



College of Information Studies

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

Content Management Systems

Week 9

INFM 603

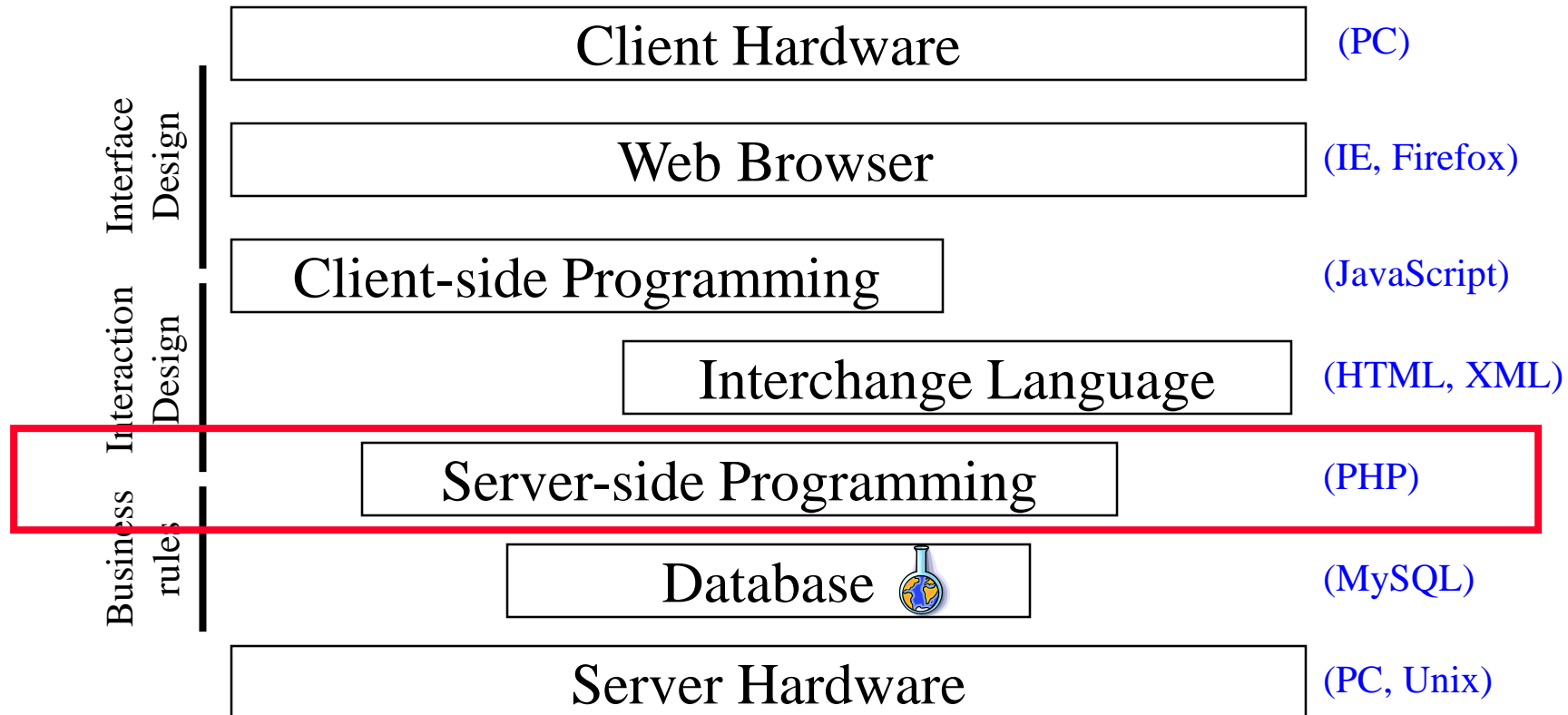
Muddiest Points

- 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

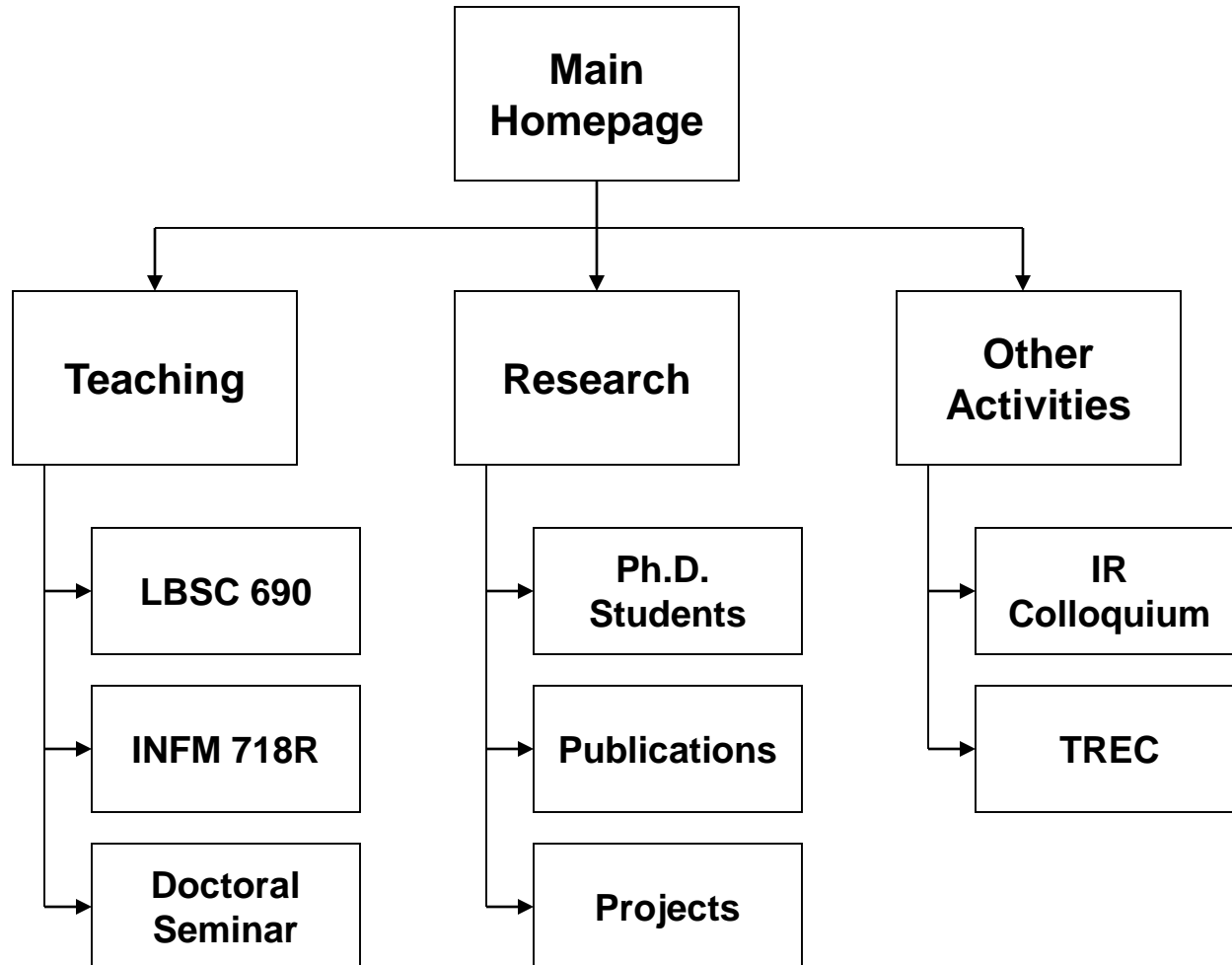
Information Architecture

- The structural design of an “information space” to facilitate access to content
- Two components:
 - Static design
 - Interaction design

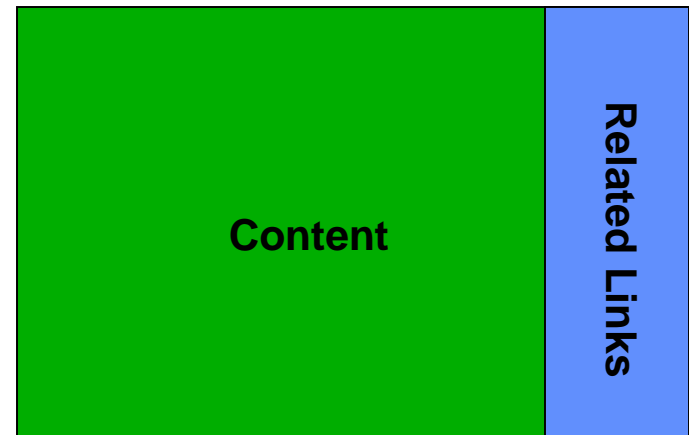
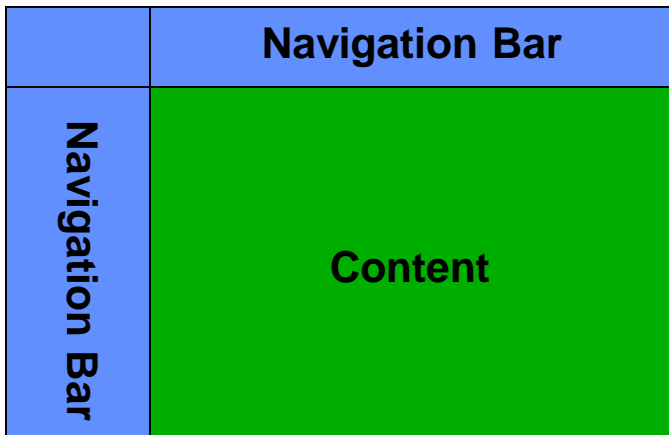
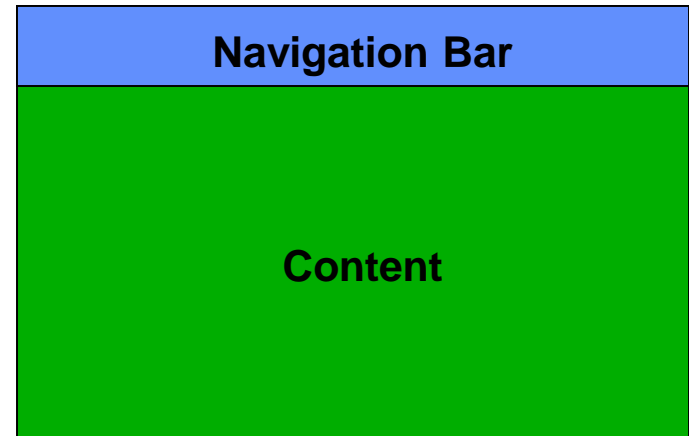
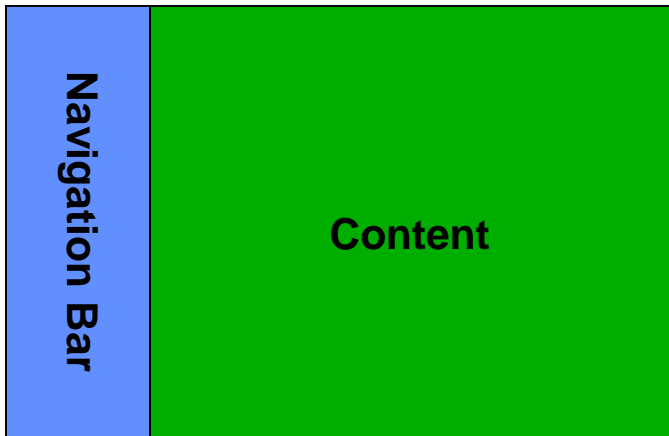
Static Design

- 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

Ayn Rand's Literature of Capitalism - New York Times - Mozilla Firefox

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SWAP YOUR RIDE HEAR WHAT PEOPLE LIKE YOU HAD TO SAY AFTER DRIVING A FORD FOR ONE WEEK. Ford CHALLENGE

CLICK HERE TO EXPAND

Ayn Rand's Literature of Capitalism

By HARRIET RUBIN
Published: September 16, 2007

One of the most influential business books ever written is a 1,200-page novel published 50 years ago, on Oct. 12, 1957. It is still drawing readers; it ranks 388th on [Amazon.com's](#) best-seller list. ("Winning," by [John F. Welch Jr.](#), at a breezy 384 pages, is No. 1,431.)

The book is "Atlas Shrugged," Ayn Rand's glorification of the right of individuals to live entirely for their own interest.

For years, Rand's message was attacked by intellectuals whom her circle labeled "do-gooders," who argued that individuals should also work in the service of others. Her book was dismissed as an homage to greed. [Gore Vidal](#) described its philosophy as "nearly perfect in its immorality."

But the book attracted a coterie of fans, some of them top corporate executives, who dared not speak of its impact except in private. When they read the book, often as college students, they now say, it gave form and substance to their inchoate thoughts, showing there is no conflict between private ambition and public benefit.

