
College of Information Studies

University of Maryland Hornbake Library Building College Park, MD 20742-4345

# Content Management Systems

Week 9

INFM 603

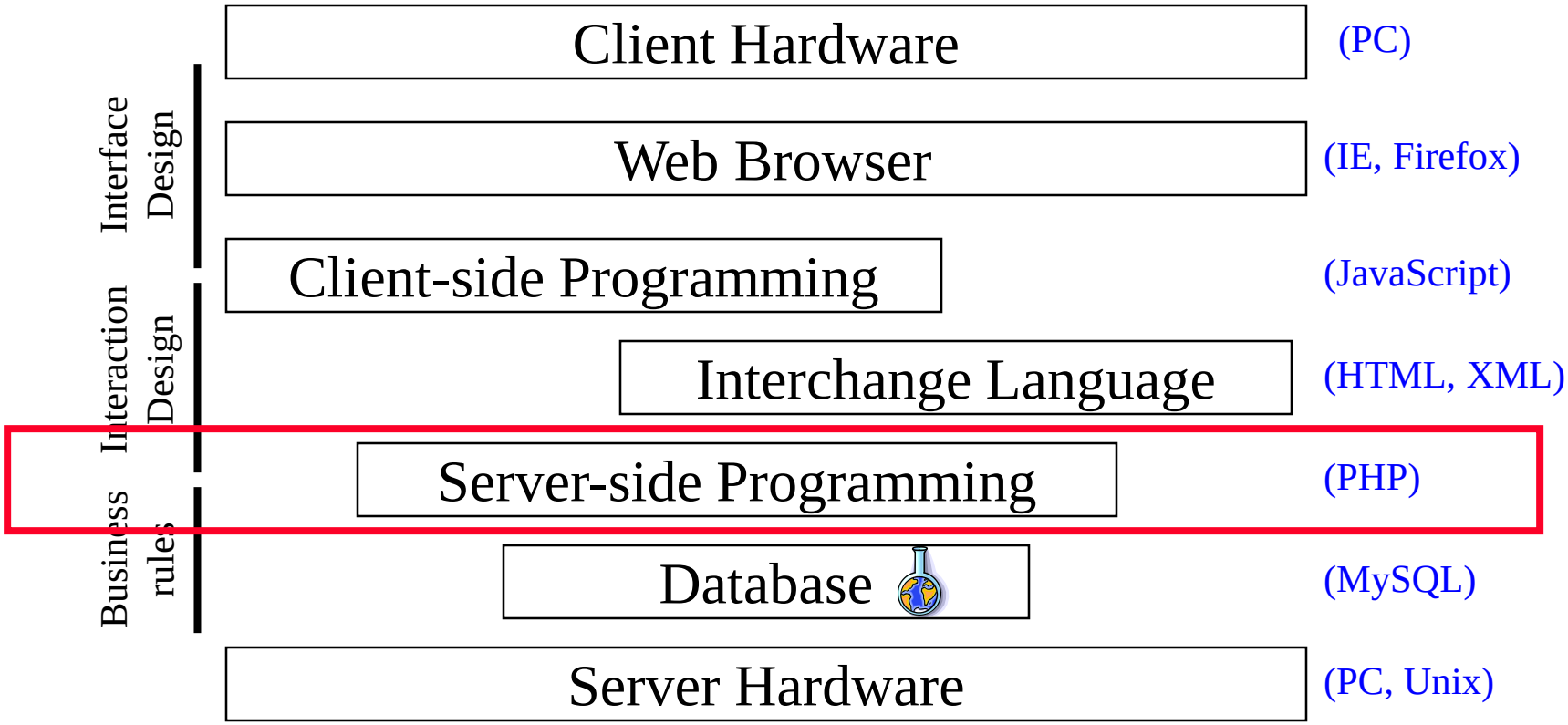
# Muddiest Points

- How JSON differs from XML
  - And how JSONP differs from JSON
- How Ajax works
- Examples of JavaScript without Ajax
- How to make an API
- Can API’s be used by anyone?

# Agenda

- Questions
- Drupal
- Project Plan
- Human-Computer Interaction

- Relational normalization
- Structured programming
- Software patterns
- Object-oriented design
- Functional decomposition



# Content Management Systems

- Database to store content
  - Also stores access control data and parameters
- PHP to control user experience
  - Reads database, generates HTML
  - “Canned” settings provide standard behaviors
- HTML to convey user experience
- Allows limited interactivity
  - Most user actions require a server response
  - JavaScript may be used for form validation

# Information Architecture

- The structural design of an “information space” to facilitate access to content

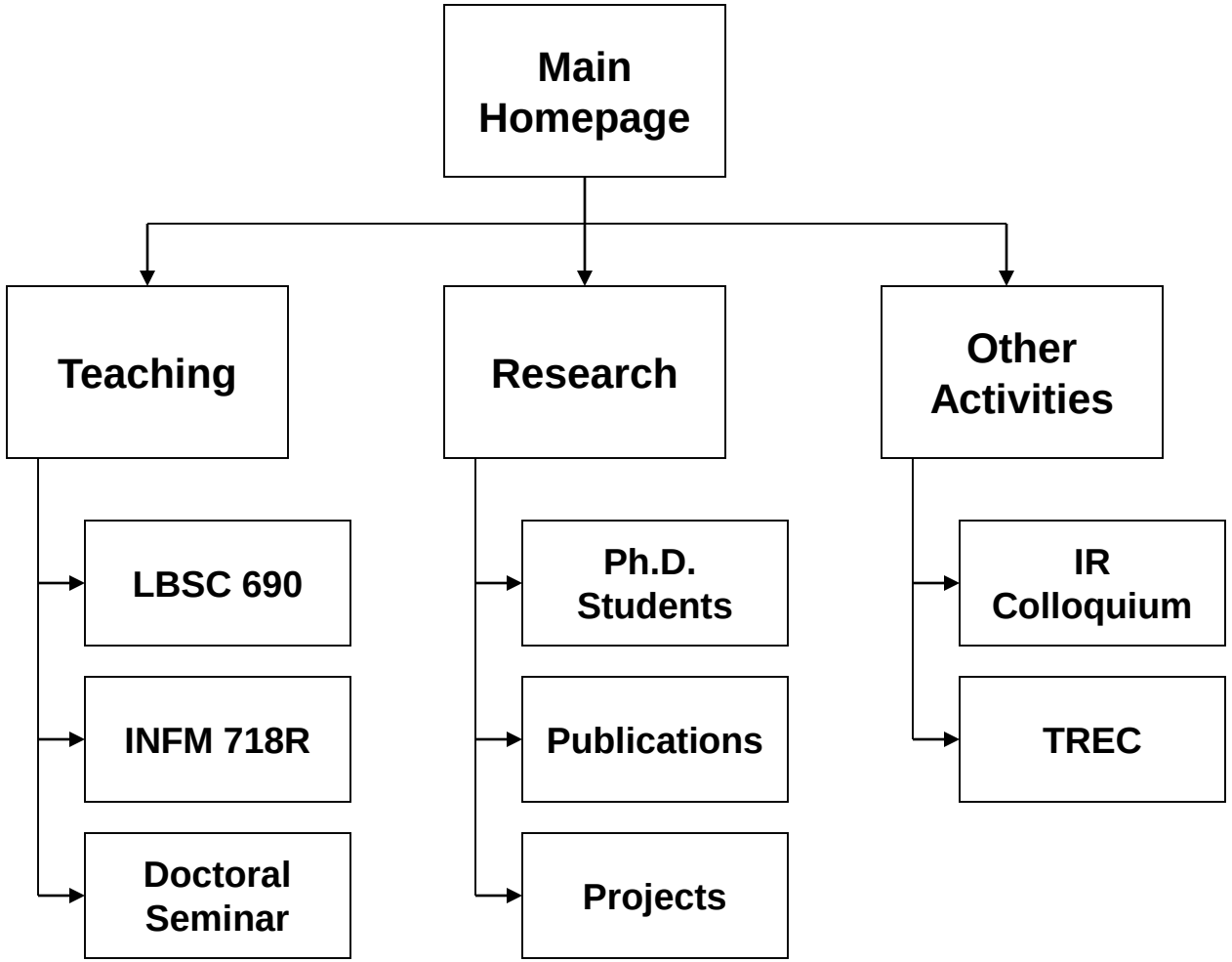
- Two components:
  - Static design
  - Interaction design

