Design of Interactive Systems (DIS)

Lecture 16: Designing websites

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Part III Contexts for designing interactive systems

- **Chapter 14**: Designing Websites
- **Chapter 15**: Social media
- **Chapter 16**: Collaborative environments
- **Chapter 17**: Agents and avatars
- **Chapter 18:** Ubiquitous computing
- **Chapter 19** Mobile computing
- **Chapter 20** Wearable computing

Introduction

- **Usability** and **experience** are crucial aspects in website design.
- There are four main genres of websites: **news**, **shopping**, **information and entertainment**
- Each of these has several sub-genres (for example, News has Broadcast TV, Newspaper and Magazine),
- The genres also have different ways of arranging the content. News sites will have **long scrolling pages** whereas shopping sites will have **short pages**.

Aims

- Understand how to approach website design and the stages you need to go through
- Understand the importance of information architecture
- Understand how to design for navigation in website design.

Introduction

- Pre-design activities such as who it is aimed at, how it fits into organization's digital strategy.
- Disagreement, arguments and internal politics affect the final quality of site in large organizations.
- Many sites finish up as too large, trying to serve too many issues with the marketing people in charge
- Websites are implemented either using the mark-up language, HTML5, and the associated page layouts described in Cascading Style Sheets (CSS) or using a content management system (CMS)

Writing content

- In website design the designer has to acquire another skill - that of **writing** and **organizing information content**
- A university website will often try to cater for potential students, existing students, academic staff, administrative staff (its own and from other universities), business partners and so on
- Trying to accommodate all these different user groups results in an unruly and rambling site, making it difficult for any one of these groups to be satisfied.
- A detailed PACT analysis and developing personas will help to identify the needs of different user groups