"I know from talking to a lot of Fortune 500 C.E.O.'s that 'Atlas Shrugged' has had a significant effect on their business decisions, even if they don't agree with all of Ayn Rand's ideas," said John A. Allison, the chief executive of BB&T, one of the largest banks in the United States.

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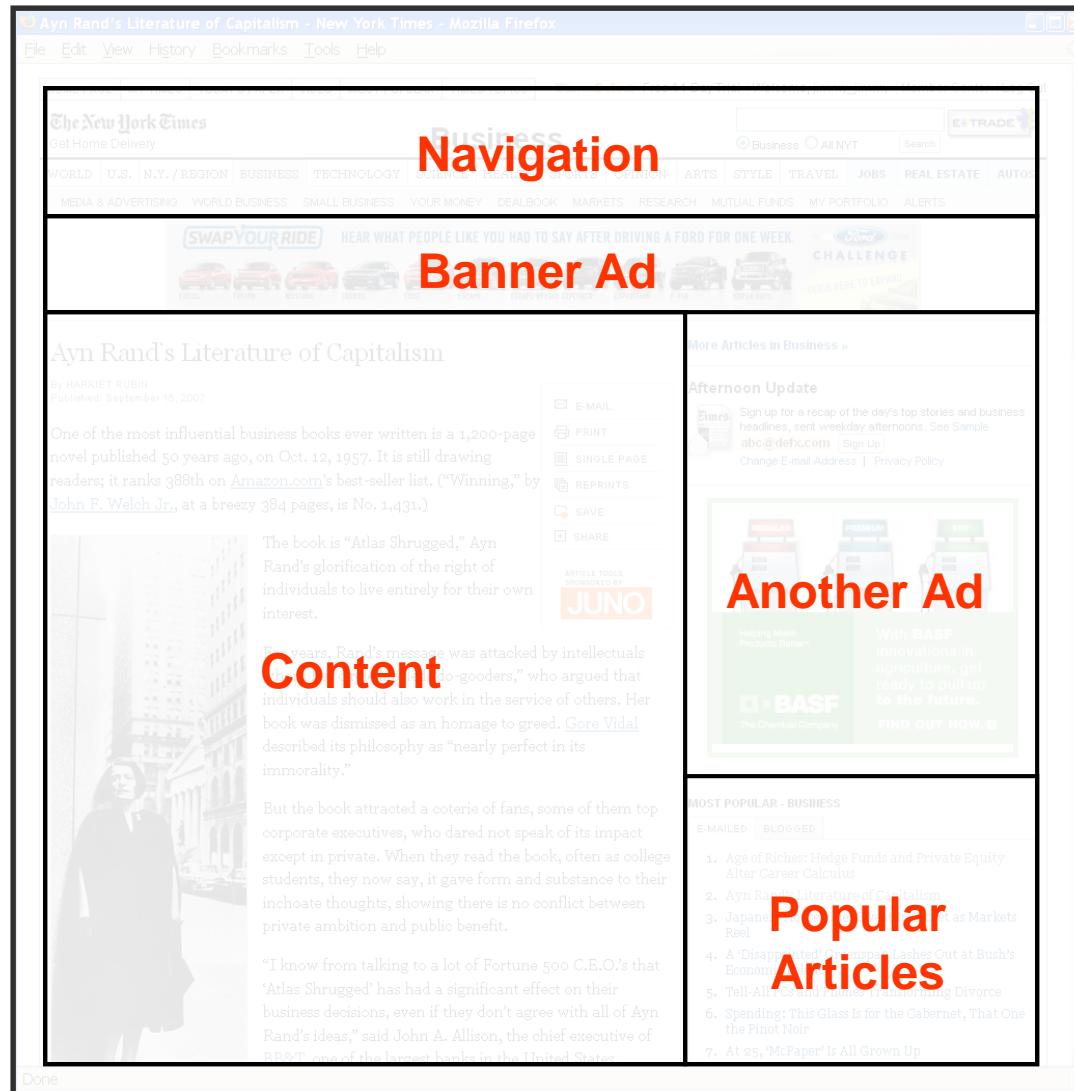
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3. Japanese Housewives Sweat in Secret as Markets Reel
4. A 'Disappointed' Greenspan Lashes Out at Bush's Economic Policies
5. Tell-All PCs and Phones Transforming Divorce
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Grid Layout: NY Times



Grid Layout: ebay

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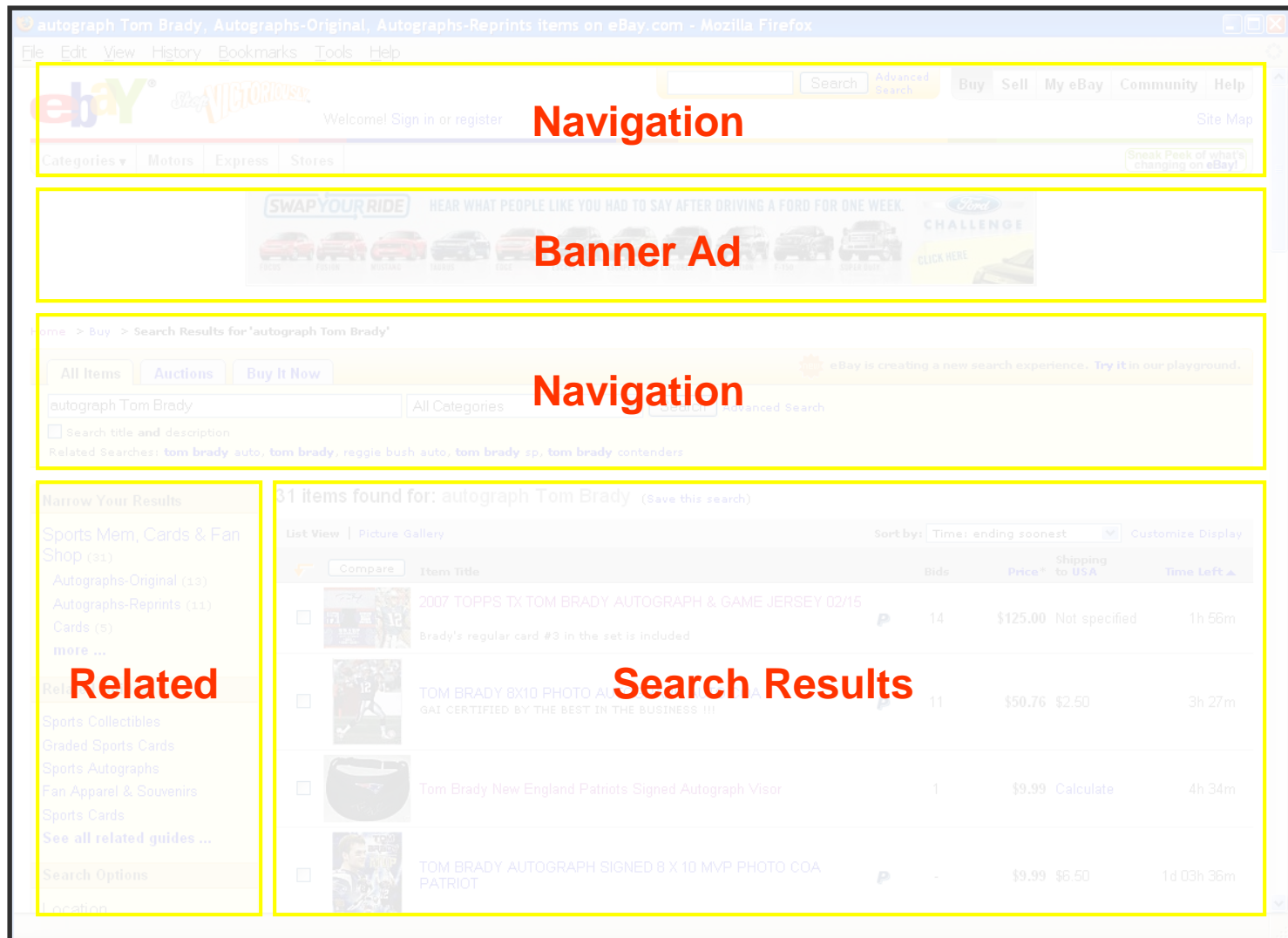
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<input type="checkbox"/>	 TOM BRADY 8X10 PHOTO AUTOGRAPH AUTO COA GAI CERTIFIED BY THE BEST IN THE BUSINESS !!!	P 11	\$50.76	\$2.50	3h 27m
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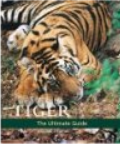

