A Pattern Language for Information Architecture

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What we'll cover in this session

- What's a pattern language?
- How patterns have been applied to architecture and UI design
- What's information architecture?
- How we might apply patterns to information architecture
- Examples of patterns within online documents
- How we might enforce patterns within documentation development

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What's a pattern language?

- "...a structured method of describing good design practices within a field of expertise"

  [Wikipedia]

- "A way to derive and describe design solutions"

  [Michael Hughes]

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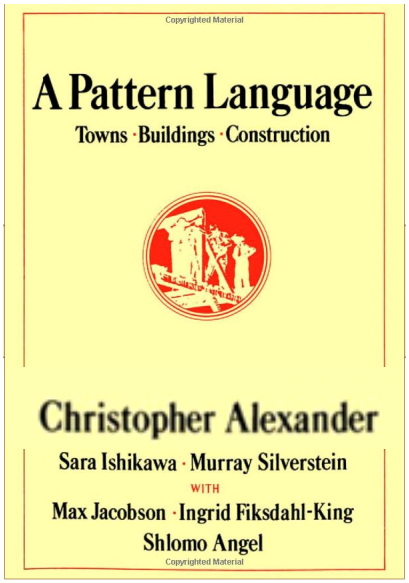
What's a pattern language?



- Concept originated in architecture

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Alexander's definition of a pattern

- "Each pattern describes a **problem** which occurs over and over again in our environment, and then describes the core of the **solution** to that problem, in such a way that you can use this solution a million times over without ever doing it the same way twice."

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Example pattern #1: A PLACE TO WAIT

- Problem:
  The process of waiting has inherent conflicts in it
- Solution:
  In places where people end up waiting (for a bus, for an appointment, for a plane),

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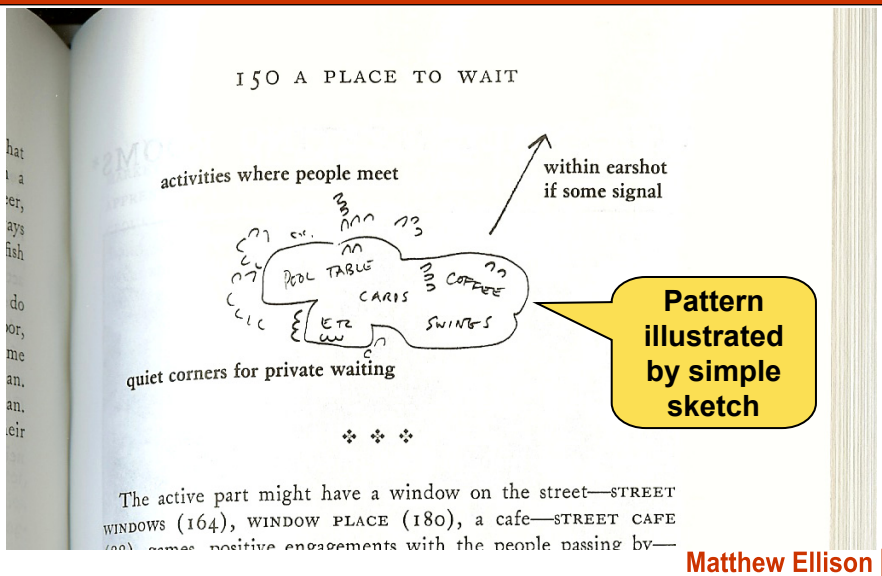
Example pattern #1:
A PLACE TO WAIT



Pattern illustrated by simple sketch

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Example pattern #2:
COOKING LAYOUT

- Problem:
  Cooking is uncomfortable if the kitchen counter is too short and also if it is too long
- Solution:
  To strike the balance between the kitchen which is too small, and the kitchen which is too spread out, place the stove, sink, and food storage and counter in such a way that:
  1. No two of the four are more than 10 feet apart.
  2. The total length of the counter—excluding sink, stove, and refrigerator—is at least 12 feet.
  3. No one section of the counter is less than 4 feet long.