# Static Design

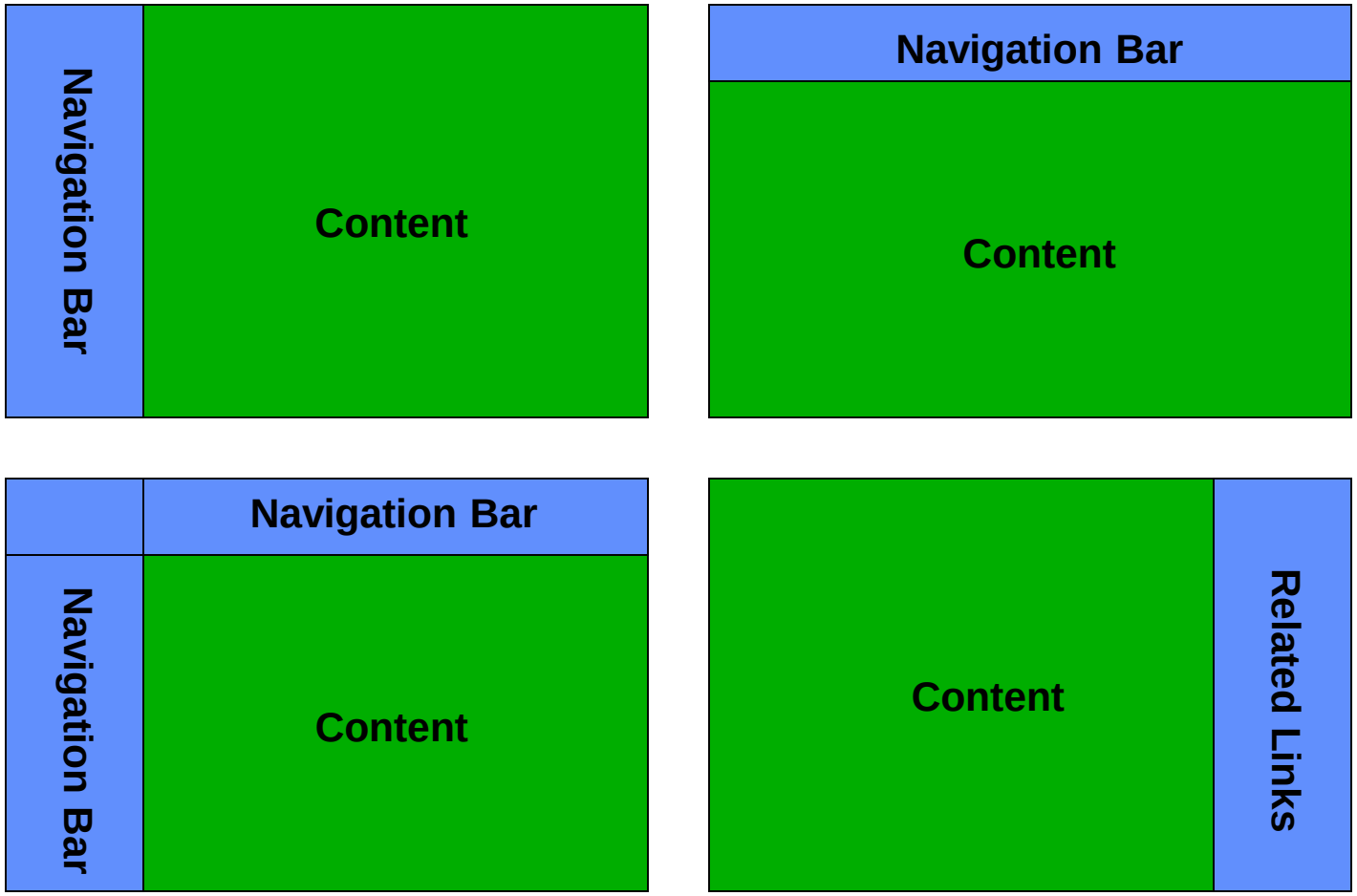
- Organizing principles
  - Logical: e.g., chronological, alphabetical
  - Functional: by task
  - Demographic: by user

- Metaphors
  - Organizational: e.g., e-government
  - Physical: e.g., online grocery store
  - Functional: e.g., cut, paste
  - Visual: e.g., octagon for stop

# “Site Blueprint”



# Grid Layouts



# Grid Layout: NY Times

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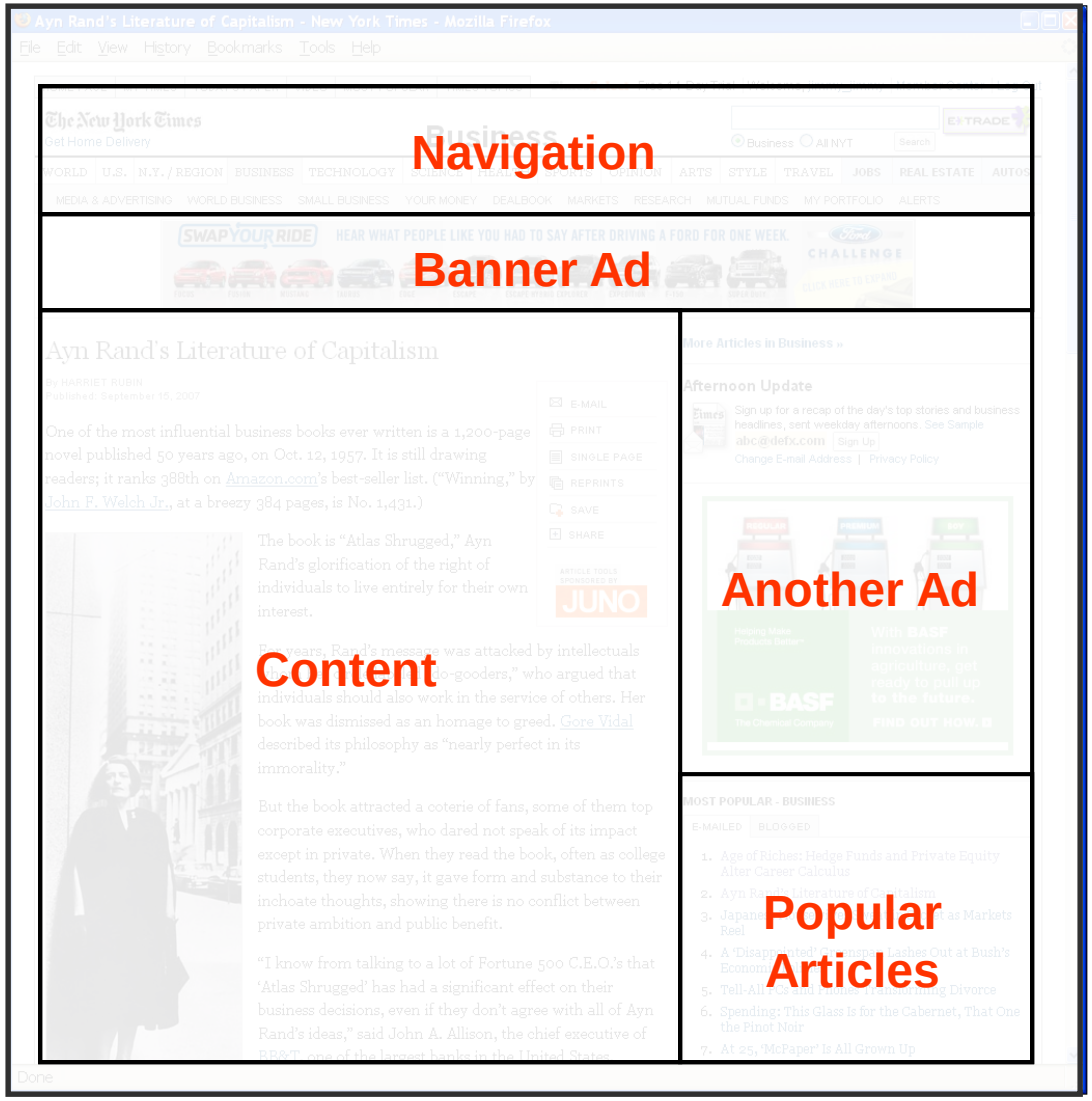
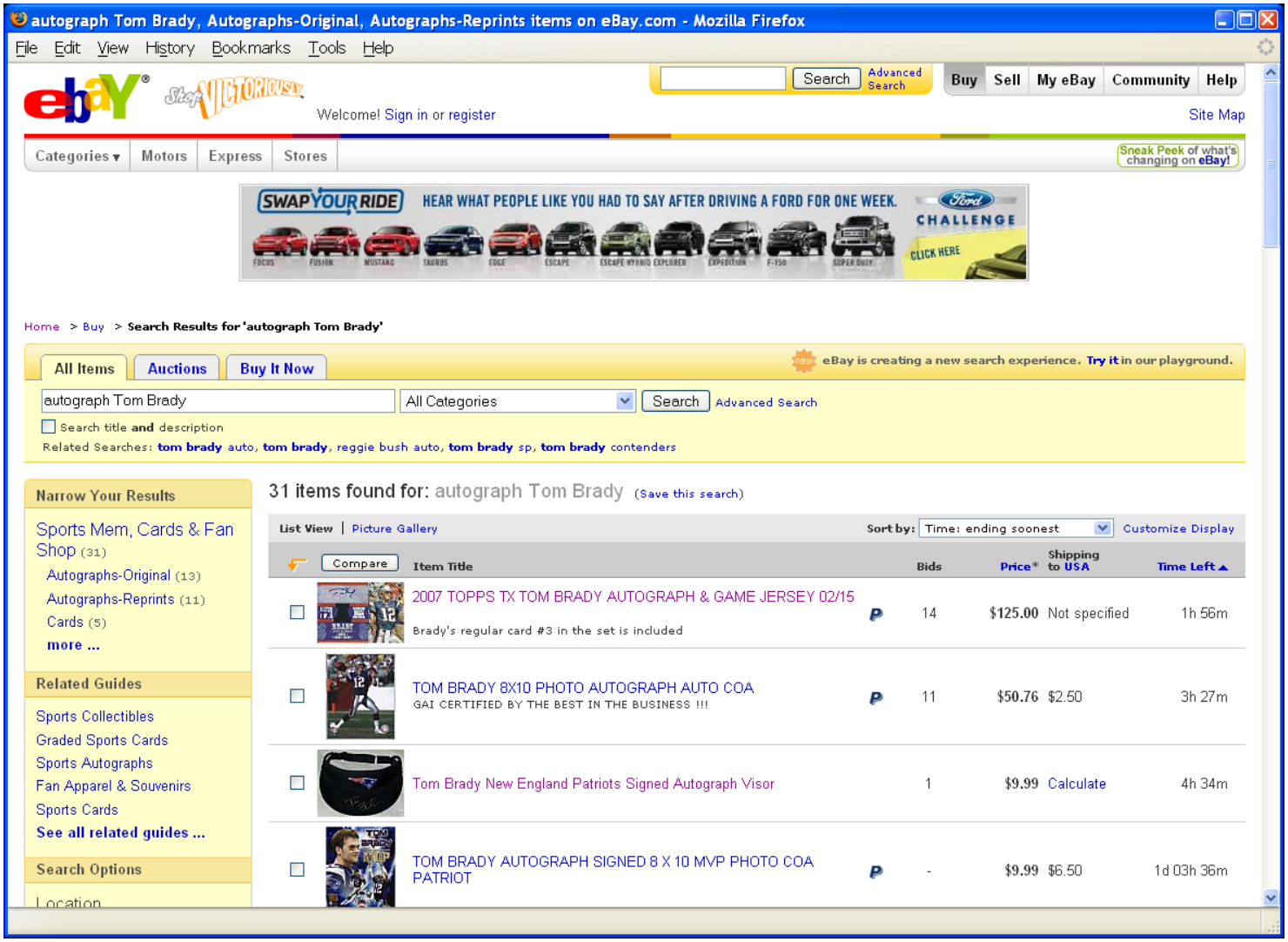