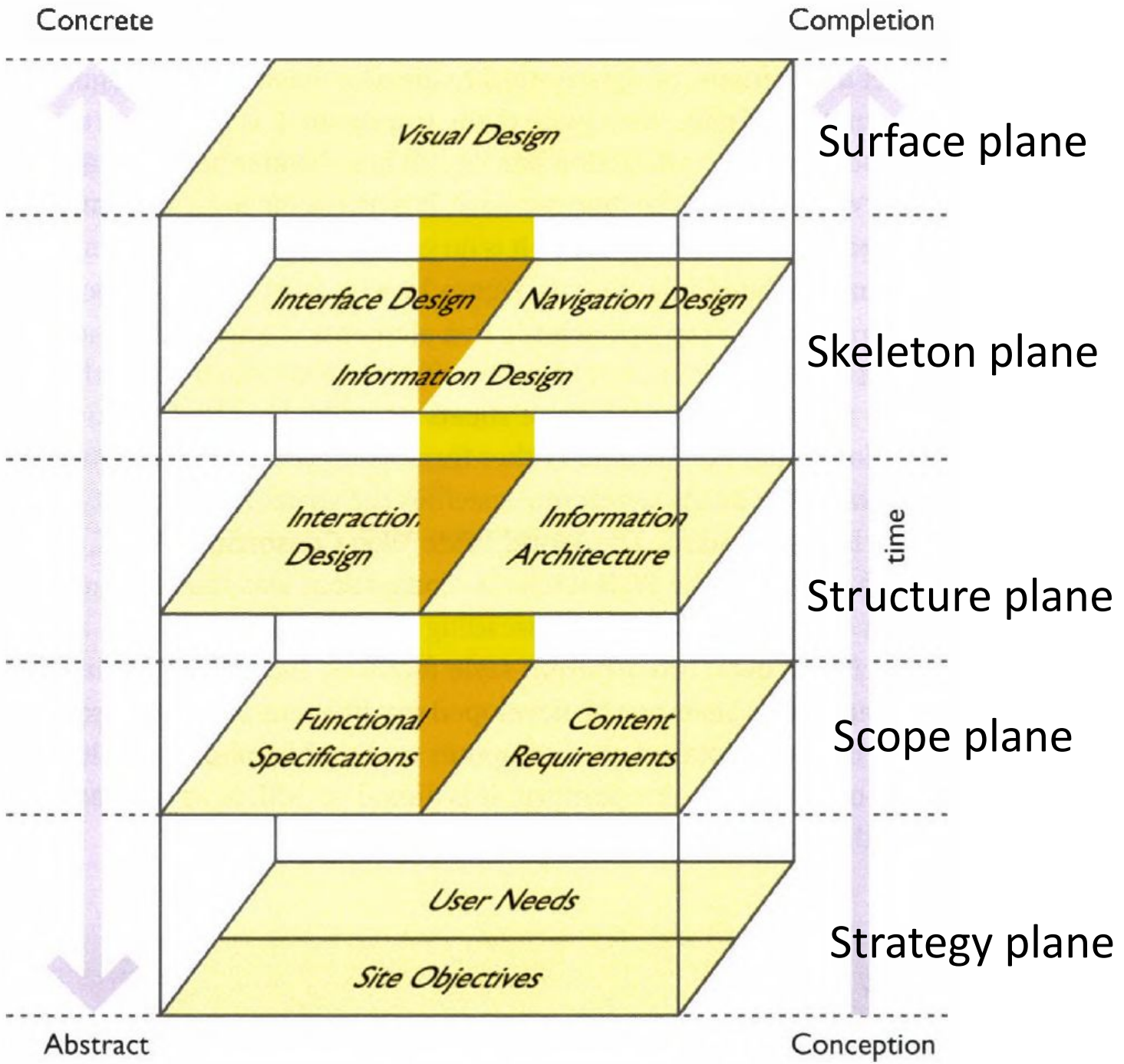
Website development

- Websites need to be well focused with clear objectives
- personas of the people whom they expect to be visiting the site
- understand clearly what goals they will have when using the site.
- understanding, envisionment, design and evaluation need to be undertaken.
- Scenarios of use should be developed, prototyped and evaluated.
- Navigation bars at the top and down the side of the Web pages will help people develop a clear overall ‘map’ of the site
- Consistency should be maintained

Website development

- Many sites confuse people by not making links sufficiently visible and distinguishable from other text in the site.
- A good design guideline for websites is to minimize the need for scrolling and plan for entry at (almost) any page
- Having a link to the ‘home’ (front) page of a site in a prominent position
- Different people have different strategies on websites.
- Half of all site visitors are ‘search-dominant’, 20 per cent ‘link-dominant’ and the rest mixed

Jesse James Garrett (Garrett, 2003) conceptualizes the development of a website in terms of five elements: strategy, scope, structure, skeleton and surface



Website development

- Garrett advocates using a simple **graphical 'language'** to map out the information architecture of a website.
- The key elements of the language are a representation of **pages, files,** and **stacks of pages** and **files**.
- These are structured into **site maps**, showing direction of links if appropriate.
- Garrett also employs other symbols to represent **decisions** (a diamond shape), **forbidden routes** (a cross-bar) and other key concepts.

