Introduction to Web Engineering SENG2050/6050

Lecture 1f
Web Site Design

Producers' Perspective

- Anybody who creates a Web site does so with some goals in mind.
- Web sites should have well-defined goals.
  - Example: **www.newcastle.edu.au**
    - **Goals**:
      - attract new students by promoting our courses and research
      - provide our teaching materials to current students
      - provide our research results to the research community
      - provide administrative information to university staff
  - These goals reflect the overall job of the department. All of these goals have specific consumers in mind.

Consumers' Perspective

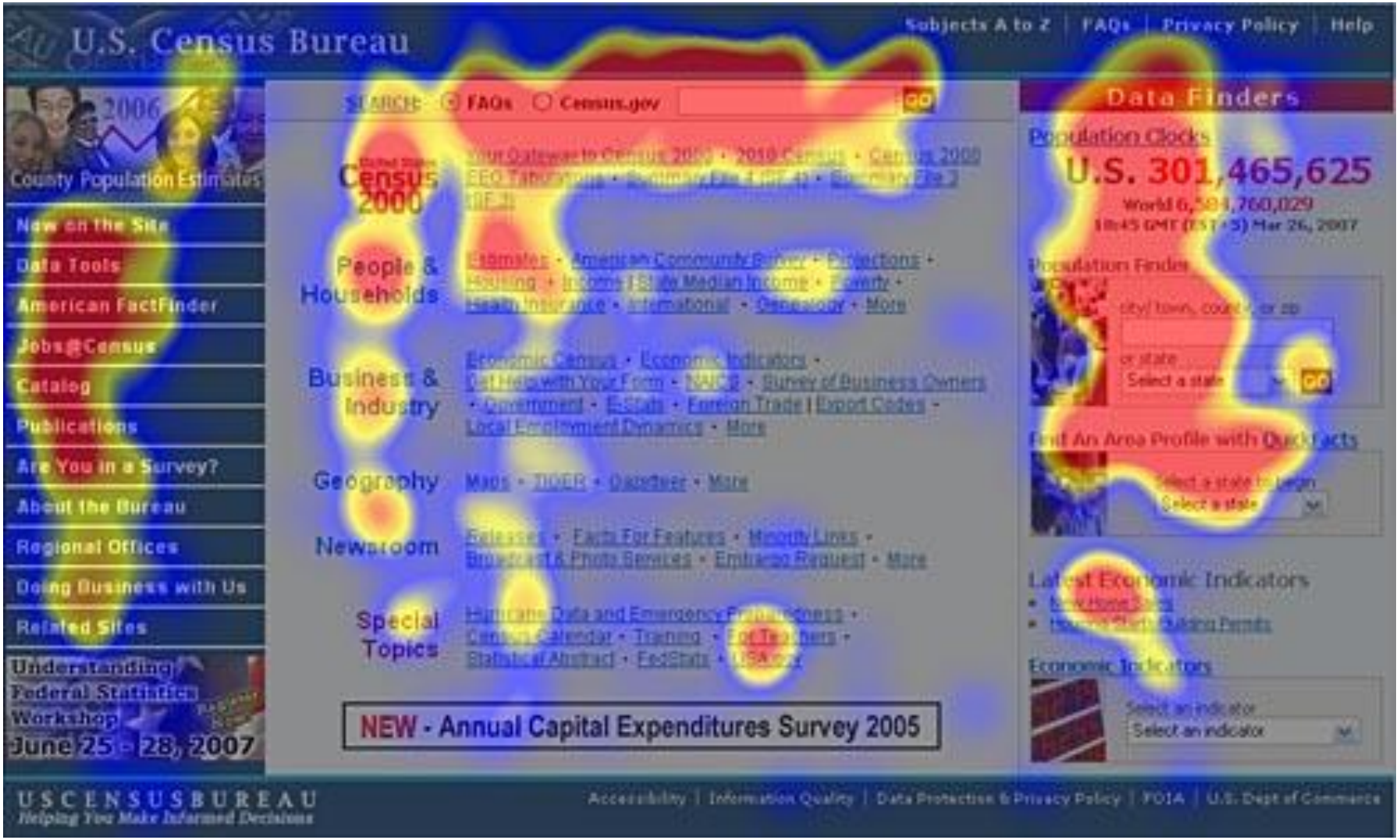
- Where users come from (marketing view)
  - ✓Non-professional
  - ✓Changing from a pioneering group of enthusiasts to a more mainstream mass of early adopters
- User cares about
  - ✓What does this site do
  - ✓Where is the thing I am looking for
  - ✓Where have I been
  - ✓Where can I go
- Poor success rate, poor usability