# Grid Layout: ebay



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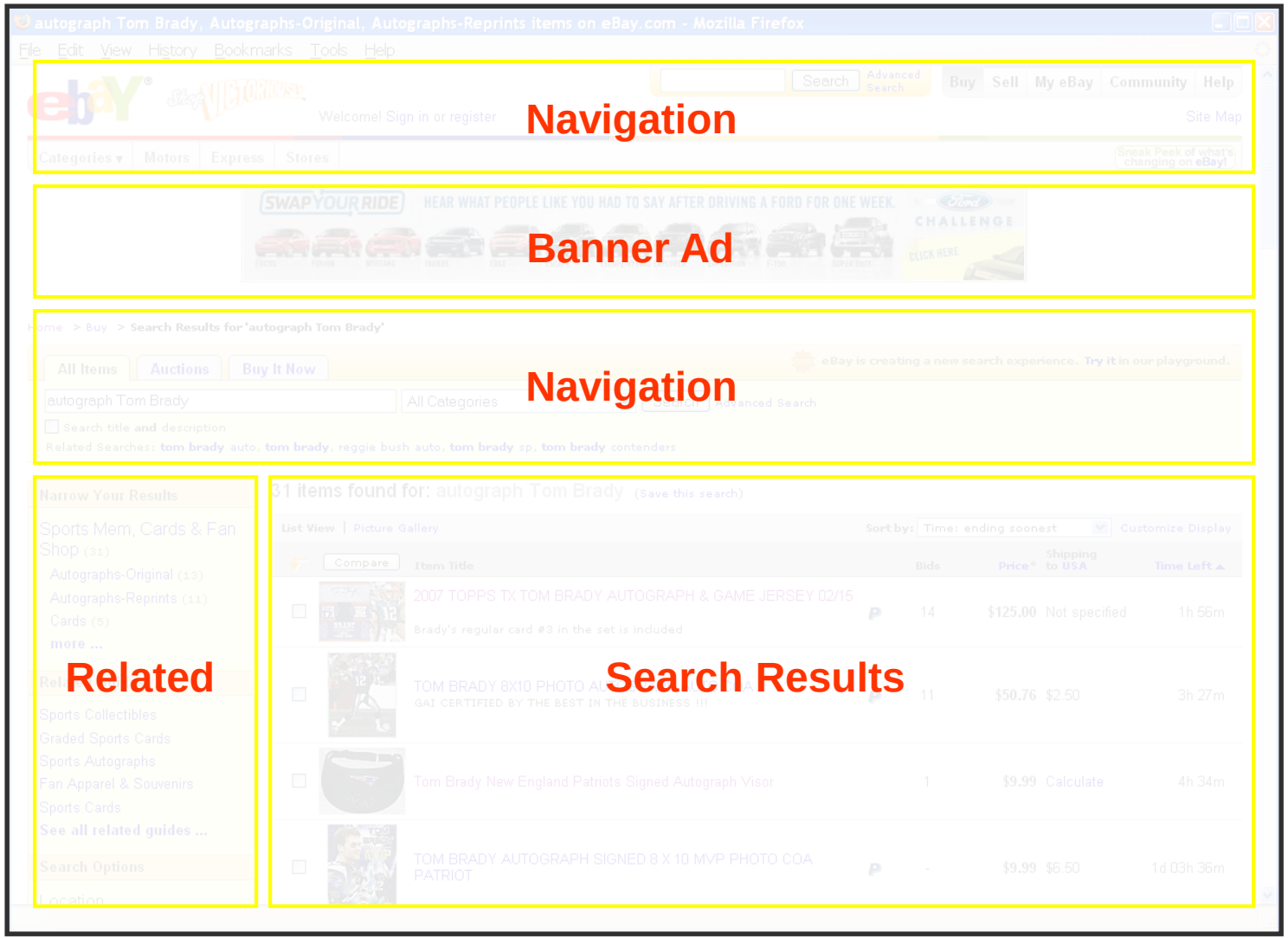

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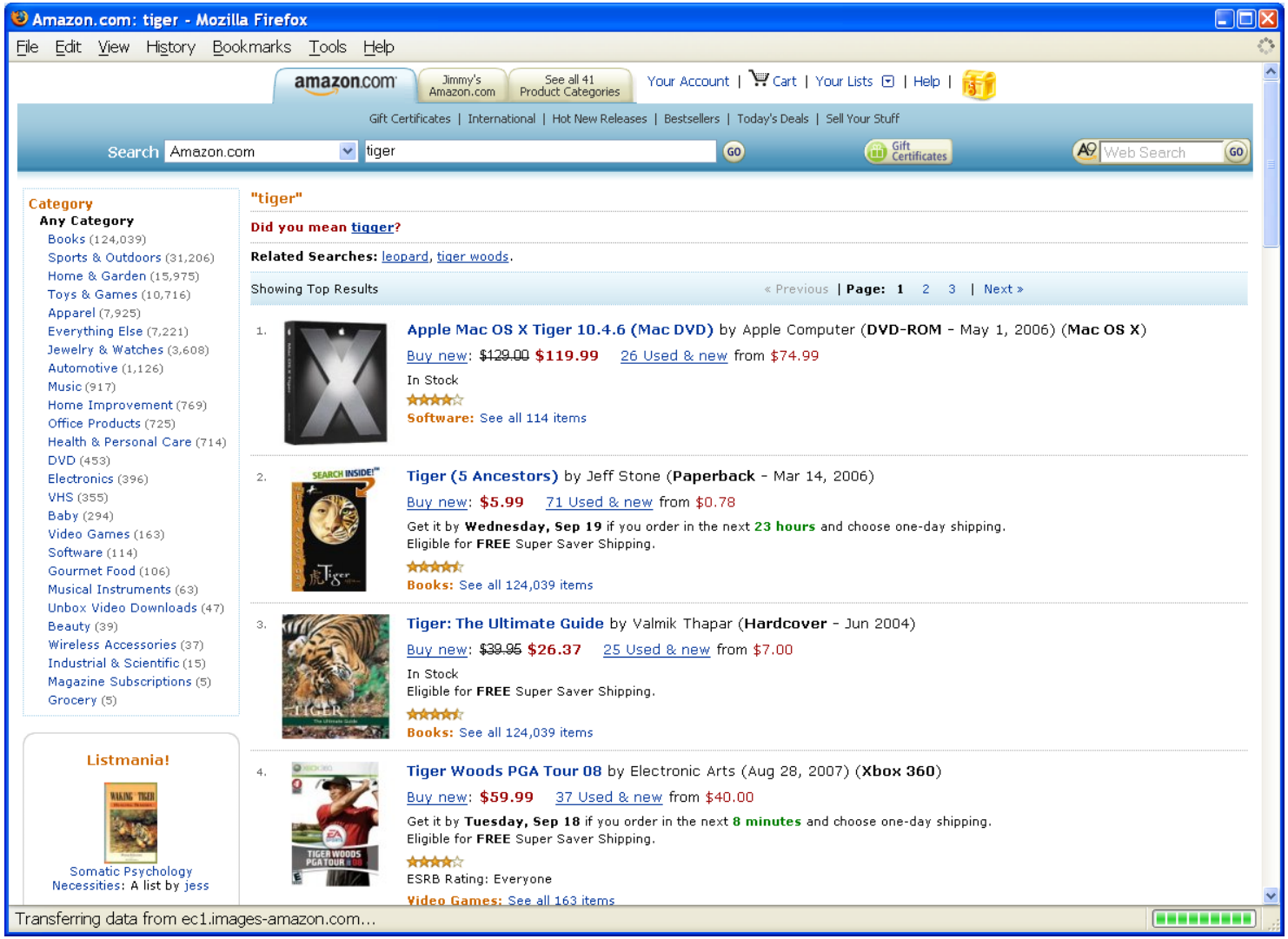

