

# 1 HCI and the Web

- 1.1 HCI – A Quick Reminder
- 1.2 Web Technology – A Brief Overview
- 1.3 Web Usability: How Do We Use the Web?
- 1.4 Designing Web Sites for Usability
- 1.5 Web Accessibility

## Literature:

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

## Billboard Design

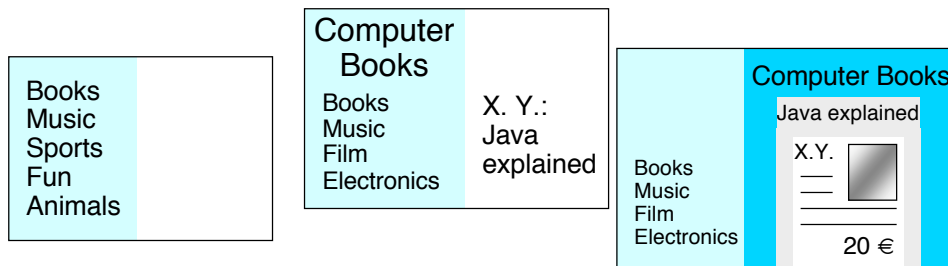
- S. Krug:  
Designing under the assumption “that your users are whizzing by”
- Similar to billboard design
  - Everything simple, large, easy
- Create a clear visual hierarchy
- Take advantage of conventions
- Break pages up into clearly defined areas
- Make it obvious what's clickable
- Minimize noise

## 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.

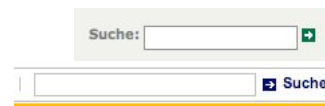
**Important**

Less important



## 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



amazon.de

WUNSCHZETTEL | MEIN KONTO | HILFE | IMPRESSUM



## Example: Web Page in Foreign Alphabet

**svnc me**  
 βάλτε με στα αγαπημένα σου

**Πληροφορίες**  
 Τι είναι το Nylon.gr  
 Το Blog αυτό λειτουργεί καλύτερα (και δείχνει καλύτερο) όταν το βλέπετε με Firefox Browser.

**Εγγραφή**  
 Πάτησε το κουμπί για να λαμβάνεις το NYLON σε RSS Feed.

Το email σου για να έρχεται το NYLON:

**Επικοινωνία**  
 tips@nylon.gr  
 Call me!

**Τι θα κάνουμε με τους βαρβάρους?**

Ένα κορίτσι 17 ετών από την Κουρδική κοινότητα της Μοσούλης στο Ιράκ αγάπησε ένα Μουσουλμάνο. Αποφάσισε να φύγει από την πόλη της για να τον παντρευτεί.

Μετά από 4 μήνες οι γονείς της την έπεισαν ότι μπορεί να επιστρέψει ασφαλής πίσω γιατί τη συγχώρεσαν για το "λάθος" της.

Την ώρα της επιστροφής είδε στην είσοδο της πόλης να την περιμένει ένας άλλος από 1.000 άνδρες. Τη σκότισαν με το χειρότερο τρόπο. Την πετροβόλησαν με τεράστιες κοτρίνες χωρίς καμία λύπηση.

Την ίδια ώρα κατέγραφαν την πράξη τους με κινητά τελευταίας Δυτικής τεχνολογίας. Όσο έκλαιγε και παρακαλούσε για τη ζωή της τόσο δυνατώτερα την κλωτσούσαν. Η τοπική αστυνομία ήταν παρούσα, βοηθώντας τους ντόπιους στη δοκιμασία.

Όλα τα video εδώ, και εδώ, και εδώ, και εδώ, και εδώ.

Να τα βλέπουμε και να ξέρουμε "τι είναι και πως είναι"....

May 8th, 2007  
 Κατηγορίες: [ΑΝΘΡΩΠΙΝΑ ΔΙΚΑΙΩΜΑΤΑ](#), [ΠΟΛΙΤΙΣΜΟΣ](#). Blogger: [Nikos](#). Σχόλια: [14](#)  
 Σχόλια

**Δε μαςάμε ?**

Το Δε Μασάμε Ρε αναπαράγει ένα μικρό κομμάτι από άρθρο του TIME:

Οι εταιρίες δεν ανησυχούν μόνο για τους πρωινούς τίτλους των ειδήσεων, αλλά και για τα ατέλειωτα κείμενα στα μπλογκς, και στα εκτός ελέγχου video τα οποία μπορούν να παίζουν εικοσιτέσσερες ώρες το εικοσιτετάωρο.