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- Toys & Games (10,716)
- Apparel (7,925)
- Everything Else (7,221)
- Jewelry & Watches (3,608)
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"tiger"

Did you mean [tigger](#)?


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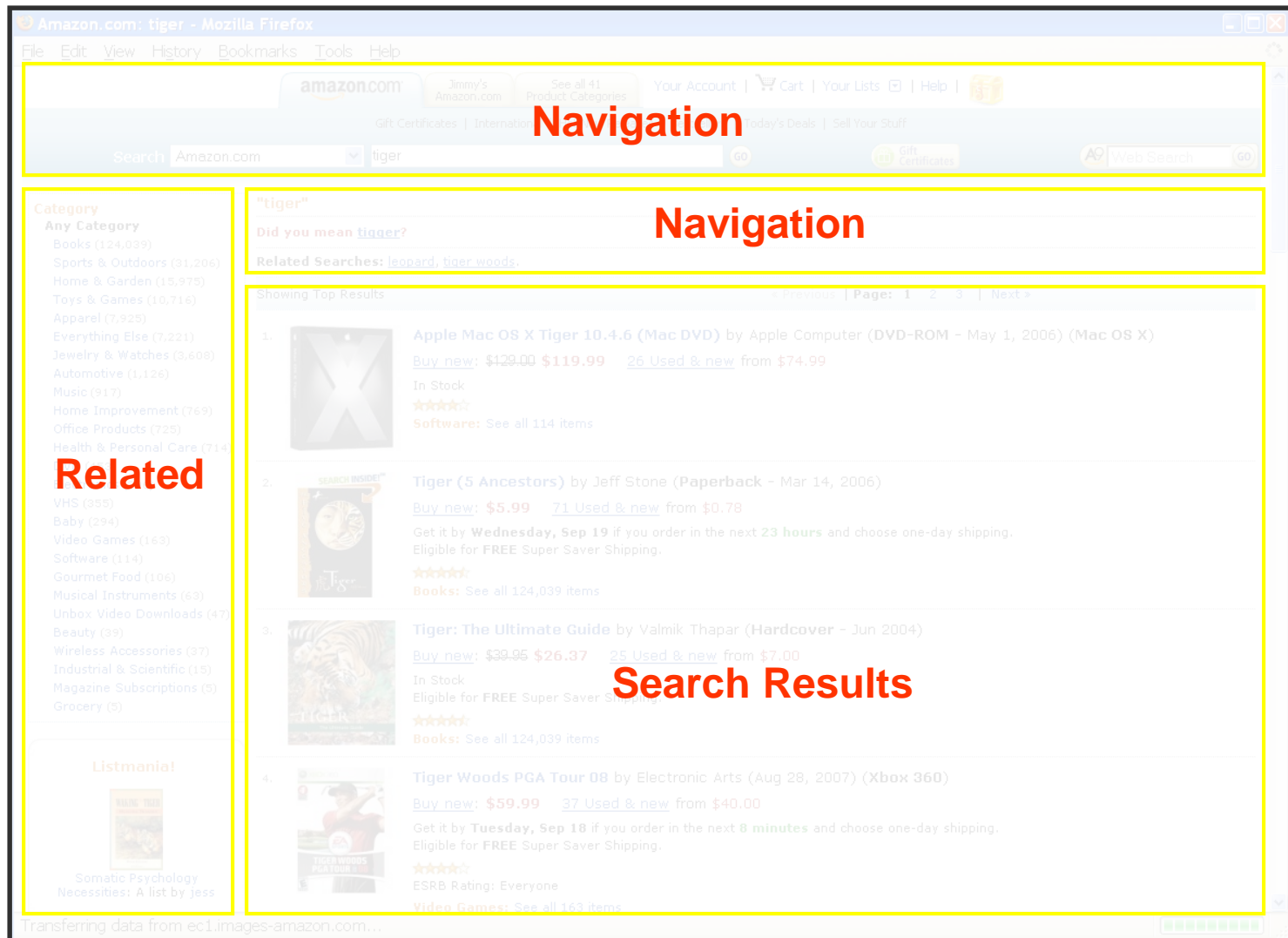
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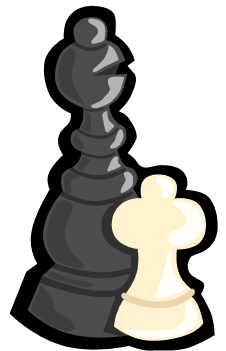
Some Layout Guidelines