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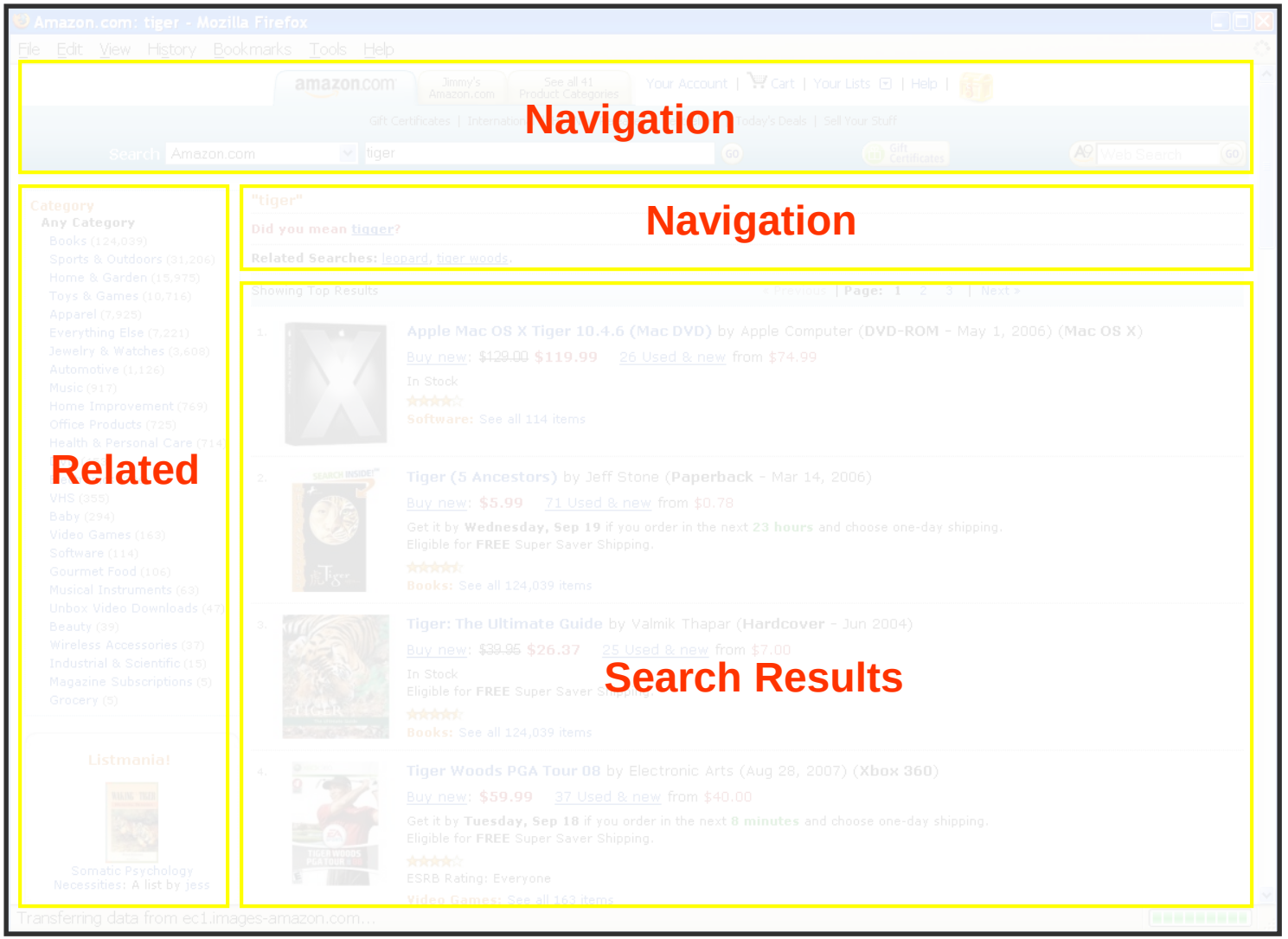


# Some Layout Guidelines

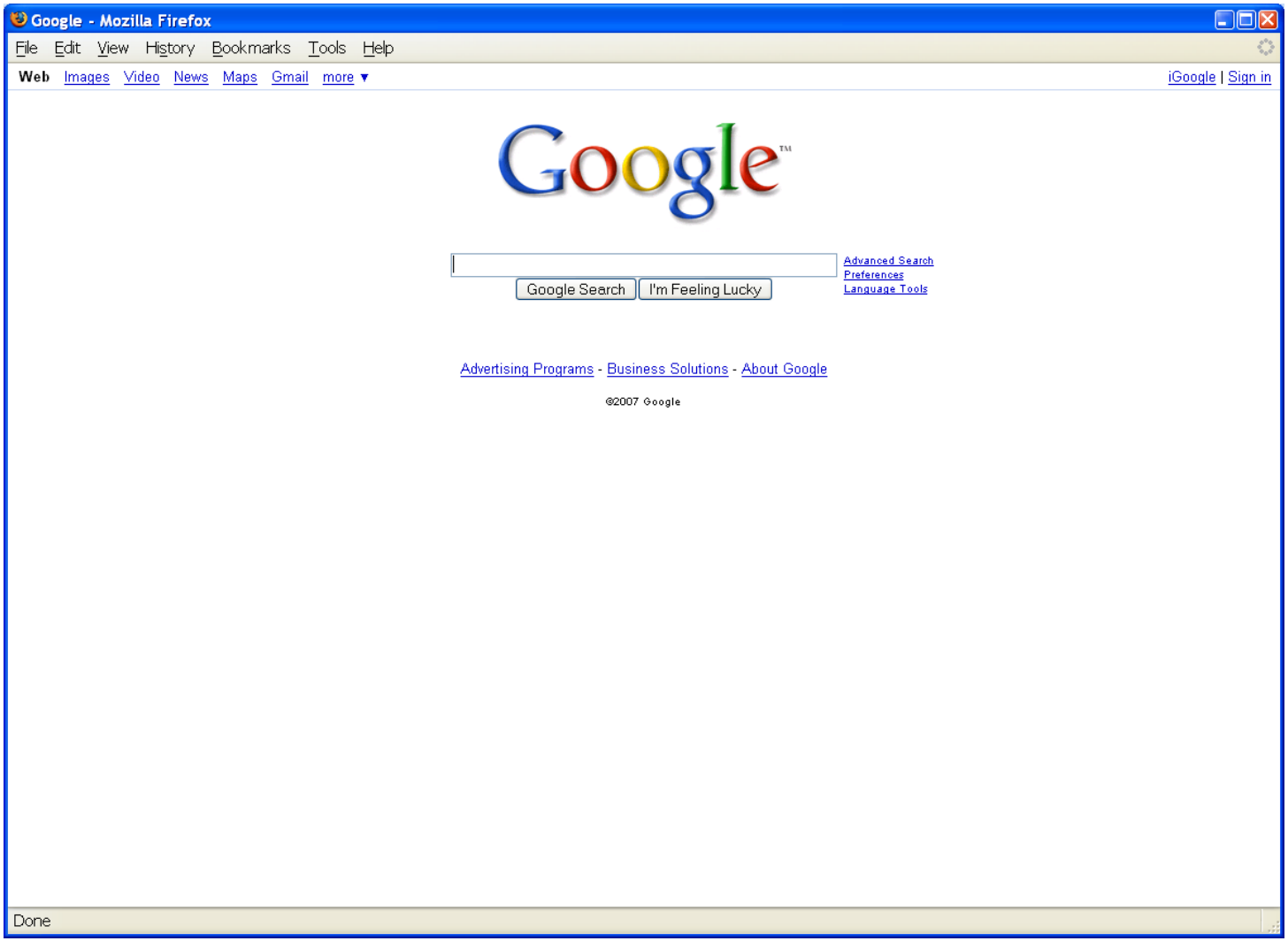
- **C**ontrast: make different things different
  - to bring out dominant elements
  - to create dynamism
- **R**epetition: reuse design throughout the interface
  - to achieve consistency
- **A**lignment: visually connect elements
  - to create flow
- **P**roximity: make effective use of spacing
  - to group related and separate unrelated elements