**Nick's shared items**

[Plethora of Options for Green Web Hosting](#)  
 from TreeHugger

[Parents think internet is dangerous for children](#)  
 from Download Squad

[National Banana - Surely you understand Hollywood...](#)  
 from PouTech Network

[Planet Earth](#)  
 from Planet Intertwingly

[Social Media Killed the Video News Release Star](#)  
 from PR 2.0

[Read more...](#)

**what am I doing...**  
 National Banana rocks!  
<http://www.nationalbanana.com/>

about 18 hours ago

follow drandakia at <http://twitter.com>

**Podcasts - Videocasts**

[Art Attack](#)  
[Arxedia Media](#)  
[BONANZA GR](#)  
[BOOK ATTACK](#)

**Ημερολόγιο**  
 May 2007

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

← Apr  
 gapingvoid.com

## Screen Estate

AOL | My AOL | Mail | Make AOL Your Homepage

Search the Web

**Home Run Hero** Find major getaways at minor prices - GO!

**ORBITZ AND GO!**

**MAPQUEST.** Settings | Help | Business Solutions

Maps Directions Mobile

Printer-Friendly | E-Mail | Link to this Map

★ **Amalienstrasse 17**  
 München, BAYERN 80333, DE  
[Directions To](#) | [Directions From](#) | [Revise](#) | [New Map](#)

**Online Offers**

- München Hotels
- München Insurance
- Schools in München
- Homes in München

**Online Offers**

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- München Schools
- Real Estate in München
- München Insurance
- Travel to München
- Extended Stay Hotels

200 Hotels in Munich  
 Good availability and great rates.  
 Book online now, pay at the hotel!  
[www.booking.com/Munich](http://www.booking.com/Munich)

## 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”

The screenshot shows the website for the Hunt Club - Riverside Community Centre (HCRCC). The header features the organization's logo and name, a search bar, and a navigation menu with links for HOME, ABOUT US, OUR FACILITY, PROGRAMS, WHAT'S NEW, and WHAT'S HAPPENING. The main content area includes a large banner with the text "HCRCC Something for everyone!" and a photo of a child. Below the banner are sections for QUICK LINKS (Hours of Operation, Halloween Bash, Administration, Submit News), a welcome message, and a "Facility Rentals" section. The footer contains a "LET'S CONNECT" section and "OUR SPONSORS".

## Example: Instructions

**PICK-UP SERVICES**

**FROM KYOTO**

- \* Kyoto 1Day
- \* Kyoto&Nara 1Day
- \* Kyoto Morning
- \* Kyoto Afternoon
- \* Kyoto Morning&Craft
- \* Nara Afternoon
- \* Kyoto Special Night
- \* Kyoto Maiko Night
- \* Walking in Osaka 1Day
- \* Walking in Sapano-Arashiya
- \* Experience Authentic Japanese Culture in Kyoto

**FROM KYOTO / OSAKA**

- \* Miho Museum/Private Tour>
- \* Hiroshima&Kurashiki 2Days
- \* Hiroshima&Miyajima 1Day
- \* Pearl Island & Ise 1Day
- \* Himeji Castle & Sake Brewery
- \* Mt.Hiei Enryaku-ji & The experience of Zazen

**FROM OSAKA**

- \* Kyoto 1Day from Osaka
- \* Kyoto & Nara 1Day from Osaka
- \* Kyoto Morning from Osaka
- \* Kyoto Afternoon from Osaka
- \* Nara Afternoon from Osaka
- \* Walking in Osaka 1Day
- \* Walking in Osaka Afternoon

**FROM HIROSHIMA**

- \* Hiroshima & Miyajima 1Day

**PRIVATE TOURS**


**FREE PLAN**

**TOUR CONDITIONS**

**CONTACT US**



tel: **81-75-341-1413**

mail: [itdw\\_sunrise@jtb.jp](mailto:itdw_sunrise@jtb.jp)









**HOW TO USE DIGITAL PAMPHLET**


**How to use with mouse**

-  Click the left button of the mouse on a page, and it magnifies the page twice.
-  Click the right button of the mouse on a page, and it goes to the next page.