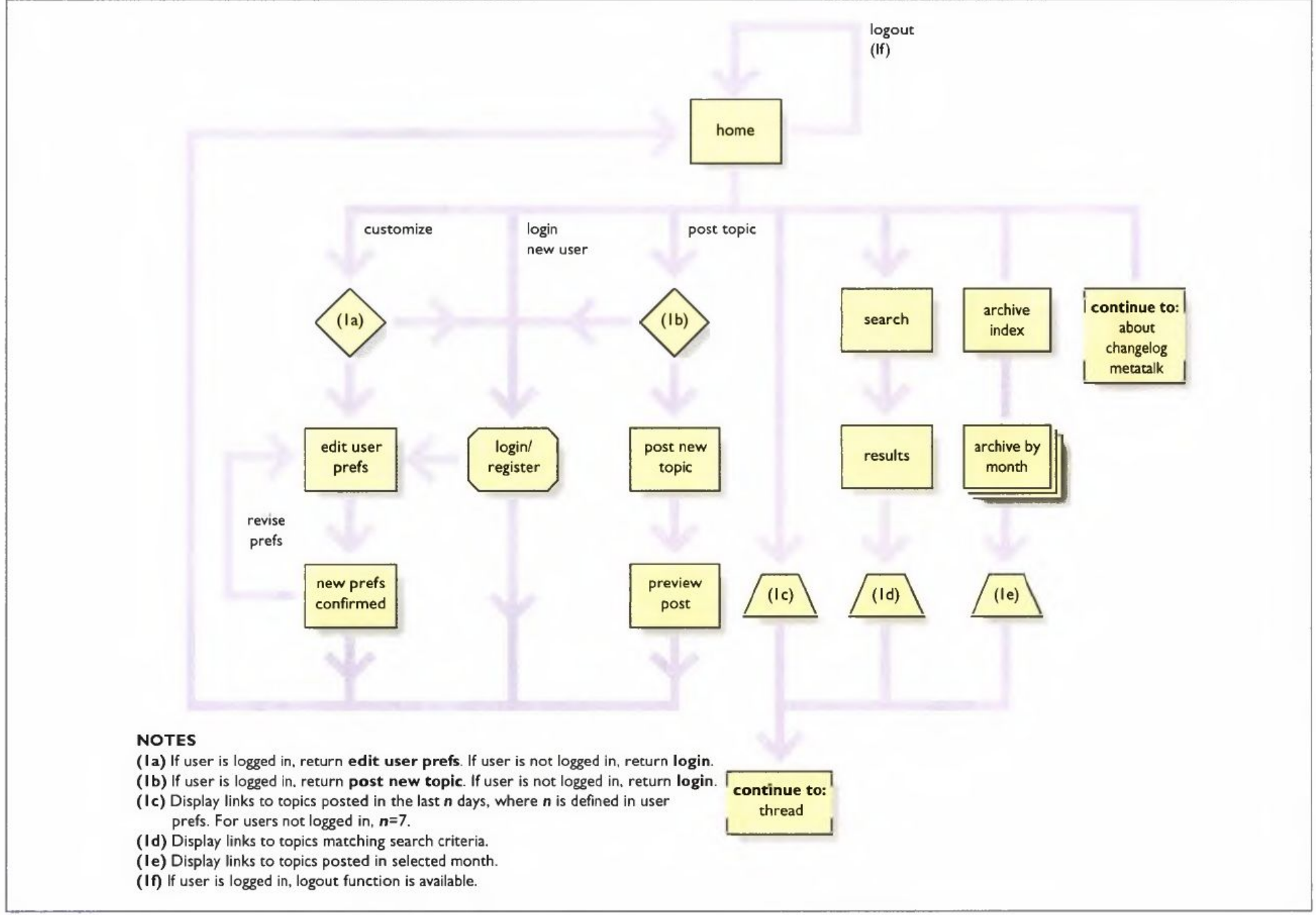
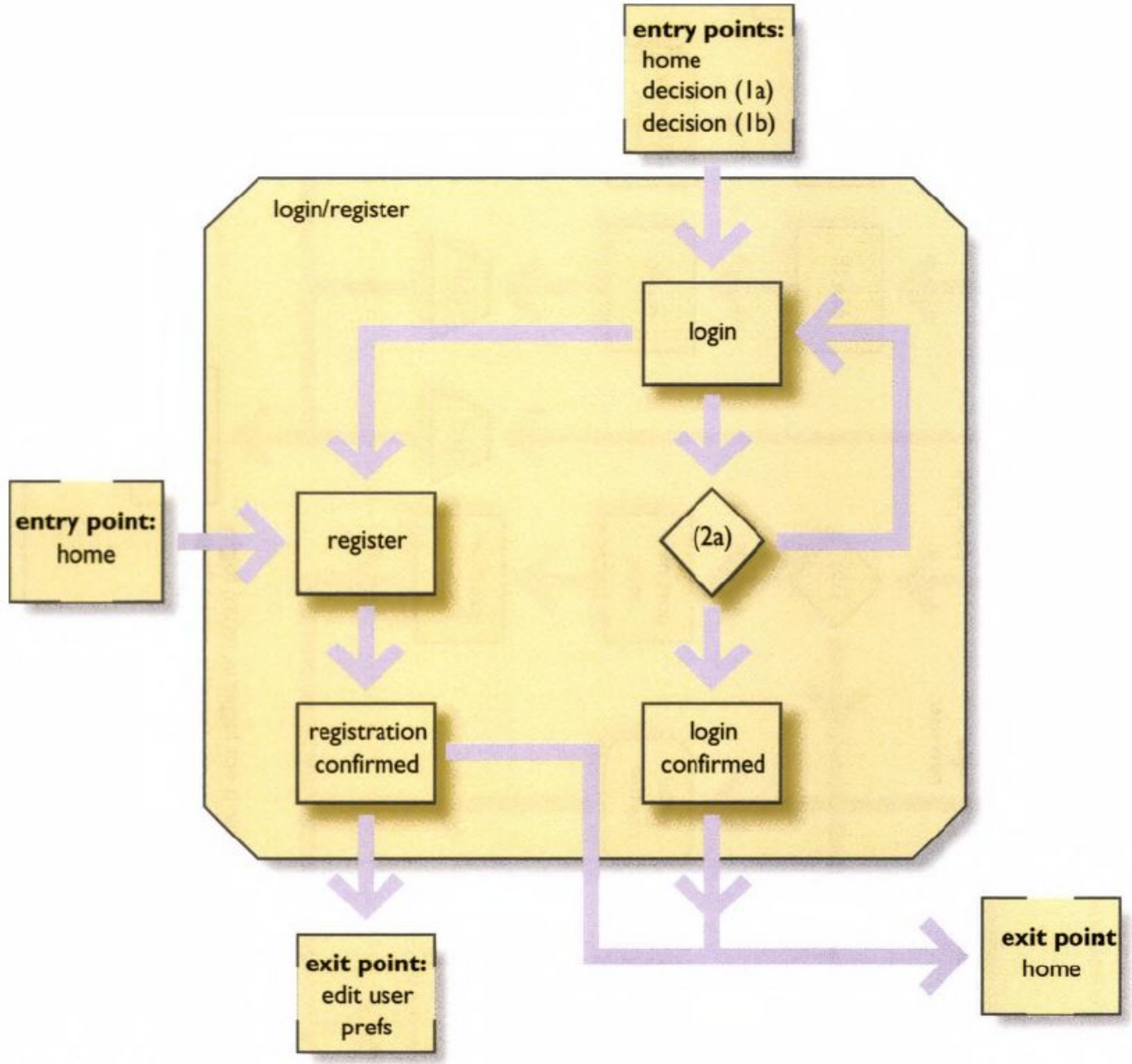


Figure 14.3 Site map design (continued over three pages)