- Contrast: make different things different
 - to bring out dominant elements
 - to create dynamism
- Repetition: reuse design throughout the interface
 - to achieve consistency
- Alignment: visually connect elements
 - to create flow
- Proximity: make effective use of spacing
 - to group related and separate unrelated elements

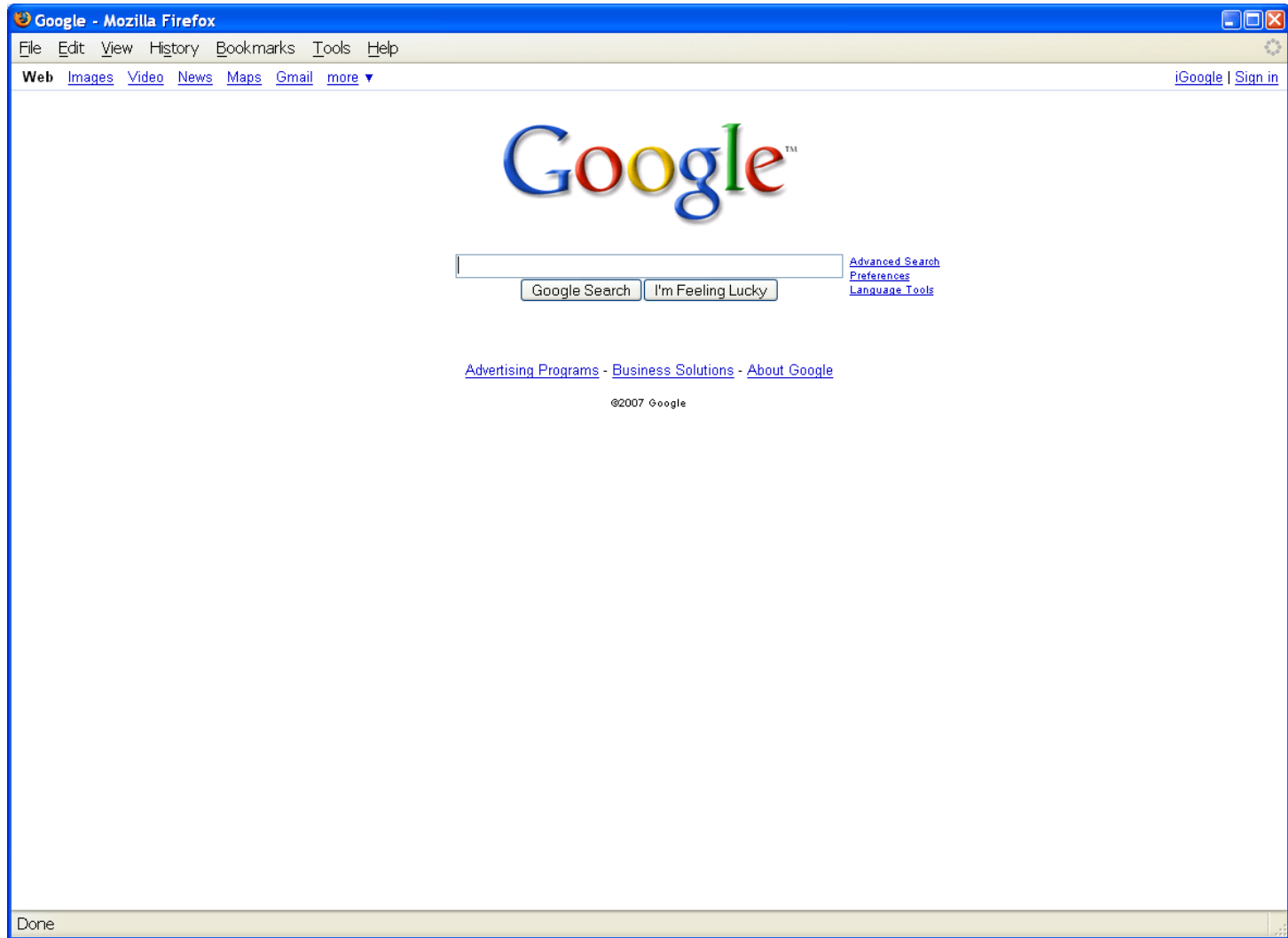
Interaction Design

- 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

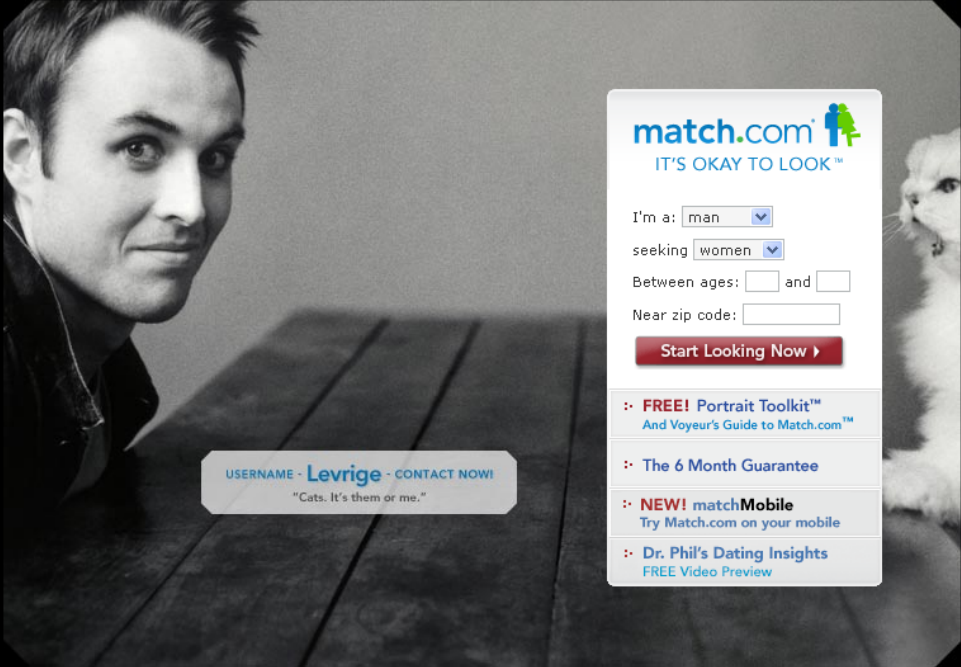


Opening Moves

Dating Service - Singles, Personals and Love, Match.com - Mozilla Firefox

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IT'S OKAY TO LOOK™

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Middle Game



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☐  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