**How to use with buttons**

-  Goes to the next page
-  Goes to the previous page
-  Goes to the last page
-  Goes to the first page
-  Magnifies particular area and moves from corner to corner





Ludwig-Maximilians-Universität München

Prof. Hußmann

Mensch-Maschine-Interaktion II – 1 - 45

## 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

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Prof. Hußmann

Mensch-Maschine-Interaktion II – 1 - 47

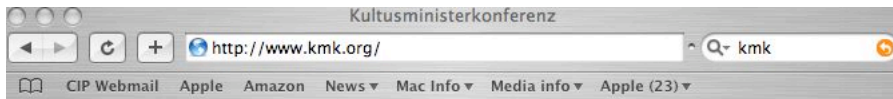
## Cross-Platform Design (2)

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

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

## 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](#)

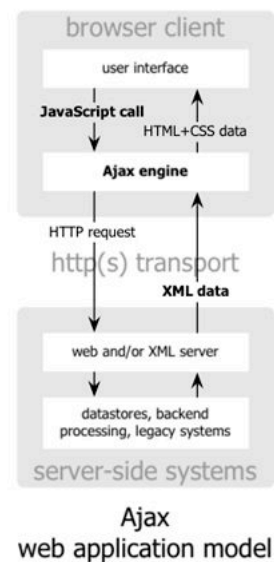
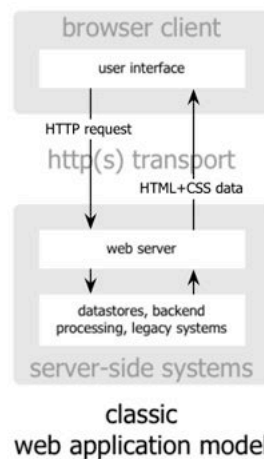
## Response Times

- 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 seconds (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](http://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

The image shows two screenshots of the GAP website. The top screenshot is the homepage, and the bottom screenshot is a product page for sweaters. Callouts point to various navigation elements:

- Site ID:** Points to the GAP logo.
- Sections:** Points to the main navigation menu (Men, Women, GapKids, babyGap, GapMaternity, GapBody).
- Subsections:** Points to the sub-navigation menu (newborn, baby girl, baby boy, bedding).
- You are here:** Points to the breadcrumb trail.
- Utilities:** Points to the My Account, Sign In, and checkout buttons.
- Page name:** Points to the 'Sweaters' page title.
- Menu:** Points to the 'Our Top Picks' and 'Departments' sections.
- You are here:** Points to the breadcrumb trail on the product page.
- Local navigation:** Points to the 'shop by size' and 'see our size charts' links.

## 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

The screenshot shows the IMDb website's search bar. The search term "nobody's perfect" is entered. The search dropdown menu is set to "All". The search button is labeled "go" and "more | tips".

### IMDb Search

A search for "nobody's perfect" found the following results:

**Titles (Exact Matches)** (Displaying 6 Results)

1. [Nobody's Perfect](#) (2004)
2. [Nobody's Perfect](#) (1989)
3. [Nobody's Perfect](#) (1968)
4. ["Nobody's Perfect"](#) (1980/I)
5. ["Nobody's Perfect"](#) (1980/II)
6. ["Nobody's Perfect"](#) (1980/III)

The screenshot shows the IMDb website's search bar. The search term "nobody's perfect" is entered. The search dropdown menu is set to "Quotes". The search button is labeled "go" and "more | tips".

29. [Some Like It Hot \(1959\)](#)

**Osgood:** Well, nobody's perfect.

## Content Design

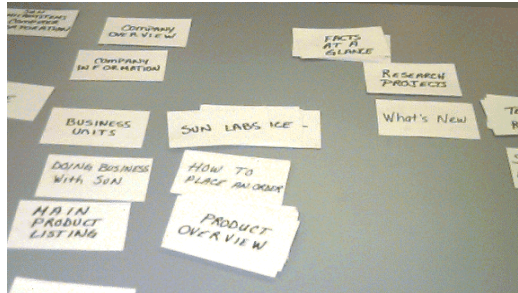
- “When they leave the theater, you want them to be discussing how great the *play* was and not how great the costumes were.” (J.Nielsen)
- Core point (extremely important!):
  - Design for the end user
  - Ask questions, do not shout messages
  - Hide internal organization and terminology unknown to 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>

## Structuring Information

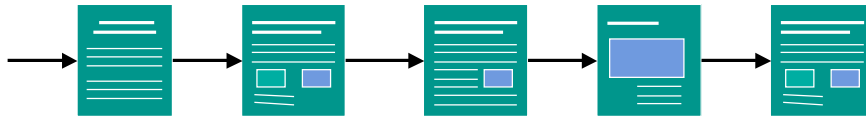
- linear
  - hierarchical
  - grid
  - graph / web
- 
- For the overall site
  - For parts of a site (e.g. user registration)