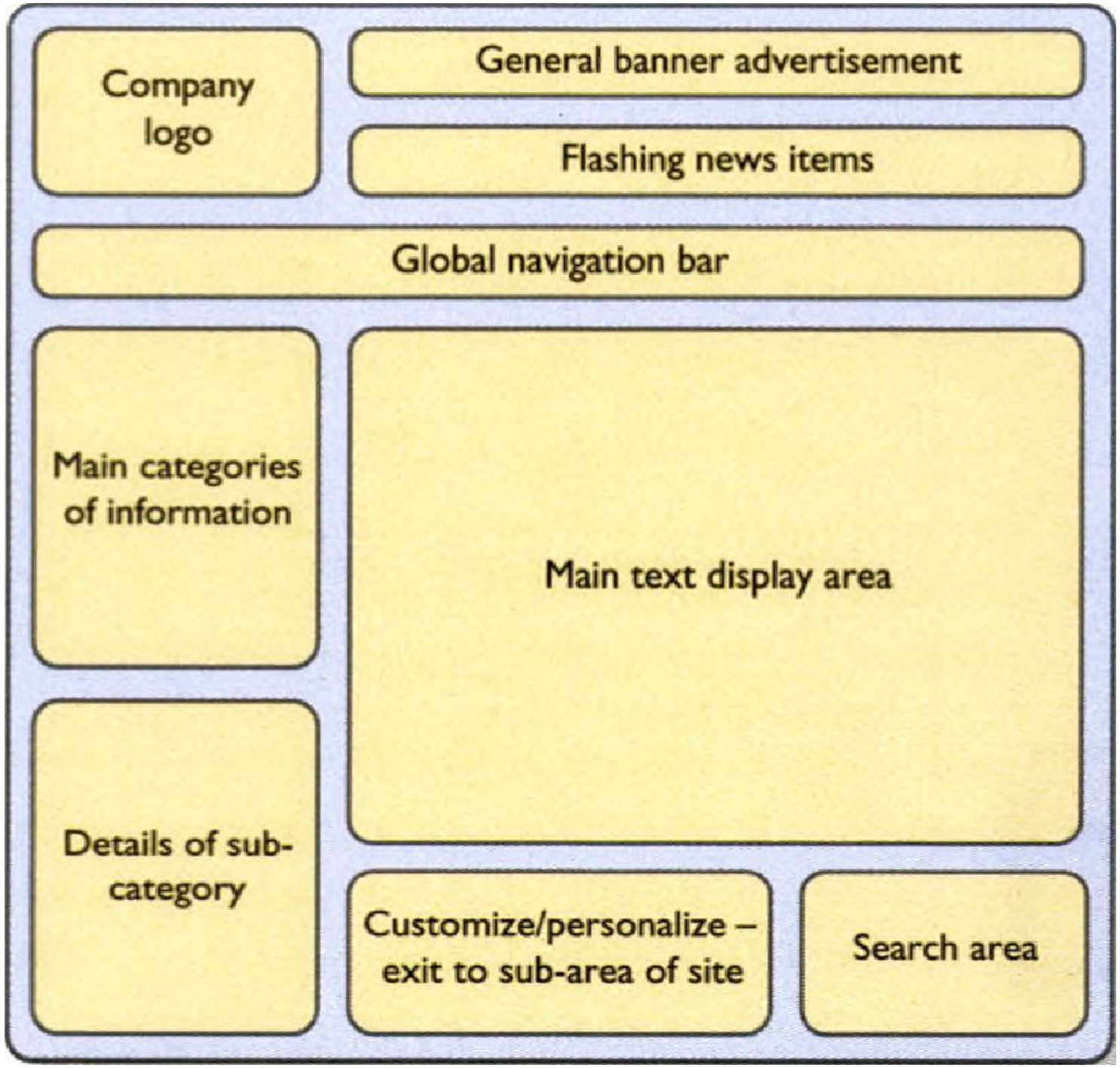


NOTES

(2a) If login info is valid, return **login confirmed**.
If login info is invalid, return **login**.

Website development

- The skeleton plane of Garrett's scheme is concerned with information design, navigation design and interface design.
- A key technique for bringing all these elements together is the 'wireframe'.
- Wireframes aim to capture a skeleton of a general page layout. They are on the border between information architecture and information design.


Company logo
General banner advertisement
Flashing news items
Global navigation bar
Main categories of information
Main text display area
Details of sub-category
Customize/personalize – exit to sub-area of site
Search area

Wireframe

Information architecture of websites

- Information architecture is concerned with how the content is **classified** and **organized**.
- Getting an information architecture that is robust enough to serve such multiple interests is difficult
- Information architecture for websites is how the content of the site is organized and described:
  - how to organize the content (i.e. create a taxonomy), how to label the items and categories,
  - how to describe the content in the site and
  - how to present the architecture to users and to other designers.

Information architecture of websites

Implementing websites

- Websites are implemented on the Internet by specifying the layout of the pages in a language known as the Hypertext Mark-Up Language (HTML)
- Dynamic HTML (latest version), allows functions more commonly associated with a **graphical user interface** such as a '**drag and drop**' style of interaction.
- It is also possible to embed interactive displays into an HTML page by writing a '**movie**' in the programming language Flash.

Information architecture of websites

Classification schemes

- The choice of classification scheme is crucial to how easy it is to retrieve an instance of an object.
- Three - alphabetical, chronological and geographical organization scheme
- Nathan Shedroff (2001) suggests that there are seven organizational schemes: alphabets, locations, time, continuums (i.e. using some rating scale to rank instances), numbers, categories and randomness.