# Interaction Design

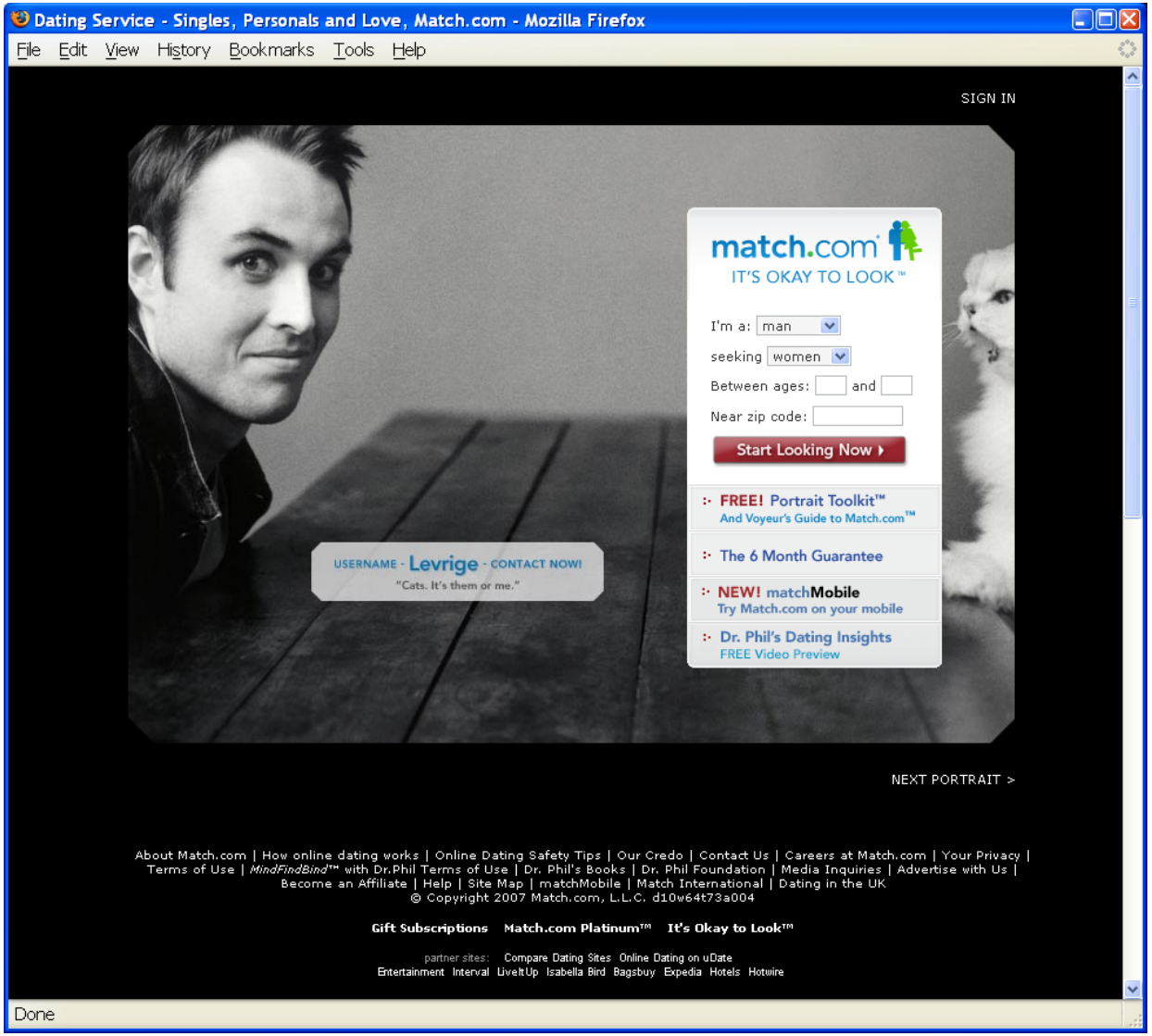
- Chess analogy: a few simple rules that disguise an infinitely complex game
- The three-part structure
  - Openings: many strategies, lots of books about this
  - End game: well-defined, well-understood
  - Middle game: nebulous, hard to describe
- Information navigation has a similar structure!
  - Middle game is underserved

From Hearst, Smalley, & Chandler (CHI 2006)