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

## Linear Structures II

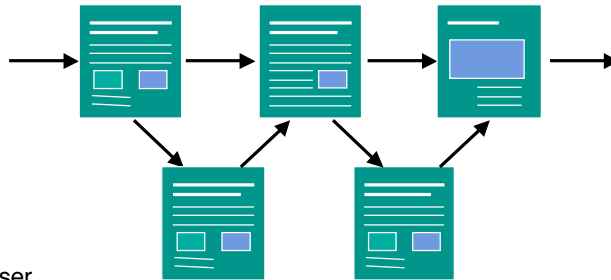
- purely linear



- strict guidance
- little choices for the user
- pre-caching possible

## Linear Structures III

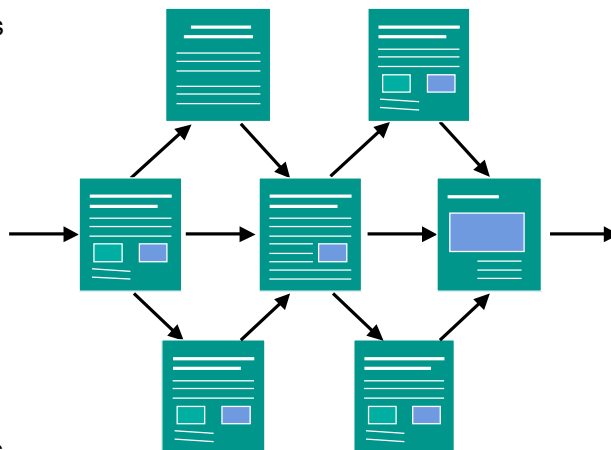
- linear with options



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

## Linear Structures IV

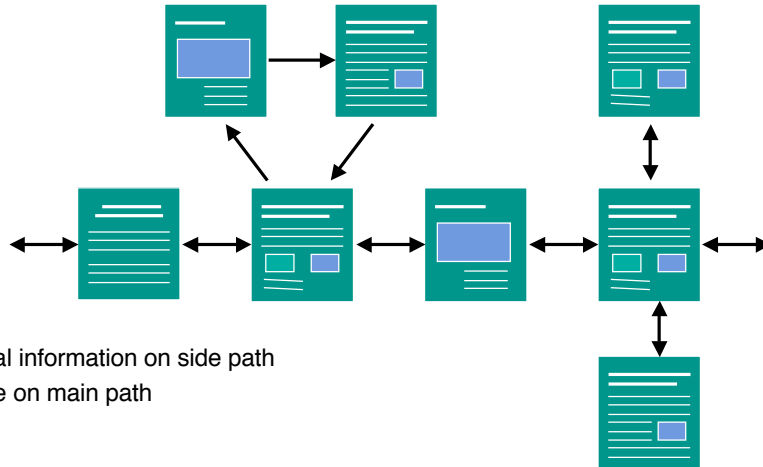
- linear with alternatives



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

## Linear Structures V

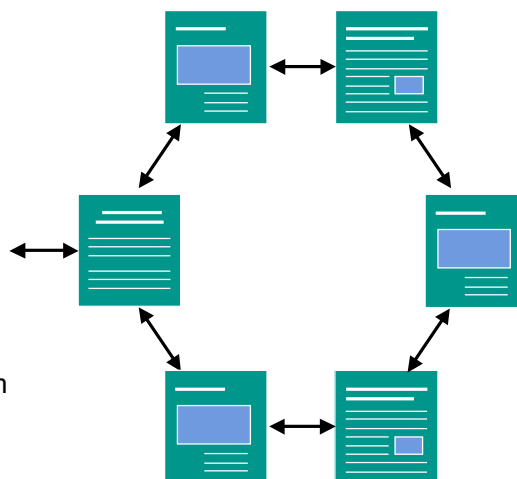
- linear with side branches



- additional information on side path
