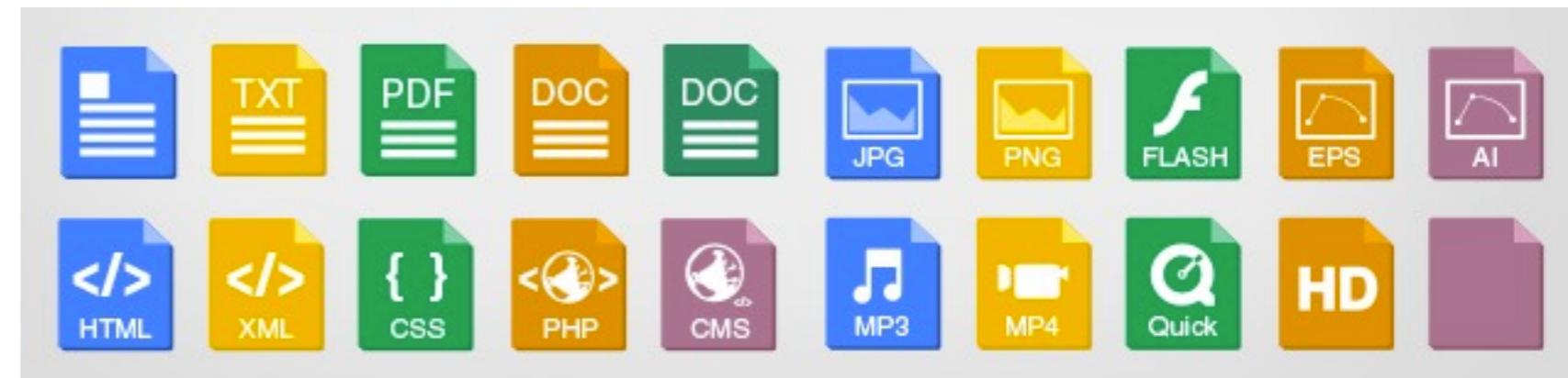


Desktop /WIMP

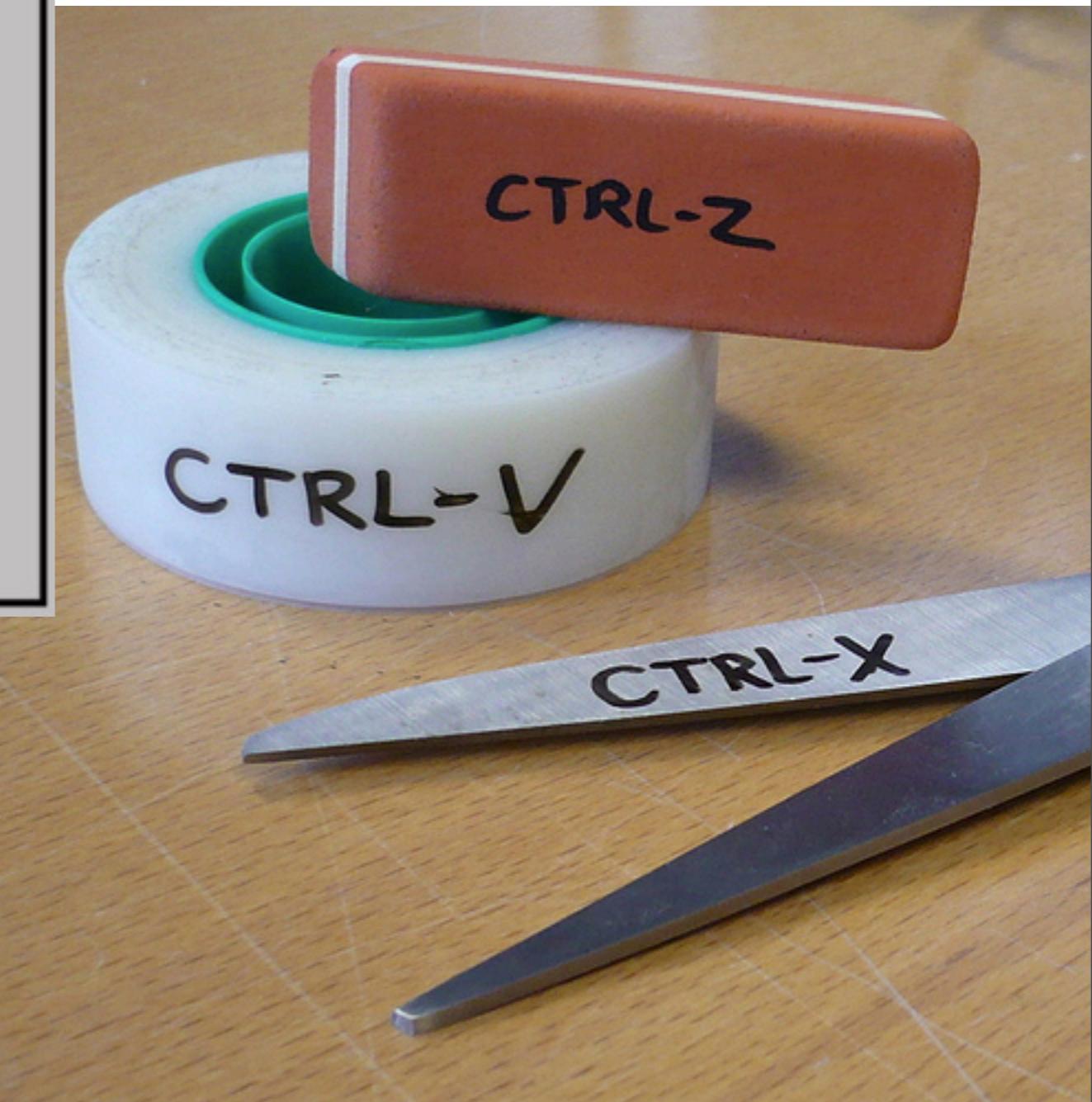
Windows, Icons, Menus, Pointer (Xerox PARC 1981)