Matching the Two Perspectives

- The key to good web system is to match the two perspectives:
  - give the user enough information - navigation & search schemes - to help them in known-item searching
  - provide ample cross-linking to help them in browsing

Understand the User

- Users get frustrated when they lose context:
  - ✓ getting lost in a complex hyperlinked structure (perhaps literally going round in circles)
  - ✓ being unable to judge how relevant, up-to-date, or accurate information is
- User's behavior- summarized
  - ✓ Scan
  - ✓ Always "assume"
  - ✓ Short term memory
  - ✓ Impatient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County Population Estimates
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Mental Models

- People have mental models of how things work:
  - ✓how does an ATM machine work?
  - ✓how does your computer boot?
- This allows people to make predictions about how things will work

Mental Models

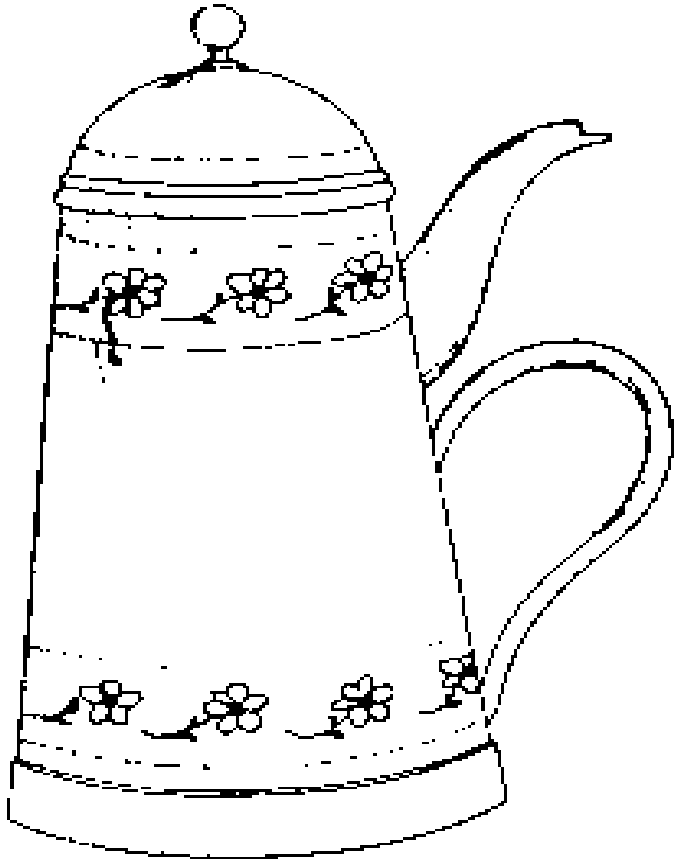
- Mental models are built from
  - ✓affordances
  - ✓constraints
  - ✓mappings
  - ✓positive transfer
  - ✓cultural associations/standards
  - ✓instructions
  - ✓interactions

Affordances

- Are the *perceived properties* of an object that determine how it can be used.
  - ✓Knobs are for turning and buttons are for pushing etc.
- Some affordances are obvious, some are learned.
  - ✓Glass can be seen through.
  - ✓Glass breaks easily.