- guidance on main path

## Circular Structure

- closed guided path
- variants / side paths
- entry

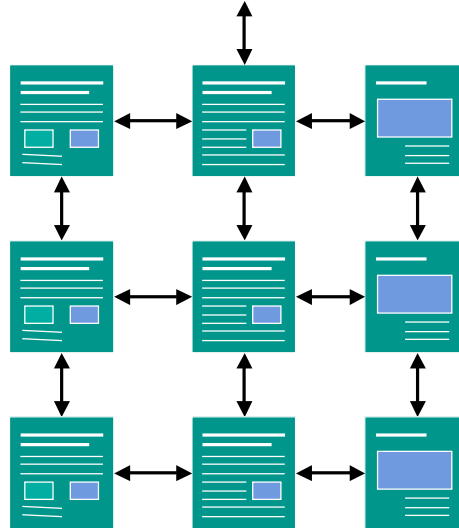


- E.g. Web Rings  
<http://dir.webring.yahoo.com>



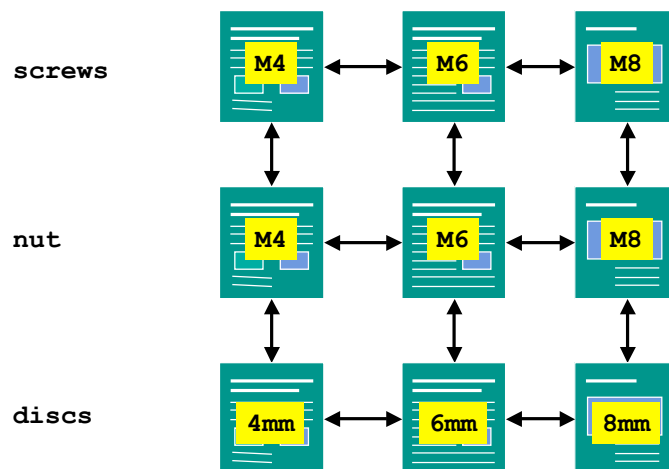
## Information Grid

- ordered on two orthogonal criteria
- user get a „feeling of space“
- e.g. product catalog
- possible for more dimensions



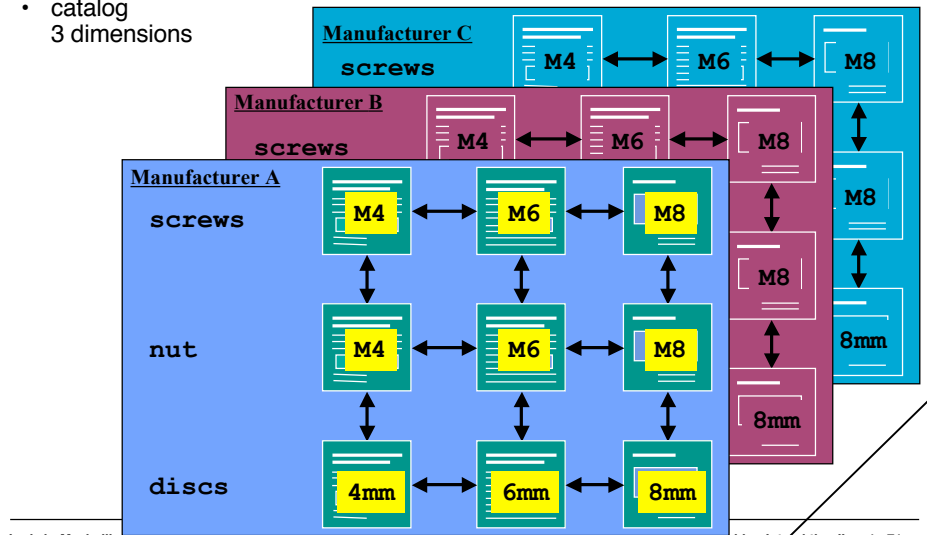
## Example: Grid Information Structure I

- catalog  
2 dimensions



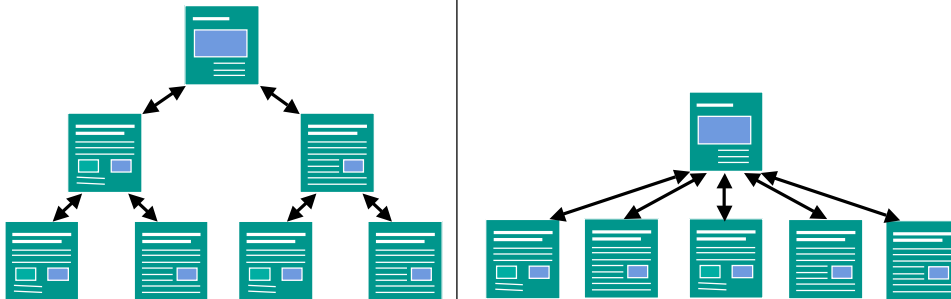
## Example: Grid Information Structure II

- catalog
- 3 dimensions



## 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