Information architecture of websites

Classification schemes

- *Alphabetical* is a very common organizational scheme and is exploited in all manner of information artefacts such as phone books, book stores and directories
- It is not always easy, especially where forenames and surnames are muddled up
- Another occasion when alphabetical organization breaks down is when the formal title of a company or organization is not the same as the informal name

Information architecture of websites

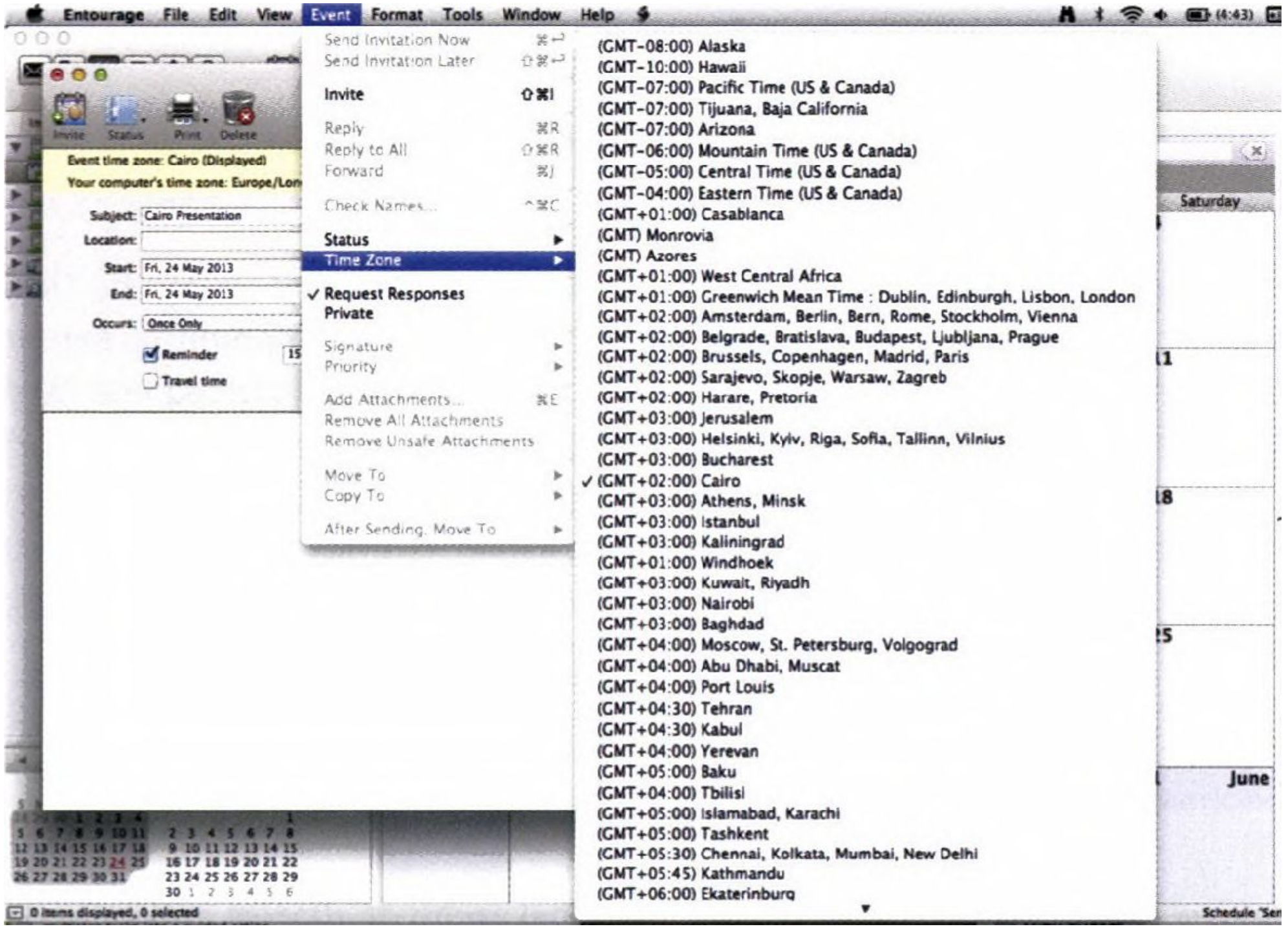
Ontologies, taxonomies and epistemologies

- The concept of an ontology is the study of existence. It concerns how we determine if things exist or not.
- How we choose to group these together is the concern of taxonomies. Taxonomy is a method of classification
- Epistemology concerns how we come to know things, with the nature of knowledge

Information architecture of websites

Classification schemes

- *Chronological* organization is suitable for historical archives, diaries and calendars, and event or TV guides
- *Geographical* organization suits travel subjects, social and political issues and regional organizations such as wine sites, local foods, etc.
- Problems can arise, of course, when one's geography is not good enough. The time zones on my calendar program are organized geographically, which makes finding certain time zones very difficult