# Opening Moves

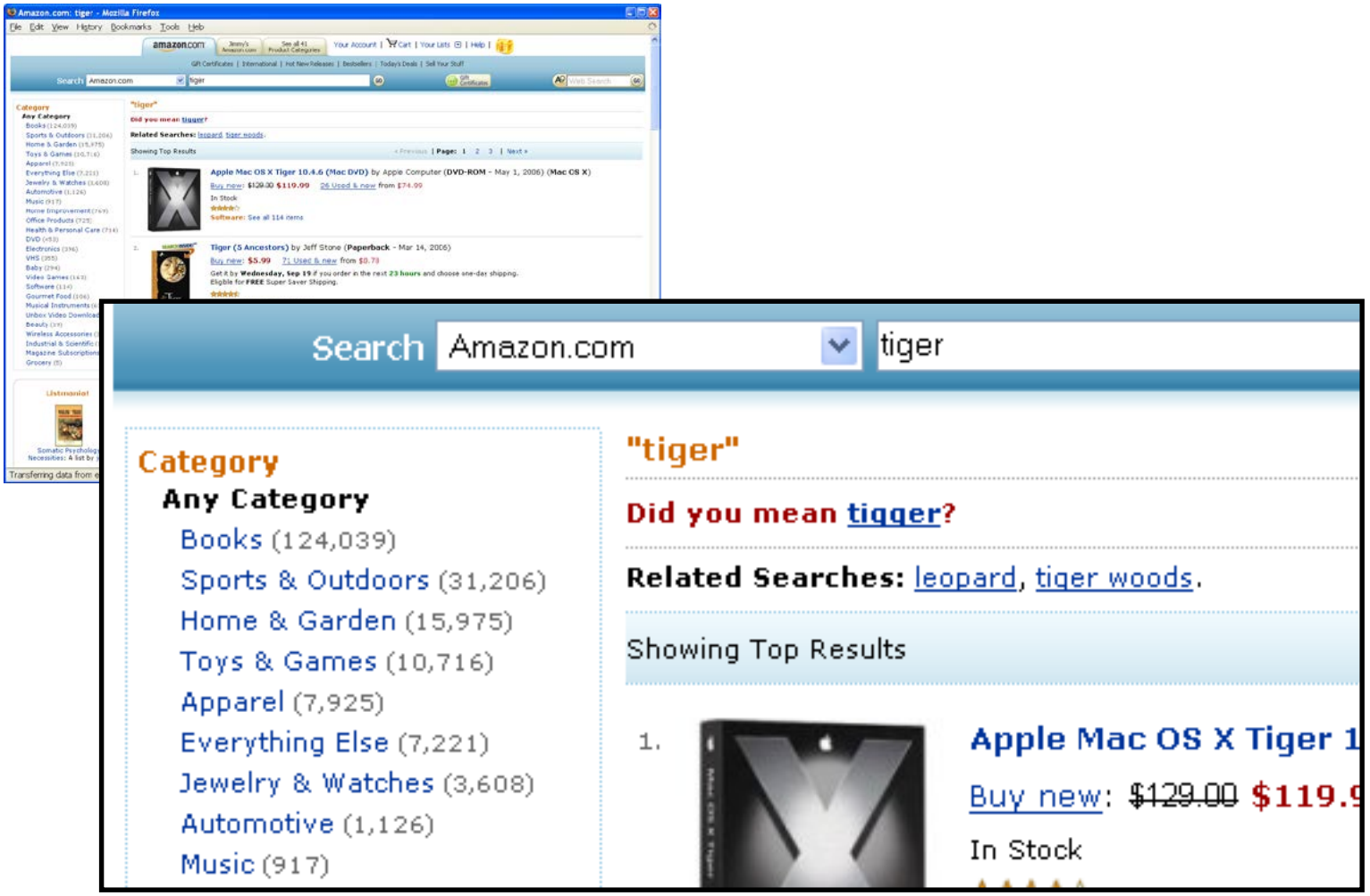


# Opening Moves



# Opening Moves

# Middle Game


Search
Amazon.com
tiger
Category
Any Category
Books (124,039)
Sports & Outdoors (31,206)
Home & Garden (15,975)
Toys & Games (10,716)
Apparel (7,925)
Everything Else (7,221)
Jewelry & Watches (3,608)
Automotive (1,126)
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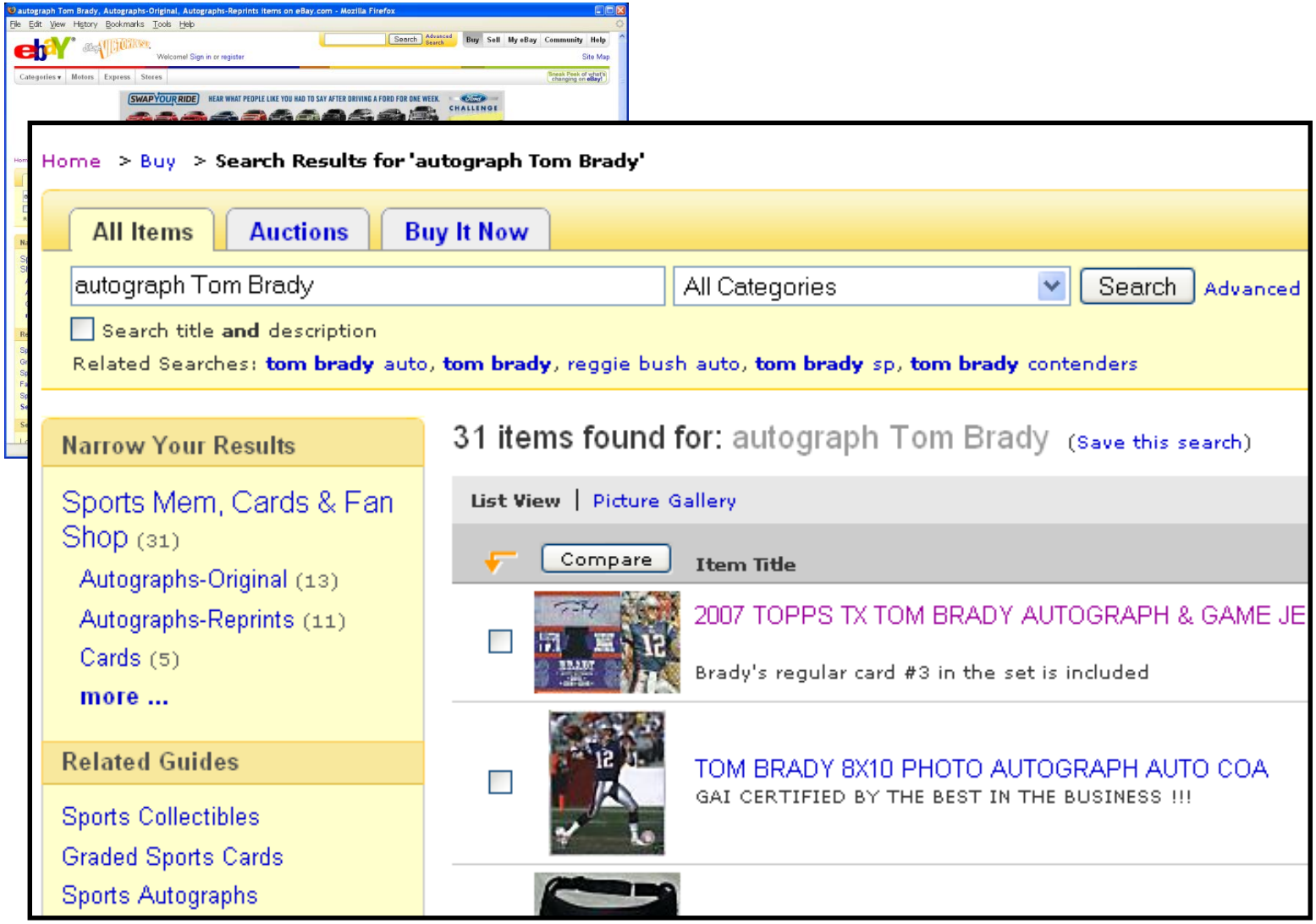
"tiger"
Did you mean tigger?
Related Searches: leopard, tiger woods.
Showing Top Results
1.
Apple Mac OS X Tiger 1
Buy new: $129.00 $119.9
In Stock

# Middle Game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All Categories
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Autographs-Original (13)
Autographs-Reprints (11)
Cards (5)
more ...
Related Guides
Sports Collectibles
Graded Sports Cards
Sports Autographs
31 items found for: autograph Tom Brady
(Save this search)
List View | Picture Gallery
Compare
Item Title
2007 TOPPS TX TOM BRADY AUTOGRAPH & GAME JE
Brady's regular card #3 in the set is included
TOM BRADY 8X10 PHOTO AUTOGRAPH AUTO COA
GAI CERTIFIED BY THE BEST IN THE BUSINESS !!!

# Navigation Patterns

- Drive to content
- Drive to advertisement
- Move up a level
- Move to next in sequence
- Jump to related

# Drupal Structure

- Regions
  - Header, left sidebar, content, right sidebar, footer
  - Structure->Blocks->Demonstrate Blocks Region
- Blocks
  - Navigation, login, Drupal, help, content, search
  - Optional: who's online, recent comments, …
- Menus
  - Main, navigation, user

# Drupal Content (“Nodes”)

- Basic Page
- Article
  - By default allows comments
- Blog entry
- Forum topic

# Optional Drupal Modules

- Aggregator
- Blog
- Forum
- Book
- Contact form
- Poll
- Search
- Statistics
- Trigger
- Translation

# Some Downloadable Modules

- Content Construction Kit
- Views
- OpenLayer
- Dynamic Display Block
- Embedded Media
- Image Cache
- Calendar
- Share

# Installing Drupal

- Download and install XAMPP
  - Add c:\xampp\mysql\bin to your path
- Download and install Drupal version 7.x
  - Configure for local use (“first time user guide”)
  - Ignore SMTP error messages
- Configure your site
  - Add some “splash page” content
  - Set user permissions

# Drupal’s Use of MySQL

```
USE drupal;
SHOW TABLES;
SELECT * FROM users;
SELECT * FROM nodes;
SELECT * FROM node_revisions;
```

# Modifying Drupal

- Work with what's there
  - Content
  - Configuration
- Download a distribution profile
- Edit the CSS files
- Edit the PHP code
- Edit the database contents

# Agenda

- Questions
- Drupal
- ➢ Project Plan
- Human-Computer Interaction

# The Project Plan

- One-page contract

- Goal The problem to be solved
- Product What you plan to deliver
- Scope Available time and personnel
- Roles What you expect each other to do

# What are Requirements?

- Attributes
  - Appearance
  - Concepts (represented by data)
- Behavior
  - What it does
  - How you control it
  - How you observe the results

# The Requirements Interview

- Focus the discussion on the task
  - Look for entities that are mentioned
- Discuss the system's most important effects
  - Displays, reports, data storage
  - Learn where the system's inputs come from
  - People, stored data, devices, …
- Note any data that is mentioned
  - Try to understand the structure of the data
- Shoot for the big picture, not every detail

# Agenda

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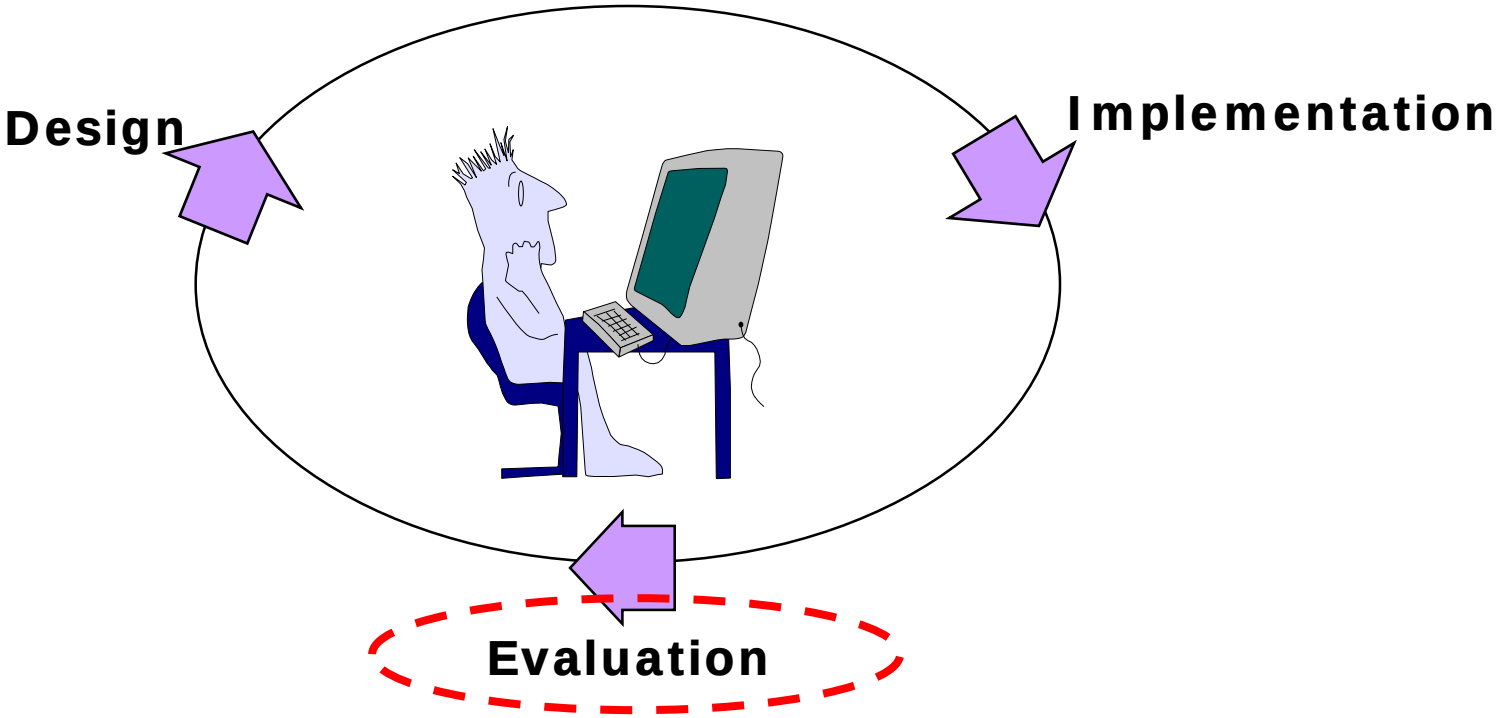
# Human-Computer Interaction