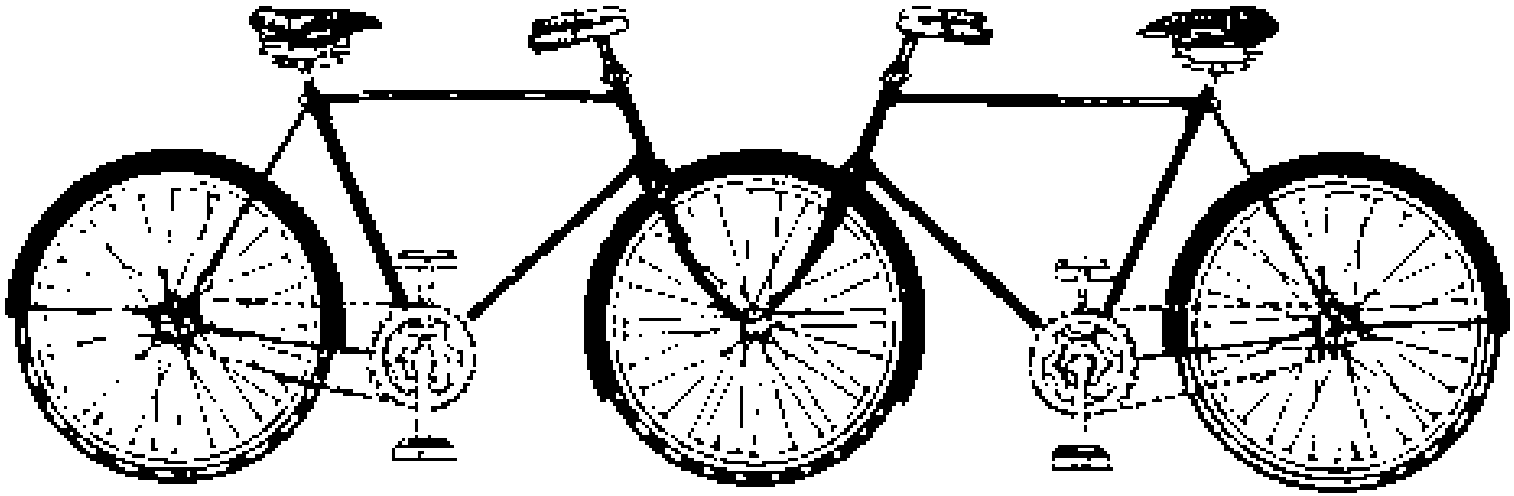
Affordances in Screen-Based Interfaces

- In graphical, screen-based interfaces, all that the designer has available is control over perceived affordances
  - ✓Display screen, pointing device, selection buttons, keyboard
  - ✓These afford touching, pointing, looking, clicking on every pixel of the display.
- There might be a gap between the real affordance and the user perceived affordances
  - ✓does the user perceive this affordance? does the user recognize that clicking on the icon is a meaningful, useful action?



Something wrong here?

Mental models are often wrong!



We have mental models of ***how*** bicycles work
We can "simulate" this to know it ***won't*** work

Visual Organization

- Proximity
  - ✓Locate Related items close together
- Alignment
  - ✓Place related items along an imaginary line
- Consistency
  - ✓Make related items look the same
- Contrast
  - ✓Make different items look different
- Have some common sense

Other Issues

- *Browser Issues*
  - Each browser has differences in:
    - the range of HTML/CSS features handled
    - the precise interpretation of ambiguous or unspecified HTML/CSS features
    - deviations to standard HTML/CSS (and bugs!)
  - A “hard line” view is to follow the W3C standards and encourage users to upgrade to compliant browsers.

2015	Chrome	IE	Firefox	Safari	Opera
June	64.8 %	7.1 %	21.3 %	3.8 %	1.8 %
May	64.9 %	7.1 %	21.5 %	3.8 %	1.6 %
April	63.9 %	8.0 %	21.6 %	3.8 %	1.5 %
March	63.7 %	7.7 %	22.1 %	3.9 %	1.5 %
February	62.5 %	8.0 %	22.9 %	3.9 %	1.5 %
January	61.9 %	7.8 %	23.4 %	3.8 %	1.6 %

Response Times

- 0.1 second
  - ✓The limit for having the user feel that the system is reacting instantaneously
- 1 second
  - ✓User notice the delay, but user's flow of thought remain uninterrupted
- 10 seconds
  - ✓Limit for keeping user's attention focused on the dialogue

Art versus Engineering

- Two basic approaches to design
  - ✓The artistic idea of expressing yourself.
  - ✓The engineering ideal of solving a problem for a customer.
- Fundamental errors are common on all levels of web design

Useful Resource

- **Highly recommend the book “Don't Make Me Think: A Common Sense Approach to Web Usability” by Steve Krug**
- **Also, the book by Jakob Nielsen “Designing Web Usability: The Practice of Simplicity” and “Prioritizing Web Usability”**

THE END

QUESTIONS??

THANKS!!