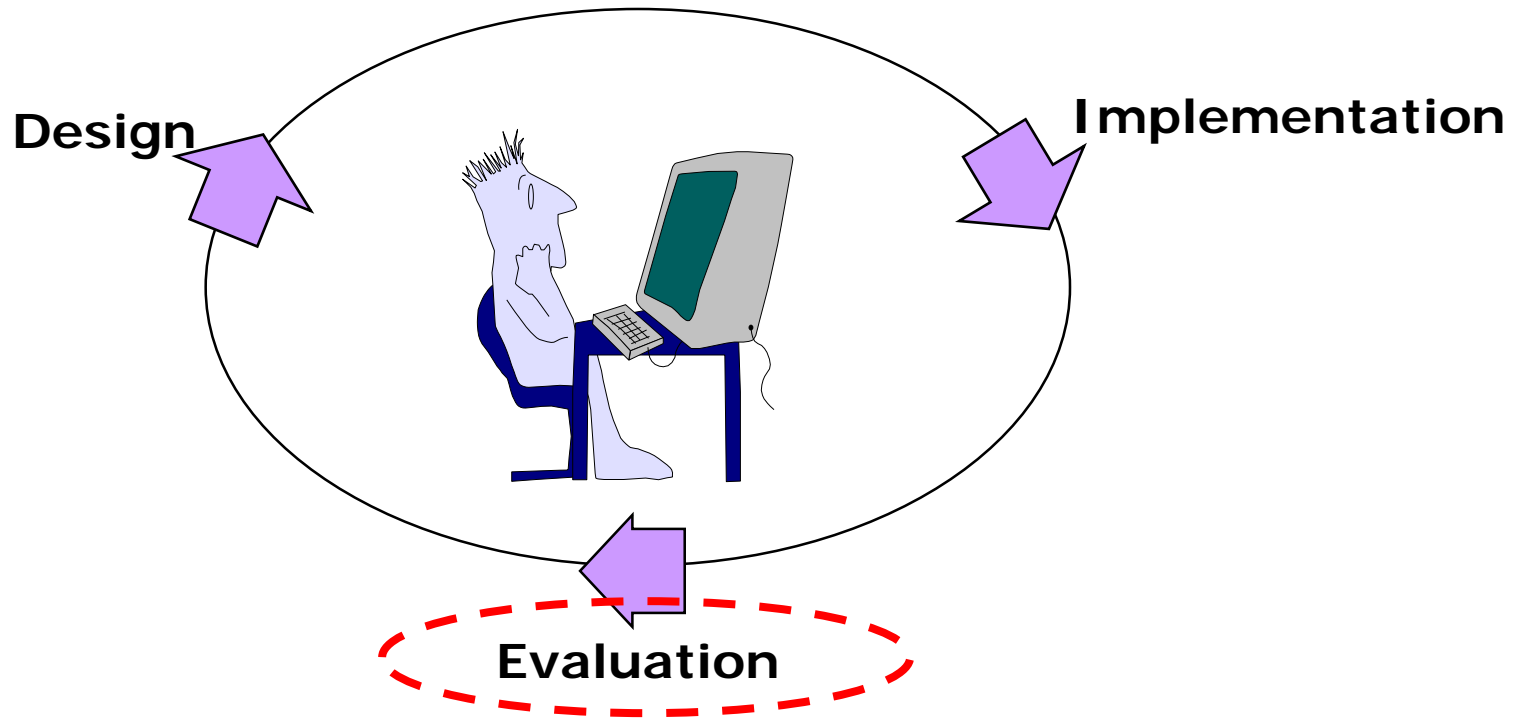
The Requirements Interview

- 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

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

Human-Computer Interaction



of interactive computing systems for human use

