1   HCI and the Web

Literature:

- Jakob Nielsen: Designing Web Usability, New Riders 2000
- Steve Krug: Don't Make Me Think, New Riders 2006 (2nd ed.)
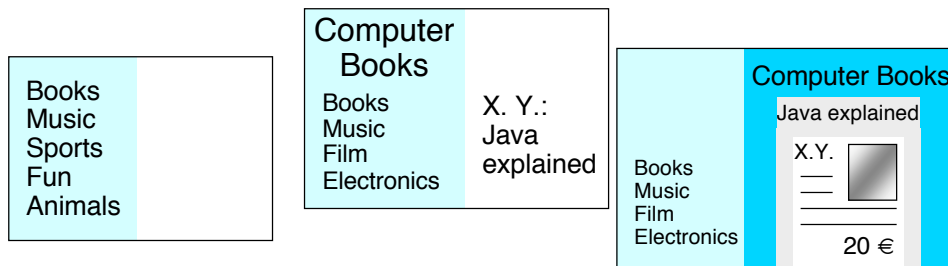

Billboard Design

- S. Krug:
  Designing under the assumption "that your users are whizzing by"
- Similar to billboard design
  – Everything simple, large, easy

- Create a clear visual hierarchy
- Take advantage of conventions
- Break pages up into clearly defined areas
- Make it obvious what's clickable
- Minimize noise

Visual Hierarchy

- The more important, the more (visually) prominent
  - Examples: larger, bolder, contrast color, set off by more white space, nearer the top
- Logically related things are also related visually.
  - Examples: Heading, similar visual style, in a well-defined area
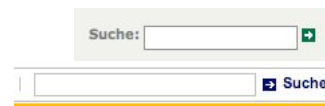- Things are "nested" visually to show what is part of what.

Important

Less important

Books
Music
Sports
Fun
Animals

Computer
Books

Books
Music
Film
Electronics

X. Y.:
Java
explained

Computer Books

Java explained

X.Y.

20 €

Books
Music
Film
Electronics

Conventions

- Example: Reading a newspaper
  - Headline, summary, picture caption, photo credit, author initials
- Every publishing medium develops conventions
- Conventions for the Web
  - Example: Shopping cart
  - Under development, still changing and maturing
- Conventions are helpful
  - Designers are reluctant to use them ("Do not repeat old schemes")
- Examples for discussion:
  - Conventions for hyperlinks
  - Conventions for search functions

Suche:

Suche

amazon.de

WUNSCHZETTEL | MEIN KONTO | HILFE | IMPRESSUM

NEU

HOME | HEINRICHS SHOP | BÜCHER | ENGLISH BOOKS | ELEKTRONIK & FOTO | MUSIK | DVD KAUFEN & LEIHEN | SOFT-WARE | GAMES | KÜCHE, HAUS & GARTEN | SPIELWAREN & KINDERWELT | SPORT & FREIZEIT

▶ INTERNATIONAL | ▶ GUTSCHEINE | ▶ BESTELLEN LEICHT GEMACHT | ▶ BESTSELLER | ▶ PREIS-HITS | ▶ JETZT VERKAUFEN | ▶ DISNEY

Example: Web Page in Foreign Alphabet

nylon.gr

Screen Estate

Core content

Navigation

Advertising

The Simplicity Principle

- "Simplicity always wins over complexity" (J. Nielsen)
  - Go through all design elements and remove them one at a time
  - If the design works without an element, kill it!
- Simplicity helps to achieve better performance
- Simplicity for texts:
  - "Omit needless words. Vigorous writing is concise."
    (E.B. White, *The Elements of Style*)
  - "Get rid of half the words on each page, then get rid of half of what's left."
    (S. Krug's Third Law of Usability)
  - Reducing the text
    - » reduces the noise level of the page
    - » makes important content more prominent
    - » makes pages shorter, users can see more at a glance
  - Candidates for removal:
    - » "happy talk", instructions

Example: "Happy Talk"

Example: Instructions

Cross-Platform Design (1)

- Screen resolution
  - Actual resolution of user's screen is unknown
  - Too low: Fixed size areas need scrolling
  - Too high:
    - » Fixed sized areas become too small
    - » Empty space may appear
- Static vs. Fluid design
  - "Fluid": Automatic resizing of areas relative to display size
- Practical tests required

Example: Fluid vs. Static Design

www.lmu.de
at 800 x 600

www.medien.lmu.de
at 800 x 600

Cross-Platform Design (2)