Entourage File Edit View Event Format Tools Window Help
Send Invitation Now
Send Invitation Later
Invite
Reply
Reply to All
Forward
Check Names...
Status
Time Zone
Request Responses
Private
Signature
Priority
Add Attachments...
Remove All Attachments
Remove Unsafe Attachments
Move To
Copy To
After Sending, Move To
Invite
Status
Print
Delete
Event time zone: Cairo (Displayed)
Your computer's time zone: Europe/Lon
Subject: Cairo Presentation
Location:
Start: Fri, 24 May 2013
End: Fri, 24 May 2013
Occurs: Once Only
Reminder
Travel time
(GMT-08:00) Alaska
(GMT-10:00) Hawaii
(GMT-07:00) Pacific Time (US & Canada)
(GMT-07:00) Tijuana, Baja California
(GMT-07:00) Arizona
(GMT-06:00) Mountain Time (US & Canada)
(GMT-05:00) Central Time (US & Canada)
(GMT-04:00) Eastern Time (US & Canada)
(GMT+01:00) Casablanca
(GMT) Monrovia
(GMT) Azores
(GMT+01:00) West Central Africa
(GMT+01:00) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
(GMT+02:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(GMT+02:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+02:00) Brussels, Copenhagen, Madrid, Paris
(GMT+02:00) Sarajevo, Skopje, Warsaw, Zagreb
(GMT+02:00) Harare, Pretoria
(GMT+03:00) Jerusalem
(GMT+03:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
(GMT+03:00) Bucharest
(GMT+02:00) Cairo
(GMT+03:00) Athens, Minsk
(GMT+03:00) Istanbul
(GMT+03:00) Kaliningrad
(GMT+01:00) Windhoek
(GMT+03:00) Kuwait, Riyadh
(GMT+03:00) Nairobi
(GMT+03:00) Baghdad
(GMT+04:00) Moscow, St. Petersburg, Volgograd
(GMT+04:00) Abu Dhabi, Muscat
(GMT+04:00) Port Louis
(GMT+04:30) Tehran
(GMT+04:30) Kabul
(GMT+04:00) Yerevan
(GMT+05:00) Baku
(GMT+04:00) Tbilisi
(GMT+05:00) Islamabad, Karachi
(GMT+05:00) Tashkent
(GMT+05:30) Chennai, Kolkata, Mumbai, New Delhi
(GMT+05:45) Kathmandu
(GMT+06:00) Ekaterinburg
Saturday
June
0 items displayed, 0 selected

Information architecture of websites

Classification schemes

- Organization by *topic* or subject is another popular way to structure information, but here it is important to prototype the names of topics with the potential users of a site. Often a topic structure used by people internal to an organization is different from those from outside.
- *Task* organization structures the website by particular activities that people may want to do (‘Buy ticket’; ‘Contact us’).

Information architecture of websites

Classification schemes

- *Audience* is another popular structuring method. This can be very effective when there are a few well-defined types of user. ‘Information for staff, ‘Information for students’, and so on, helps different users find their part of a site.
- Brinck *et al.* (2002) include ‘department’ as a scheme. They give the following example to illustrate the differences:
  - Task-based: ‘Buy a Car’
  - Audience: ‘Car Buyers’
  - Topic-based: ‘Cars’
  - Department: ‘Sales Department’.

Faceted classification

- Any website can be described in terms of three key features: its **dimensions**, **the facets** (or attributes) of those dimensions and the **values** that these facets can take
- Makemytrip has dimensions of flights, hotels, trains and so forth.
- Each of these has certain common facets (such as price) but also may have its own unique facets: flights go from one city to another, hotels are located in a single city
- Music sites classify music in terms of its main facets, such as genre, artist and title. Recipe sites will have facets such as country/ region, main ingredient, course/dish and so on.

Organizational structures

- Everything cannot be fit onto one page.
- A **hierarchical** structure (**‘tree’**) arranges the pages with a single root at the top and a number of branches underneath, each of which has several sub-branches.
- For example, in a music website, the root page might be called ‘home’, then branches under that might be ‘Classical’, ‘Rock’, ‘Jazz’ and so on, each of which would be split into sub-genres

Organizational structures

- As a general rule, six to eight links per category is about right, but the nature of the content and how it would naturally be divided up by the people who will be visiting the site must also be considered.
- **Networks** are structures in which the same item may be linked into several different hierarchies. It is a more natural structure but also a more confusing one for people to understand.
- Organizing pages into a **sequence** is ideal for dealing with a straightforward task structure such as buying a product or filling in a series of questions