**of interactive computing systems for human use**

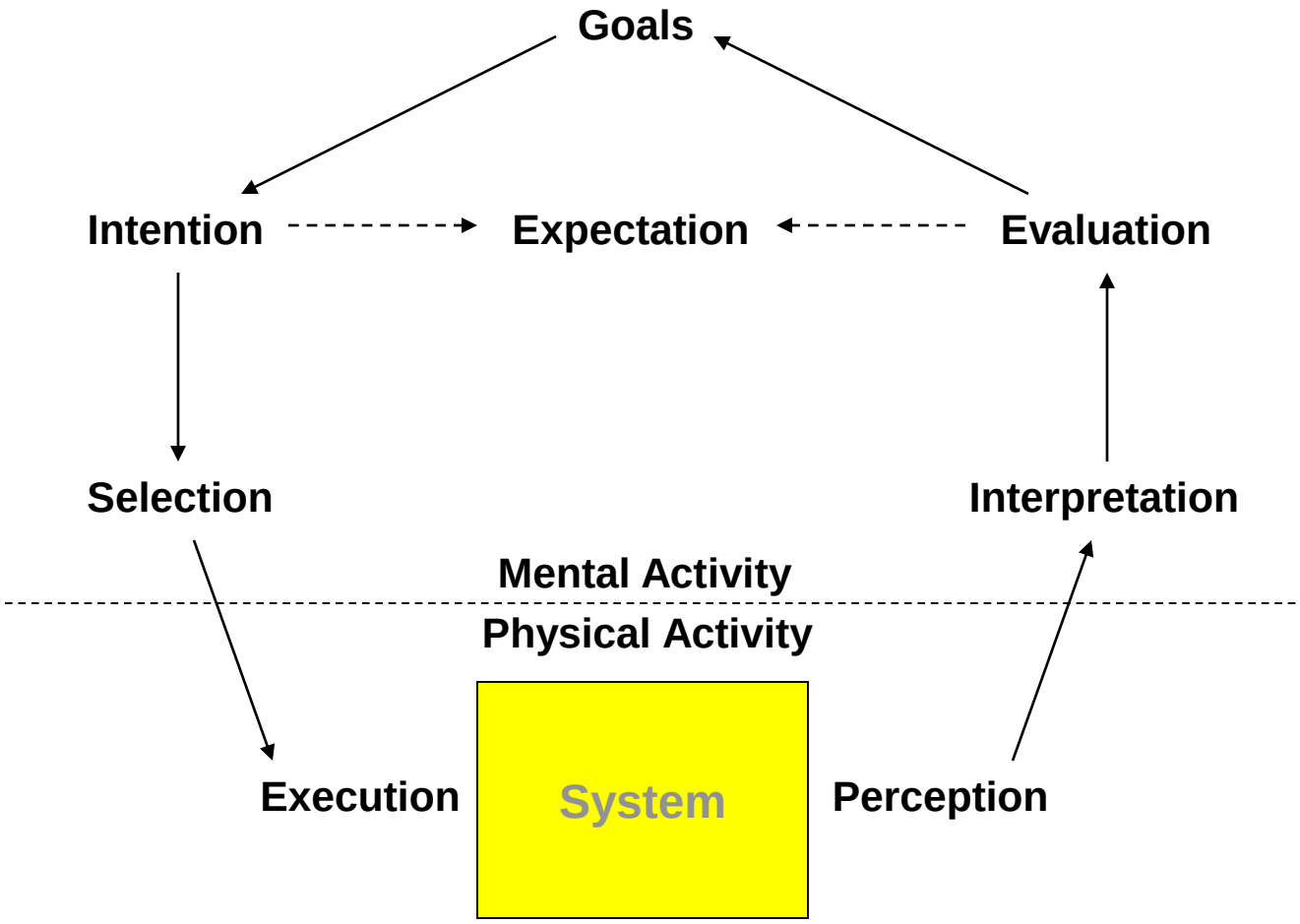
# Synergy

- Humans do what they are good at
- Computers do what they are good at
- Strengths of one cover weakness of the other

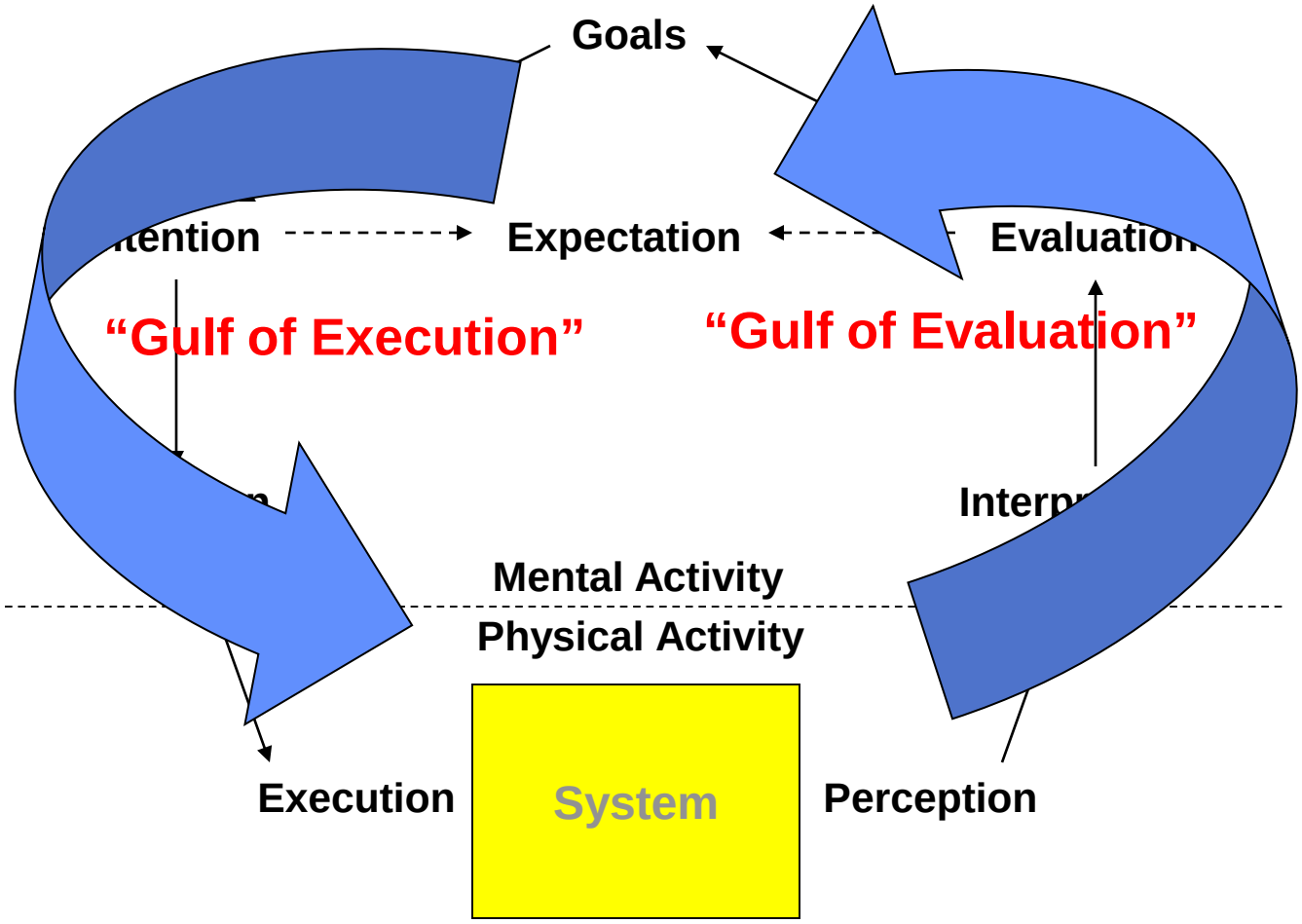
# Interaction

- Forming an intention
  - Internal mental characterization of a goal
- Selection of an action
  - Review possible actions, select most appropriate
- Execution of the action
  - Carry out appropriate actions with the system
- Evaluation of the outcome
  - Compare results with expectations