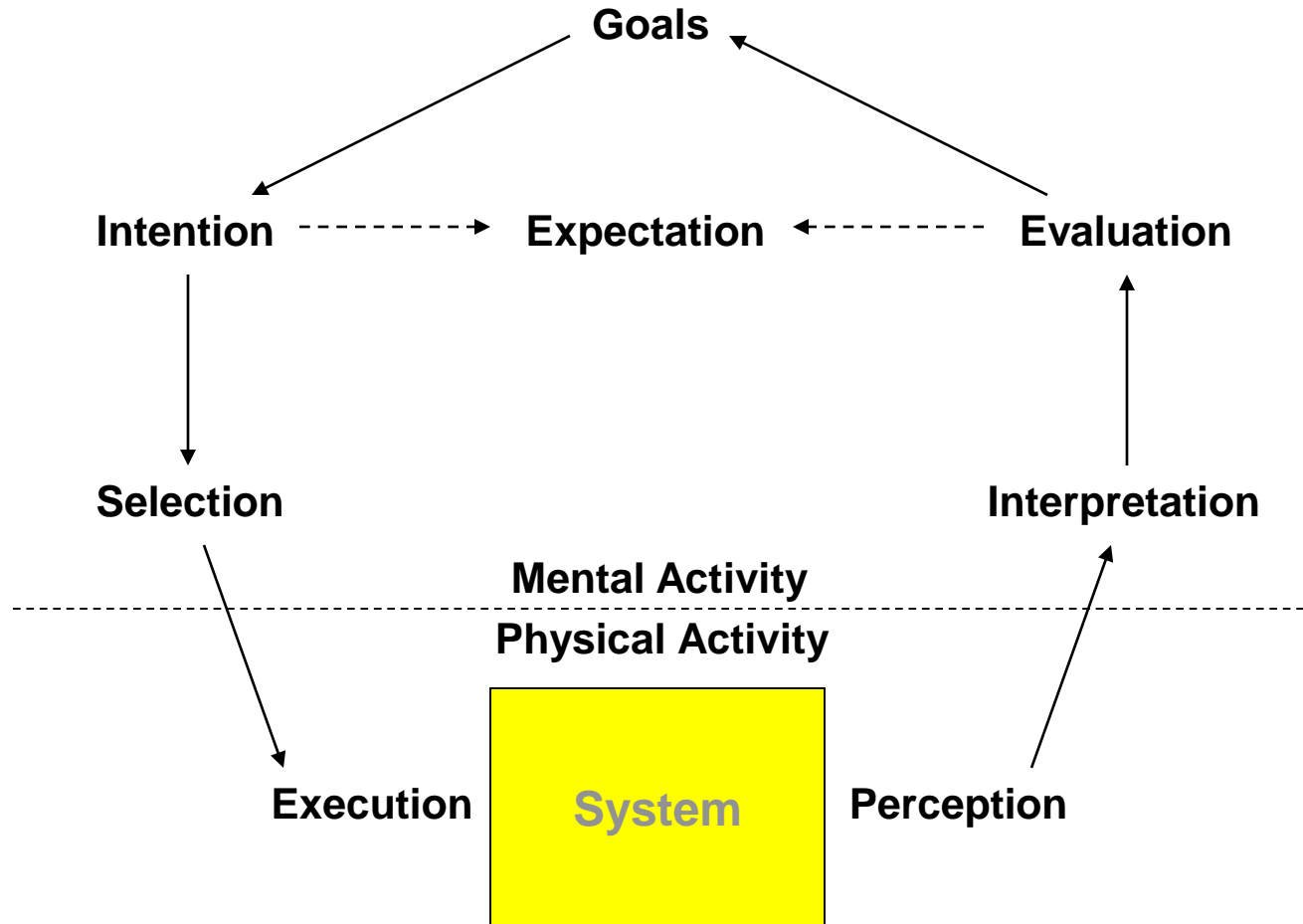
Synergy

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

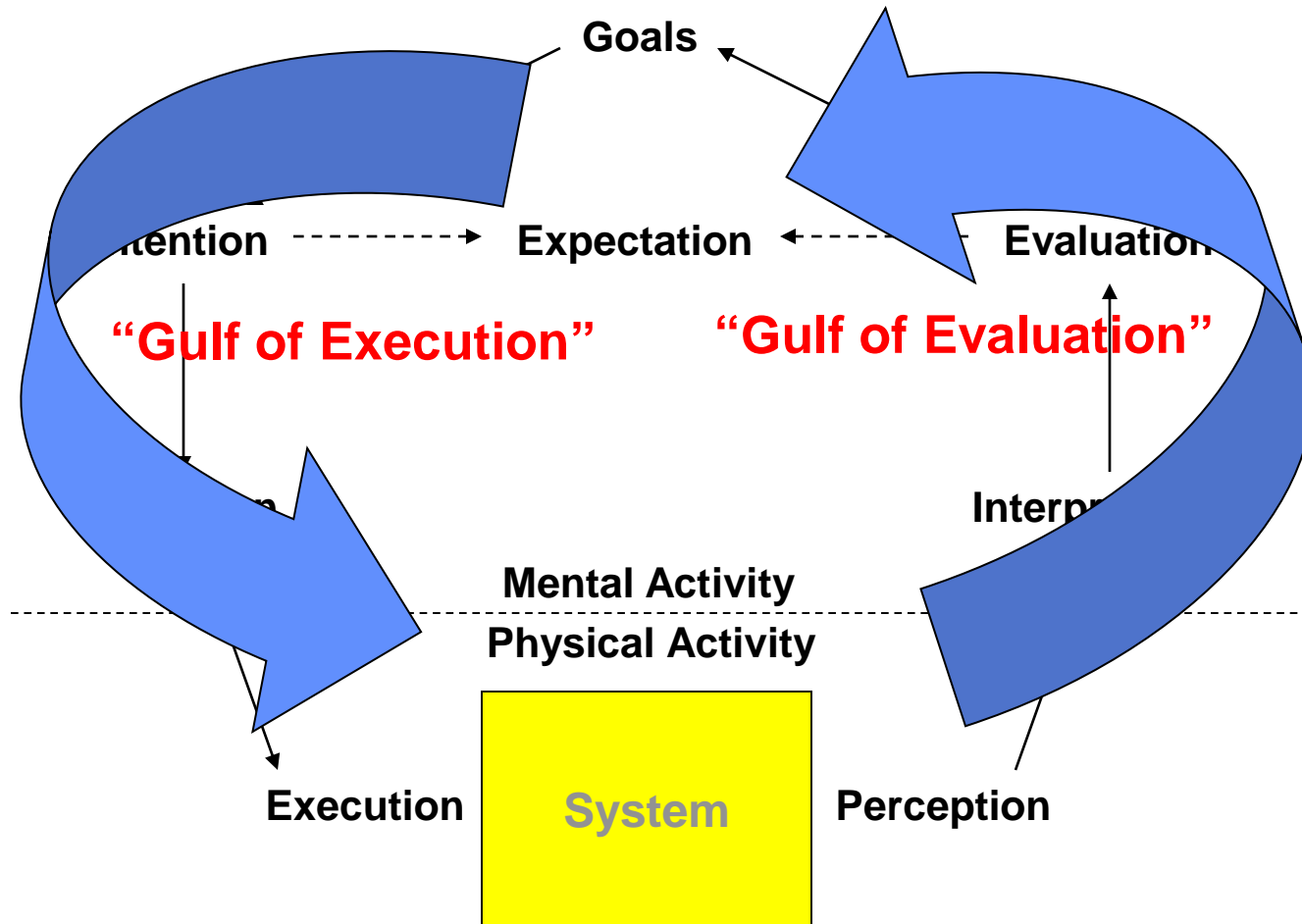
Interaction

- 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

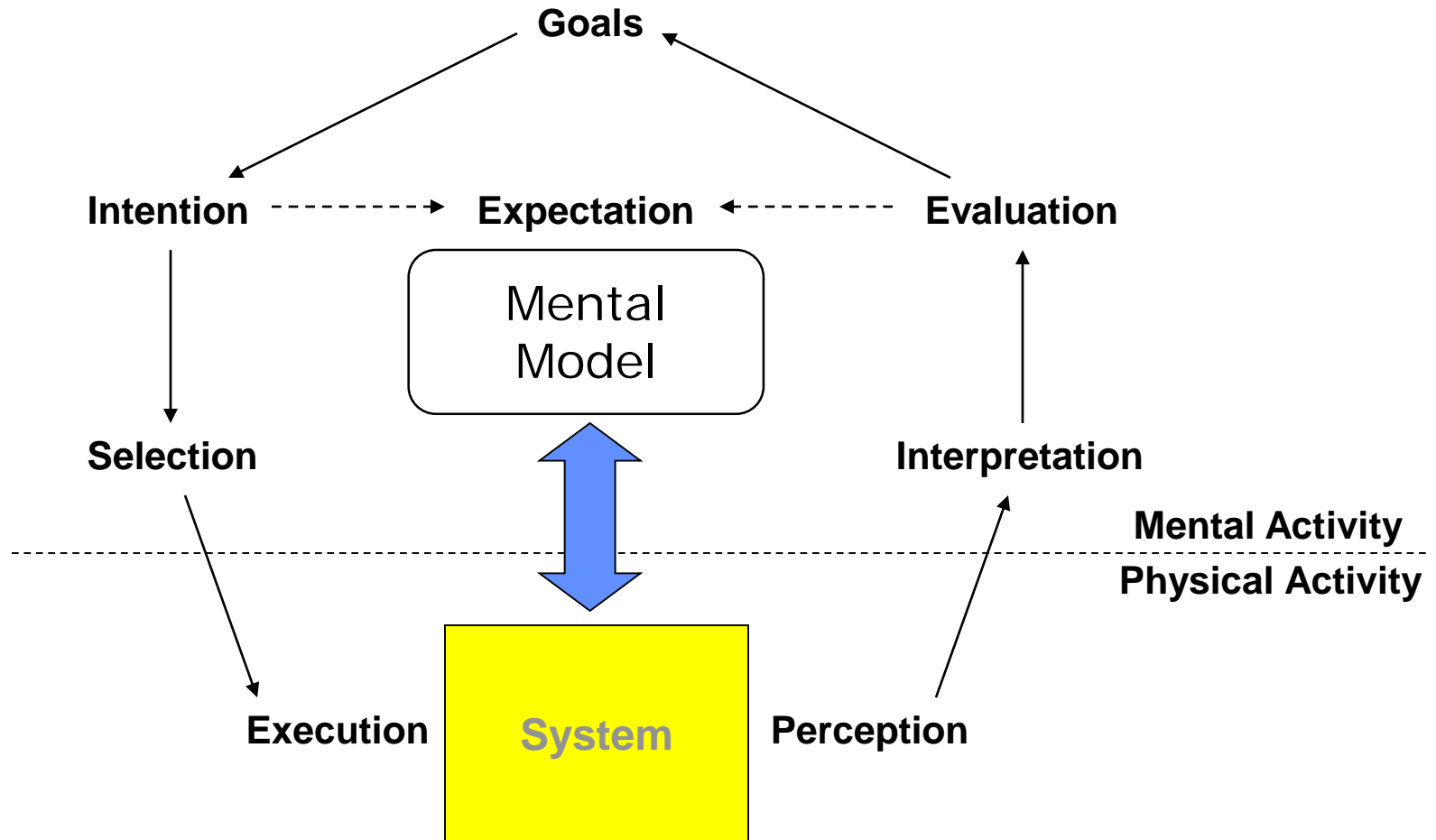