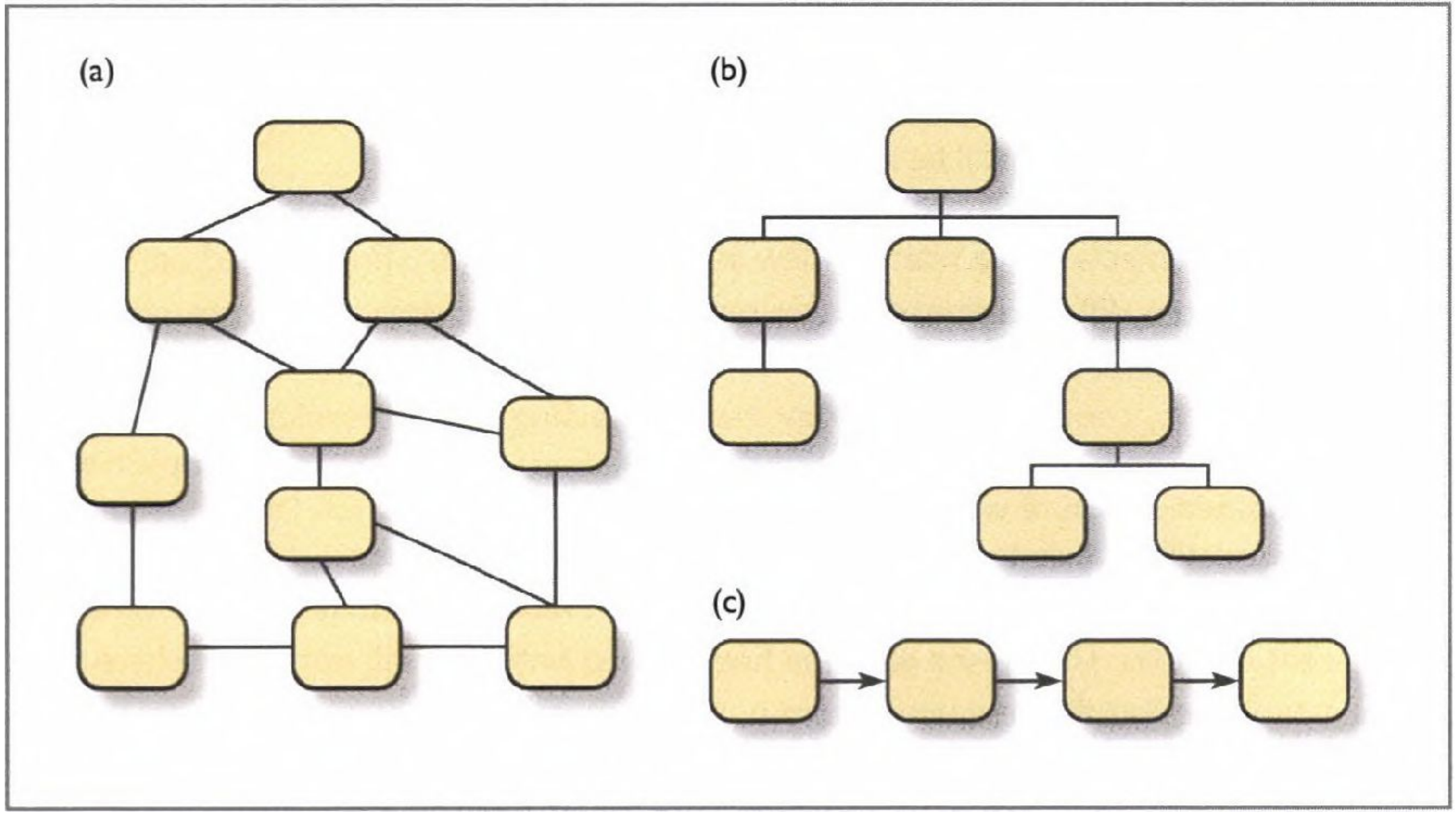


Figure 14.9 Common organizational structures: (a) network, (b) hierarchy, (c) sequence

Metadata

- Metadata means data about data and in the case of websites this means data about the content of the site.
- Wodtke (2003) suggests that there are three types of metadata for describing websites:
  - **Intrinsic metadata** describes the factual, technical nature of the data files. It covers things like file size, resolution of graphics, type of file, etc.
  - **Administrative metadata** is concerned with how the content should be treated. It might include details of the author, date of origin, dates of any revisions, security issues and so on.
  - **Descriptive metadata** highlights the facets of the thing, the ways it is classified and so on, so that it can be found and related to other items of content.

Vocabularies

- A taxonomy is a classification scheme.
- One of the most famous is the Dewey Decimal Classification that is used to classify books in libraries. It is a hierarchical structure that divides books into 10 top-level categories such as:
  - 000 computers, information and general reference
  - 100 philosophy and psychology
  - 200 religion
- Within each classification more levels can be added with decimal points: 005 is computers, 005.7 is information architecture and so on.
- One of the problems with devising a taxonomy is that different people use different concepts to organize things. Another is that people use different words and terms to refer to the same thing. There are synonyms and homonyms.