- Differences between operating systems
  - E.g. colour reproduction, Gamma correction
- Differences between browsers
  - HTML versions
  - Browser versions
  - Different interpretations of HTML
  - Different JavaScript implementations

> The research, from UK site testing firm SciVisum, was based on tests of 100 leading UK consumer websites. The firm found three percent turned away users of browsers other than Microsoft Internet Explorer, while another seven percent used code that could only be rendered in Explorer.

techworld.com, Jan 2006

- Strategic decisions
  - What to assume at client side
- Installation inertia
  - Early browsers:
    Big step forward with new version
  - Currently most used browsers:
    Little need for upgrade
  - Most recent browsers:
    Automatic upgrades

Example (May 2007!)
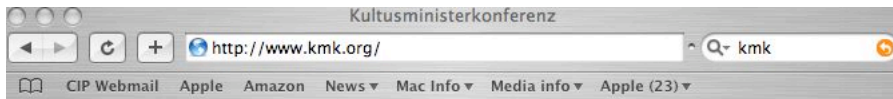
Um die volle Funktionalität der Homepage der
Kultusministerkonferenz nutzen zu können, benötigen Sie Netscape 4.X (jedoch nicht 6)
oder Internet-Explorer ab Version 4.X mit aktiviertem JavaScript.

Wenn Sie einen anderen Browser verwenden wie z.B. Mozilla Firefox können Sie die Version
ohne Animation benutzen, die vom Aufbau und Inhalt identisch ist.

Zur 'einfachen' Version

Response Times

- J. Nielsen: "Every web usability study I have conducted since 1994 has shown the same thing: Users beg us to speed up page downloads."
- Better design or better service do ***not*** make up for long waiting time!
- Response time classification (Miller 1968):
    - Tenth of secons (0.1):
        » User feels the system react instantaneously
        » Required for screen manipulation in real time
    - One second (1.0):
        » Limit for uninterrupted flow of thought
    - Ten seconds (10.0):
        » Limit for keeping user's attention focused at the dialogue
        » For longer waiting times, users turn to other tasks
- Response times can also be too fast!
    - Example: Very large scrolling lists on a fast computer

Technological Advances for Response Times

- General trend towards improvement
  - Network technology, computer technology
- Multimedia content becoming standard
  - Deteriorates situation
  - Practical workarounds:
    - » Pre-loading, streaming
    - » Indications for loading times
- New generation of Web applications
  - Response time based on local execution (e.g. JavaScript)
  - Information is loaded asynchronously in the background
  - Example: "AJAX" technology
    - » "Asynchronous JavaScript and XML"

AJAX and Traditional Web Applications
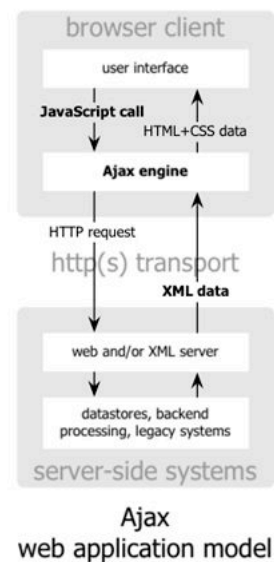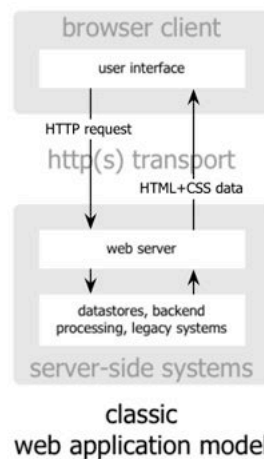
Source: javalobby.org

Linking

- Main forms of links:
  - Structural navigation links
  - Associative links within page content
  - See Also links
- Link description
  - Should never be "Click here"
  - Should be no more than two or four words long
- Link colors:
  - Traditional convention:
    » Unvisited = blue
    » Visited = red/purple
- New window with link?
  - Disadvantages: Reduced user control, clutters screen, disables back/forward navigation
  - To be discussed

URL Design

- "Good domain names that are easy to remember and easy to spell are the Internet's equivalent of a Fifth Avenue real estate location in the physical world"   (J. Nielsen)
  - Choice of domain name
    » As short as possible
    » Compatible with intellectual property rights and company policies
    » Common words
    » Only lowercase
  - Support of input with and without "www" (How?)
- Archival URLs
  - See e.g. Blogs
- Support of outdated URLs