Stages of Interaction



Challenges of HCI

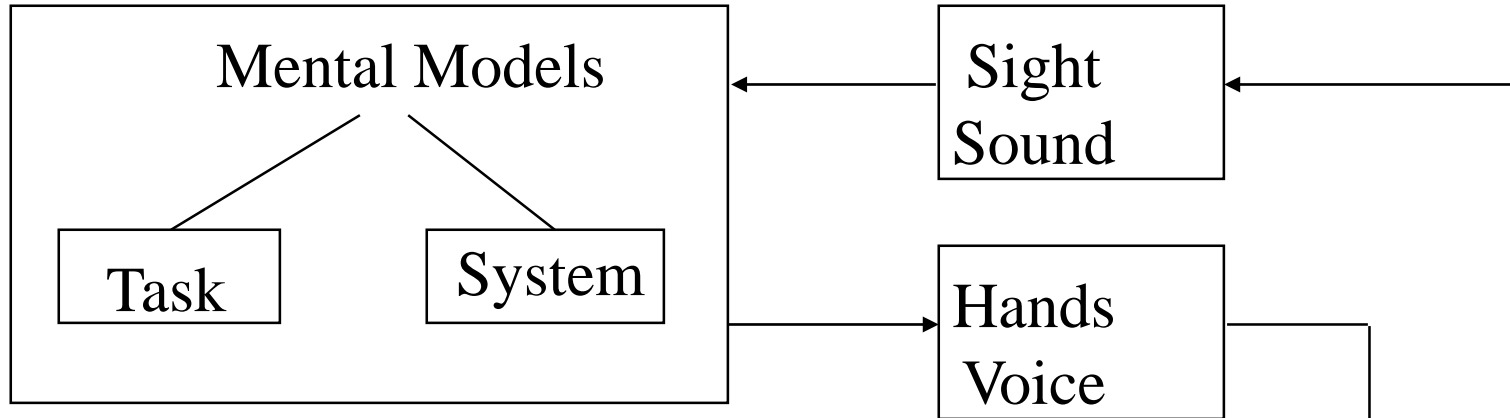


What is good design?

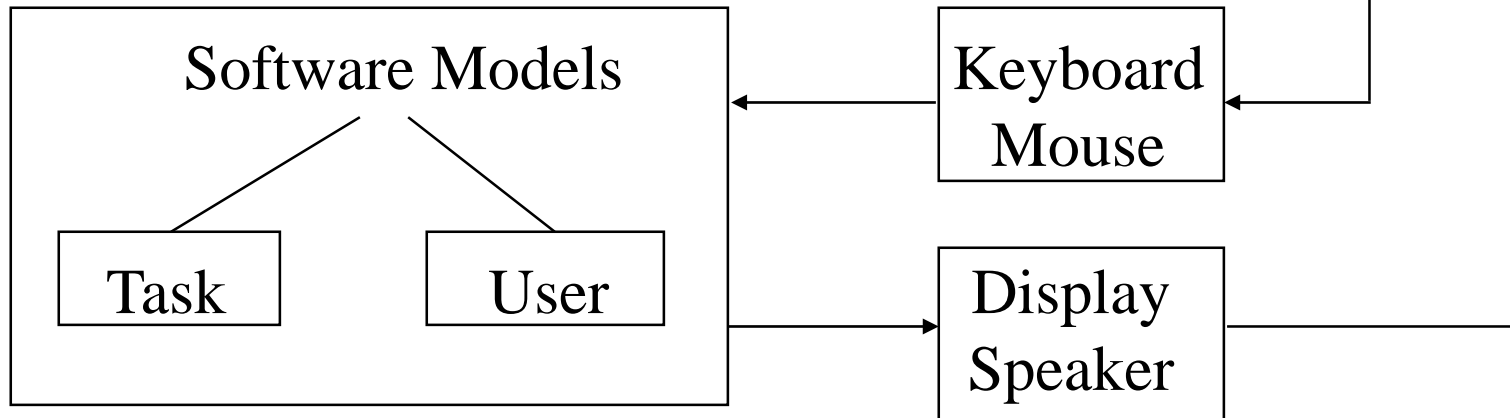


Modeling Interaction

Human



Software Models



Computer

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