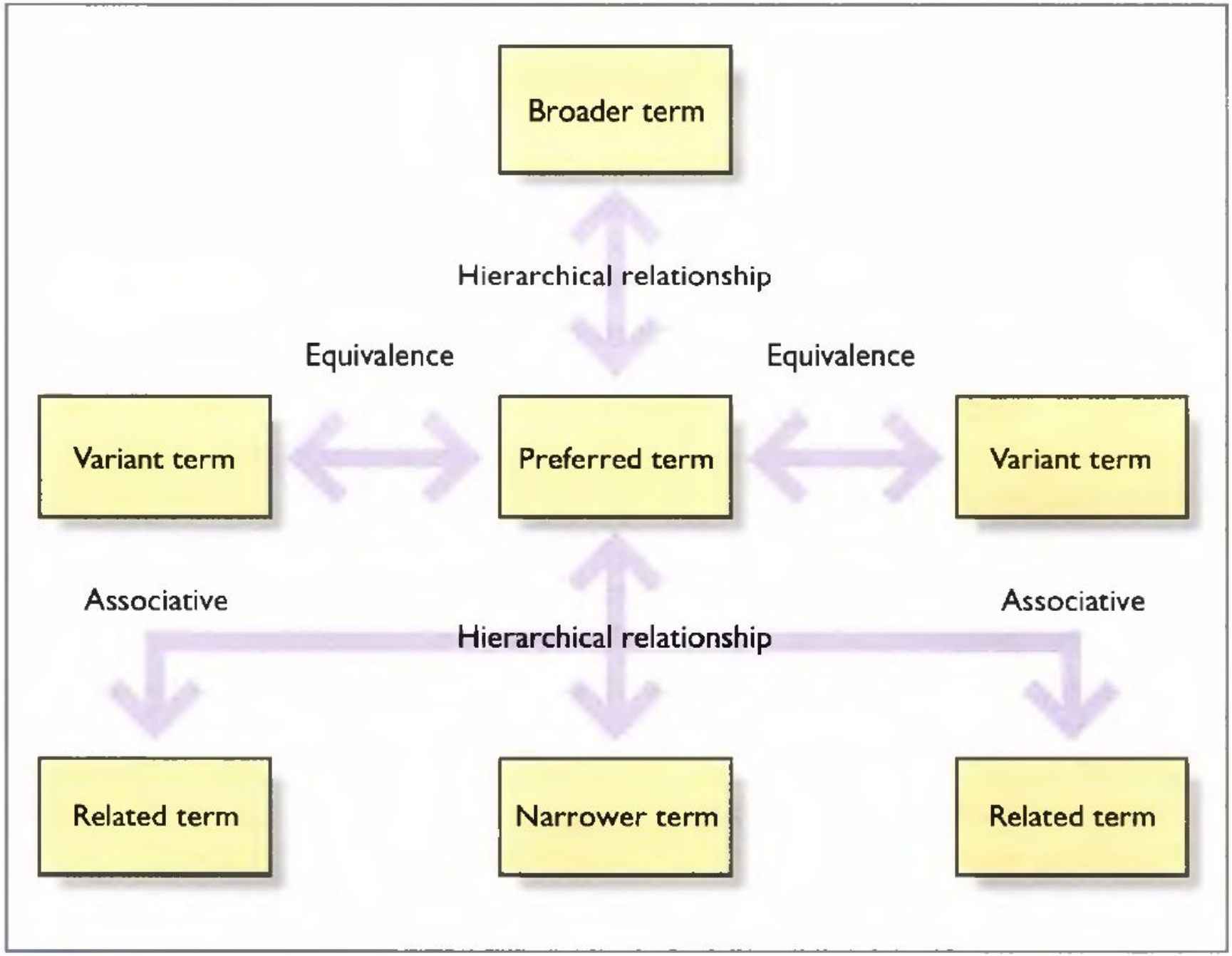


Figure 14.11 Structure of thesaurus

Navigation design for websites

- The design of navigation mechanisms is the second main pillar of information architecture.
- Three key features of a good navigation design for websites were identified: labelling, navigation support and searching mechanisms
- Brinck *et al.* (2002) add to the general ideas of navigation by identifying seven types of navigation

- *Omniscience.* Users have perfect knowledge and make no mistakes - **provide short, efficient paths**.
- *Optimal rationality.* Users reason perfectly, but only know what they have seen - make sure links provide **adequate cues** to the content they lead to.
- *Satisficing.* Users avoid remembering and make decisions on what is immediately perceptible - organize the page to make the most important **content** and **links available** immediately.
- *Mental maps.* Users actively use the cues available to try to infer the structure of a website - **organize the site simply** so that users can easily conceptualize it.

- *Rote memorization.* When users find a path that works, they tend to remember and repeat it - make sure the most **obvious solution is also efficient**. Use distinctive landmarks and orientation cues to help people recognize where they have been before.
- *Information foraging.* Users try to get as much as possible at one location - enable spontaneous discovery by providing **context, structure** and **related topics**.
- *Information costs.* Users have limited knowledge and reasoning ability - **minimize the mental costs** of sense making, decision making, remembering and planning.

Labelling

- Labels are used for internal and external links, headings and subheadings, titles and related areas. Not all labels are text and iconic labels can be very useful if the context and design are clear.
- There is nothing more confusing for people than a website changing its own vocabulary, for example referring to ‘products’ one minute and ‘items’ the next

Navigation support

- It is common to have a navigation bar across the top of a site that points to the main, top-level categories. This is often called the global navigation bar.
- Within each of these there will be sub-categories
- It is a good design principle to have the global, top-level navigation bar the same on every page so that people can easily jump back to the home page
- An essential feature of the navigation features of any website is to provide a “you are here’ sign
- ‘breadcrumbs’ display.
- Navigation bars - both local and global - are essential for supporting easy navigation around a site

Searching

- One of the significant features of the Web as an information space is that many sites support searching
- There are two main problems with searching a website. The first is knowing exactly what sort of documents the search engine is searching. The second is how to express combinations of search criteria
- Sites should indicate what is searched and provide options to search different types of content.

Case study: designing the Robert Louis Stevenson website

Go through the results of the questionnaire and discuss your interpretation of what you can say as a result of this survey. What would you focus on when making changes?