Navigation

- Why is navigation on the Web so difficult?
  - No sense of scale
  - No sense of direction
  - No sense of location
- First question in navigation:
  - Browse or search?
- Purposes of navigation:
  - Helps us to find things
  - Tells us where we are
  - Gives us something to hold on
  - Tells us what is there

Web Navigation Conventions

Search

- Apparently there are people who like to use search and people who like to browse.
- Use conventions
  - Avoid fancy wording
  - Avoid instructions
- Limiting search scope
  - To be done with greatest care
- Best practice:
  - General-purpose search box (Google-like)
  - Restrictions just optionally
  - Automatic extension of restricted search in case of too few results


Example: Confusing Search

Content Design

- "When they leave the theater, you want them to be discussing how great the *play* was and not how great the costumes were." (J.Nielsen)
- Core point (extremely important!):
  - Design for the end user
  - Ask questions, do not shout messages
  - Hide internal organization and terminology unknown to most users
- Case study (for discussion)
  - There is "LFE Medieninformatik" – an organisational unit
  - There is the study programme "Medieninformatik"
  - How to combine information on the two items?

Nielsen Usability Engineering Life Cycle

- Pre-design Phase:
  - Conduct a field study on how users work in their environment.
  - Run a small user test analysis on the old design
  - Make a comparative user test on competing web sites.
- Design Phase:
  - Use parallel design to make simple prototypes of different design approaches.
  - Select the best design from the previous step and develop it further, then do more user testing.
  - Iterate this design as many times as your time and budget allows.
  - Almost finish site and do one market test.
- Post-Design Phase:
  - Get statistics and feedbacks about real use of the web site.
  - Refresh your web site (minor changes).
  - Start planning for the next redesign of the web site

Post-It-Method for the Structural Design

- Designing the information & navigational structure of large web sites
- with non-technical staff and decision makers
- Post-It Notes with important keywords
- Making a "Concept Map" - not a diagram representing the organization!
- Designing the structure of the web on a blackboard
- Create list of keywords

Card Sorting:
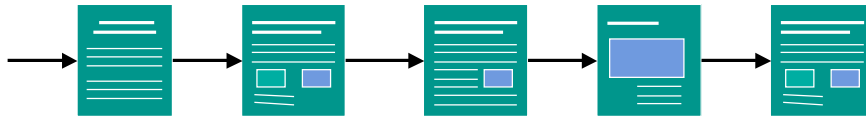http://www.infodesign.com.au/ftp/CardSort.pdf

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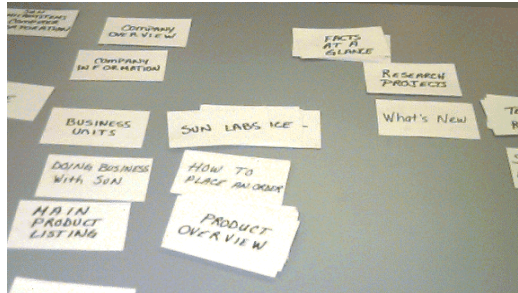
Structuring Information

- linear
- hierarchical
- grid
- graph / web

- For the overall site
- For parts of a site (e.g. user registration)

If a web site is dynamically generated a structure is still needed!

Structure is then not fixed in the HTML pages but in the navigation generated.

Linear Structures I

- purely linear

- strict guidance (directed)
- little choices for the user
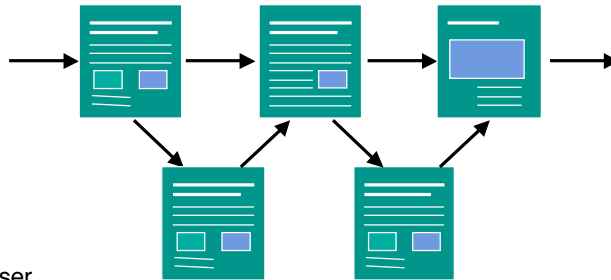- pre-caching possible