Files and Folders



Cut/Copy/Paste/Undo



Web Page vs Web Node

 WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact Wikipedia

Toolbox
Print/export

Languages
አማርኛ
العربية
Aragonés
Azərbaycanca
Bân-lâm-gú
Boarisch

Article Discussion

Web page

From Wikipedia, the free encyclopedia
(Redirected from [Web Page](#))

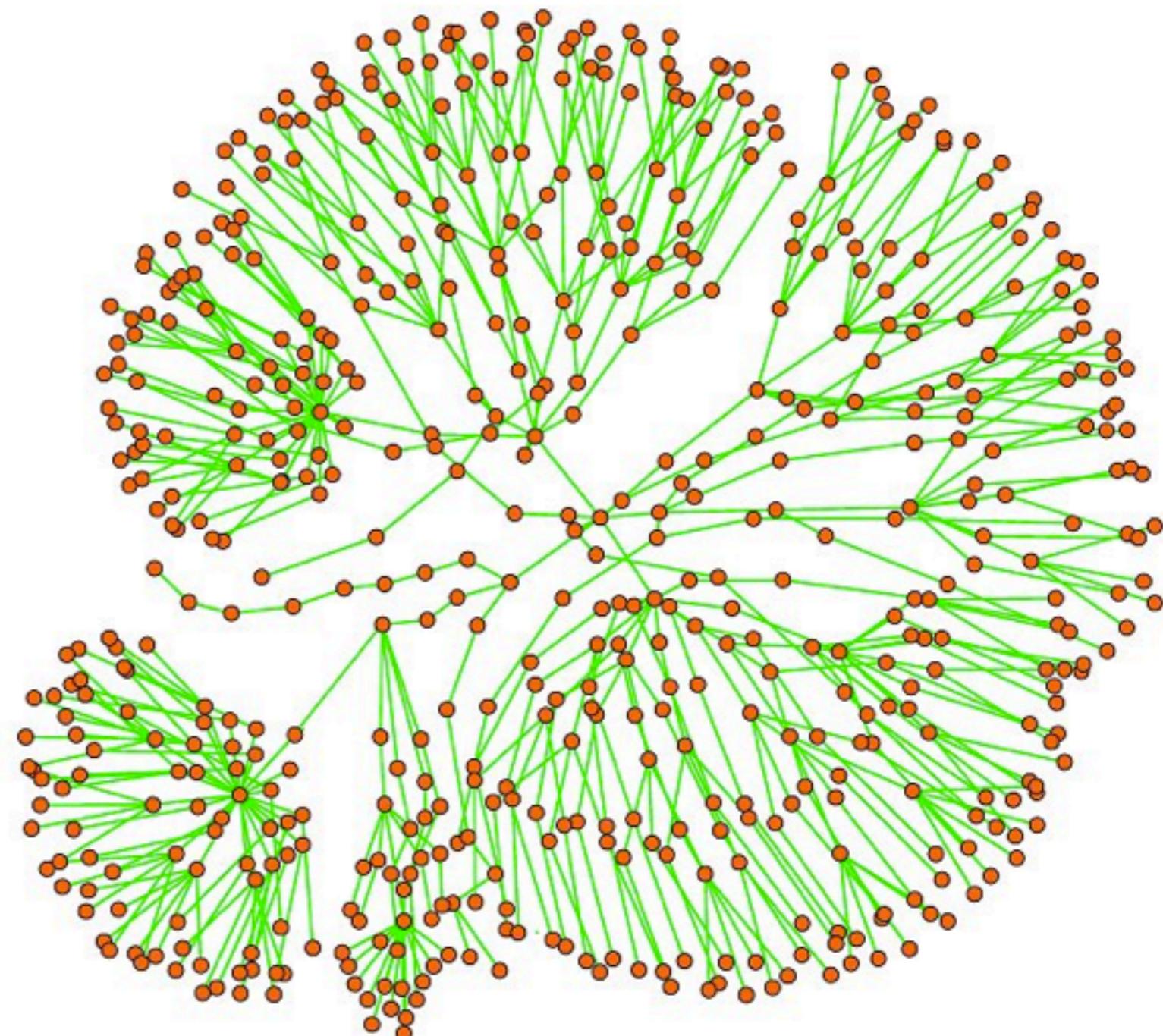
A **web page** or **webpage** is a document or information resource on the World Wide Web and can be accessed through a web browser on a monitor or mobile device. This information is usually in HTML format, and may provide navigation to other web pages via links. Pages frequently subsume other resources such as style sheets and images into their final presentation.

Web pages may be retrieved from a local computer or from a web server. The web server may restrict access only to a private network, or it may publish pages on the World Wide Web. Web pages are requested and served from web servers using Hypertext Transfer Protocol.

Web pages may consist of files of static text and other content stored on the web server's file system (**static web pages**), or may be generated by software when they are requested (**dynamic web pages**). Dynamic web pages make web pages more responsive to user input once on the page.

Contents [hide]

- 1 Color, typography, illustration, and interaction
 - 1.1 Dynamic behavior
- 2 Browsers
- 3 Elements
- 4 Rendering
- 5 URL



Metaphors vs Idioms

Metaphors have great initial utility to get users to form conceptual models for new interfaces.

However, they lose potency over time by tethering rapidly changing digital interfaces to a rigid real-world definitions.

What are some metaphors that have outlived their original domains?



Questions?

This lecture is based on slides and content by:
ILONA POSNER

Materials from:

Interaction Design: Beyond Human-Computer Interaction. Rogers, Sharp and Preece. 2011

References:

- 7 Unbreakable laws of UI design. <http://99designs.com/designer-blog/2014/01/15/7-unbreakable-laws-of-user-interface-design/>
- Johnson & Henderson 2002
- Marketing Metaphoria. Zaltman & Zaltman, 2008.
- Non-Designer's Design Book. Williams, 2004.
- Heuristic evaluation. Nielsen, 1994. In *Usability inspection methods*, (pp. 25-62). New York: John Wiley & Sons, Inc.
- Designing Effective Speech Interfaces. Weinschenk and Barker, 2000.