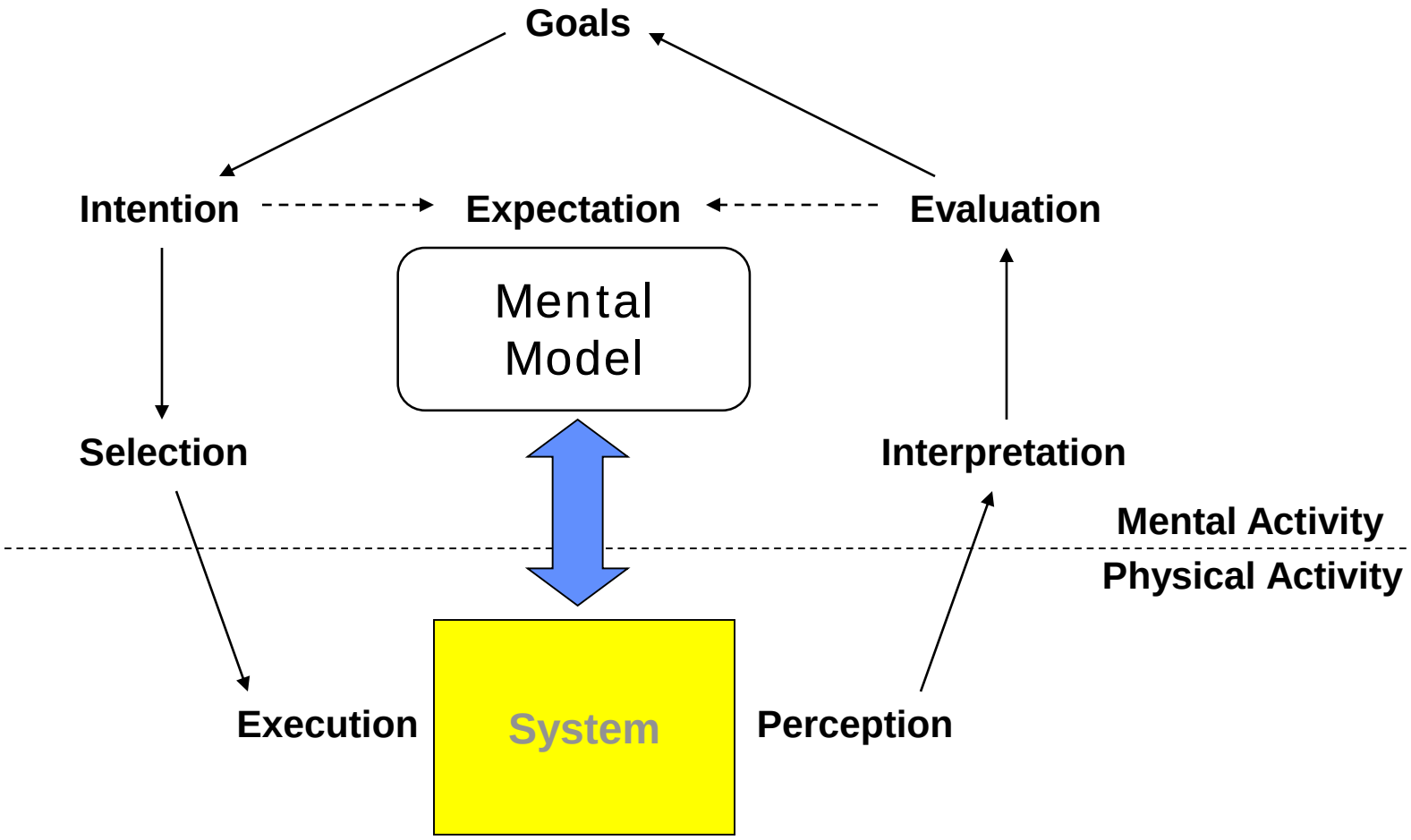
# Stages of Interaction



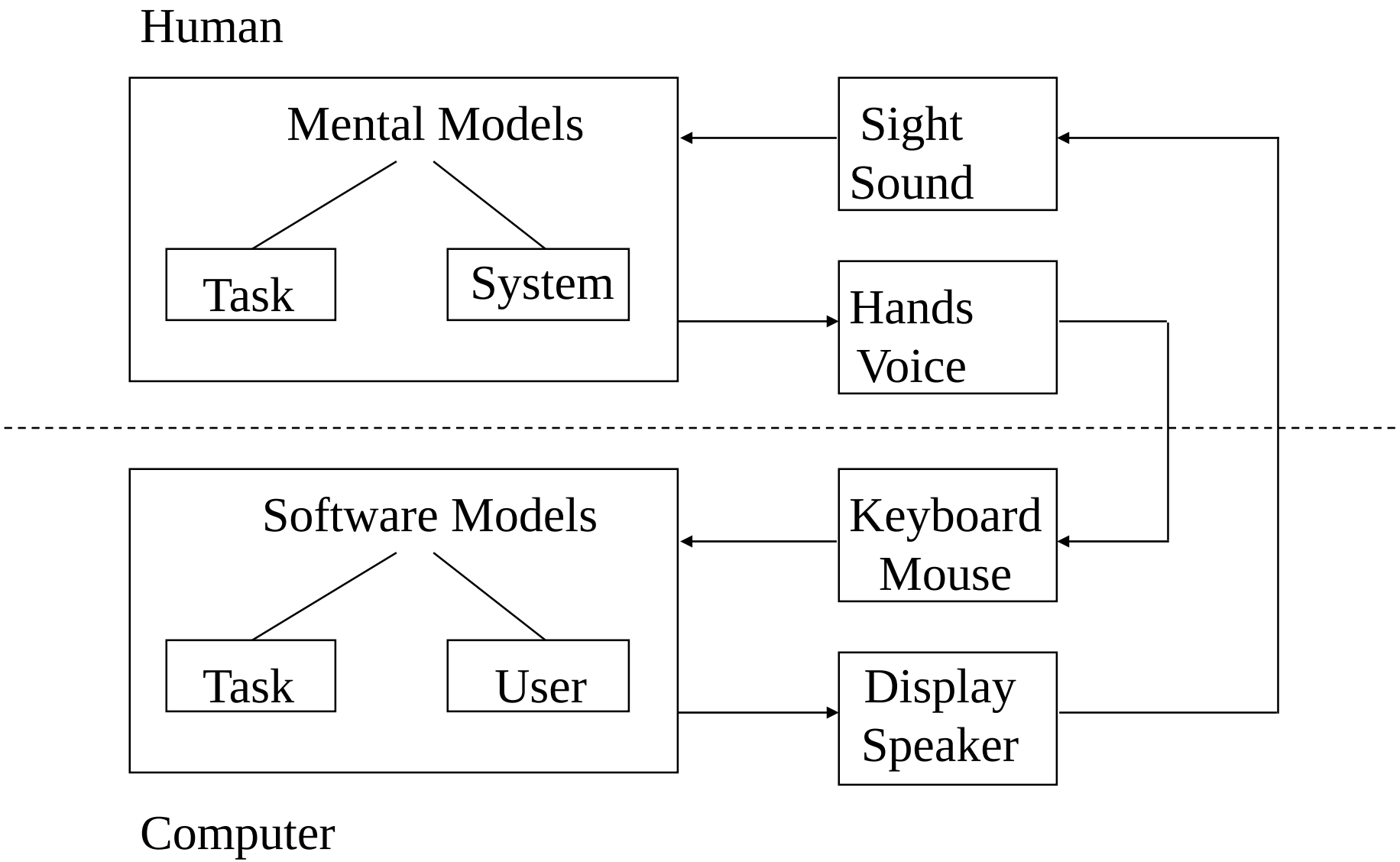
# Challenges of HCI



# What is good design?



# Modeling Interaction



# Mental Models

- How the user thinks the machine works
  - What actions can be taken?
  - What results are expected from an action?
  - How should system output be interpreted?
- Mental models exist at many levels
  - Hardware, operating system, and network
  - Application programs
  - Information resources

# Evaluation Approaches

- Formative vs. summative
- Extrinsic vs. intrinsic
- Quantitative vs. qualitative
  - Deductive vs. inductive
- User study vs. simulation

# Evaluation Examples

- Direct observation
  - Evaluator observes users interacting with system
    - in lab: user asked to complete pre-determined tasks
    - in field: user goes through normal duties
  - Validity depends on how contrived the situation is
- Think-aloud
  - Users speak their thoughts while doing the task
  - May alter the way users do the task
- Controlled user studies
  - Users interact with system variants
  - Correlate performance with system characteristics
  - Control for confounding variables

# Evaluation Measures

- Time to learn
- Speed of performance
- Error rate
- Retention over time
- Subjective satisfaction