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Linear Structures II

- purely linear

- strict guidance
- little choices for the user
- pre-caching possible
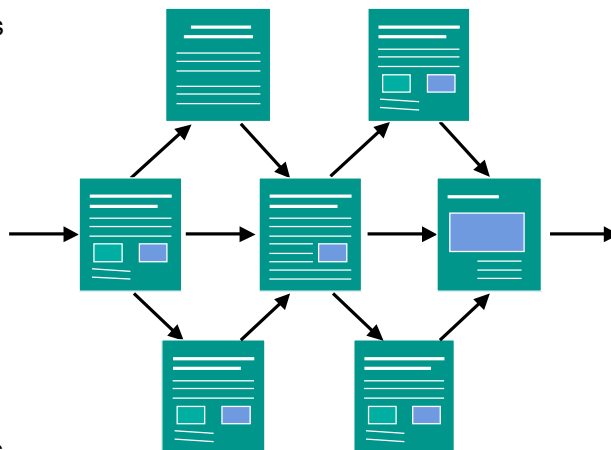
Linear Structures III

- linear with options

- guidance
- some choices for the user
  active interaction
- different levels of detail
- scenarios: different level of expertise, profiles
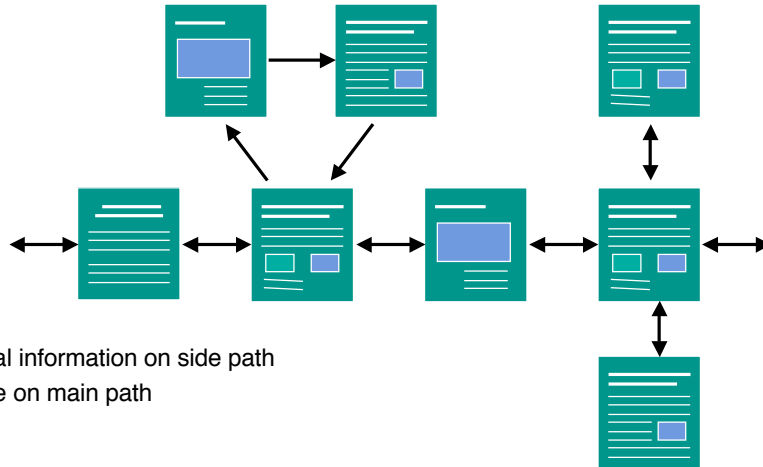

Linear Structures IV

- linear with alternatives

- guidance
- some choices for the
  user active interaction
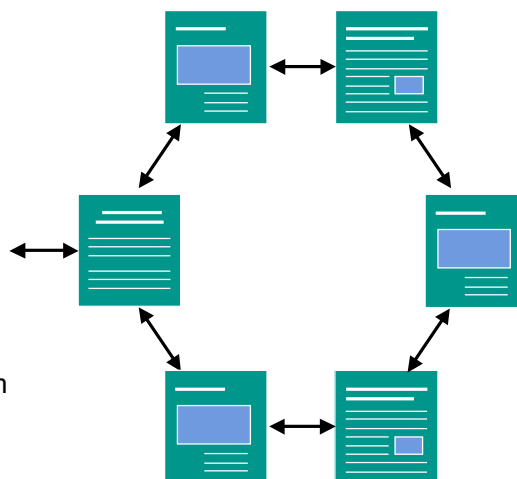- scenarios: questionnaires

Linear Structures V

- linear with side branches

- additional information on side path
- guidance on main path

Circular Structure
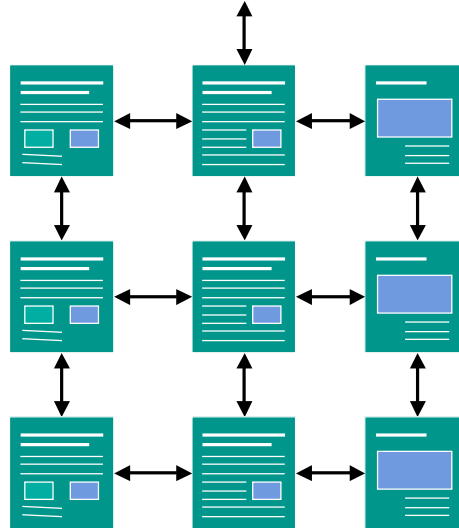
- closed guided path
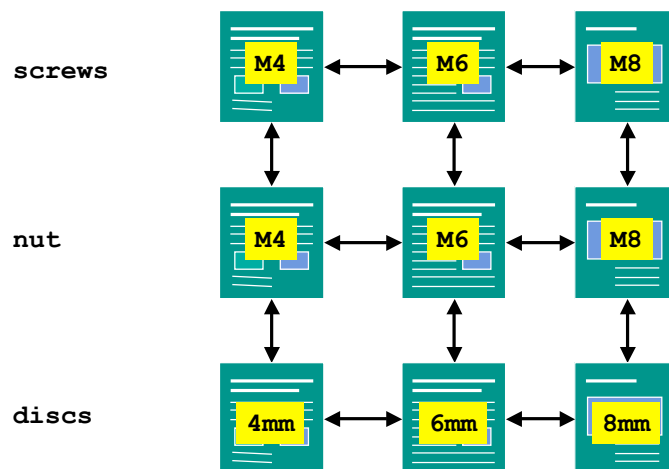- variants / side paths
- entry

- E.g. Web Rings
  http://dir.webring.yahoo.com

Information Grid

- ordered on two orthogonal criteria

- user get a „feeling of space"
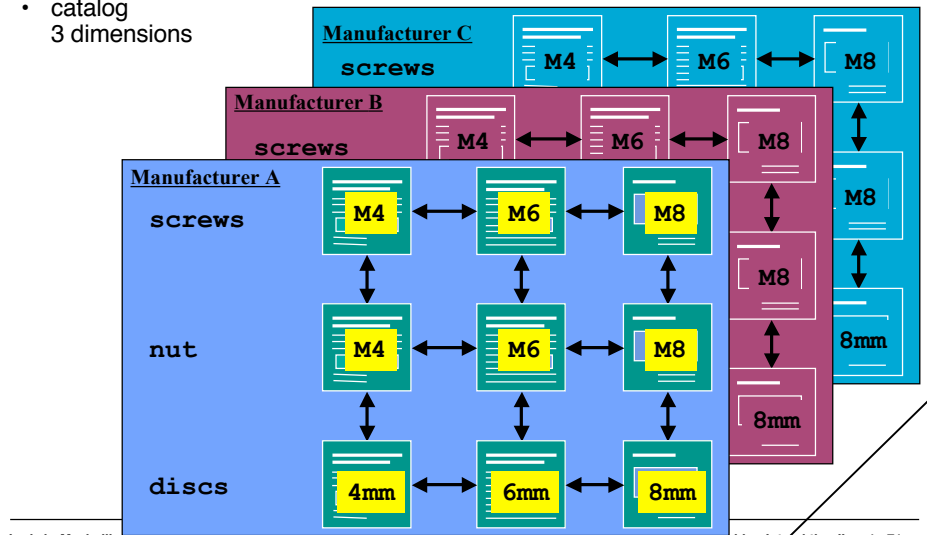
- e.g. product catalog

- possible for more dimensions

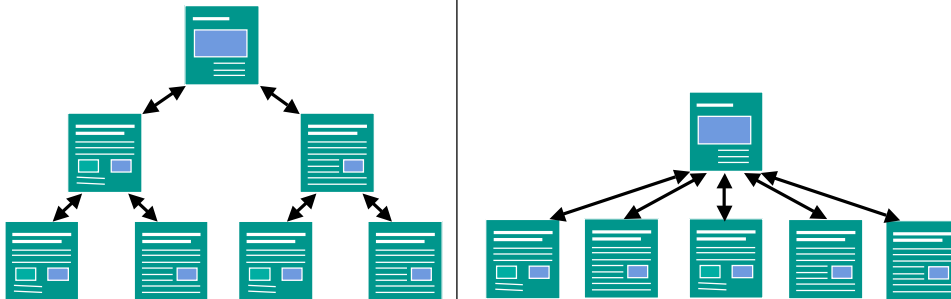# Example: Grid Information Structure I

- catalog 2 dimensions

screws   M4 ↔ M6 ↔ M8

nut   M4 ↔ M6 ↔ M8

discs   4mm ↔ 6mm ↔ 8mm

Example: Grid Information Structure II

- catalog
  3 dimensions

Manufacturer C
screws M4 ←→ M6 ←→ M8

Manufacturer B
screws M4 ←→ M6 ←→ M8

M8

M8

M8

8mm

M8

8mm

Manufacturer A

screws M4 ←→ M6 ←→ M8

nut M4 ←→ M6 ←→ M8

discs 4mm ←→ 6mm ←→ 8mm

Hierarchical Information Structure

- deep hierarchy

- flat hierarchy
  - Lookup table (A-Z)
  - 6-10 is reasonable

Linked Information Structures

- Pure webs

- difficult for orientation
- extremely expressive