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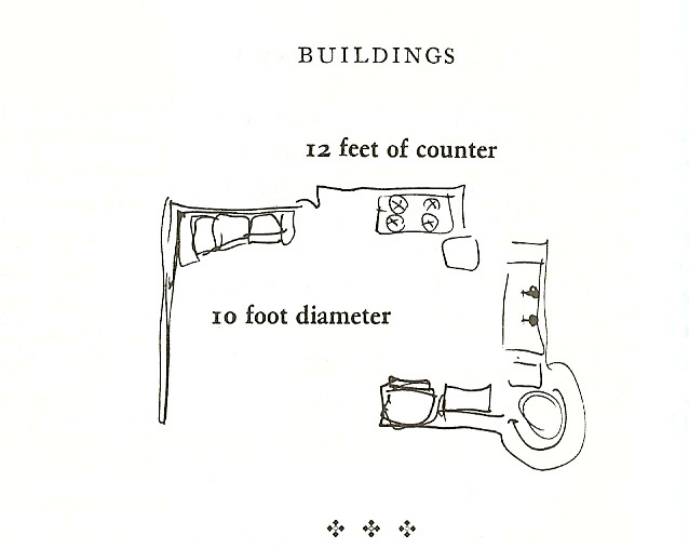
Example pattern #1:
A PLACE TO WAIT


BUILDINGS

12 feet of counter

10 foot diameter

❖ ❖ ❖

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How patterns have been applied to UI design

- Learning tool
- Creates a shared language
- Gallery of design solutions
- Typical pattern formula:
  - Name
  - Problem Summary
  - Usage – context of use
  - Solution
  - Why - rationale
  - Examples of implementation

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Pagination

- Problem:
  The user needs to view a subset of sorted data (for example: search results) that is not easily displayed on one page

- Use when:
  - There is more data than will comfortably fit into one screen
  - The dataset is ordered by relevance/interest
  - It is OK to break the continuous flow of data

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Pagination

- Solution:
  Break the complete dataset of items into smaller sequential parts and show these on separate sequential pages. Provide pagination controls to browse from page to page. Let the user browse to the *previous* and *next* pages by providing links to such actions. Also, provide links to the absolute start and end of the dataset (first and last).

  If the dataset is of defined quantity, also show a link to the last page. If the dataset to show possibly is of varying size (for instance as a result from a search), do not bother to show a link to the last page.

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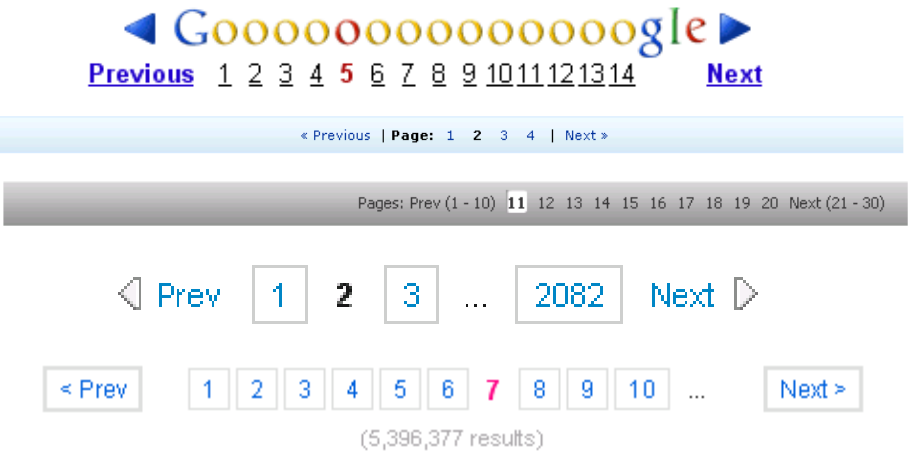
Pagination

- Examples:



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What's information architecture?

- "When a Web site or help system lacks definition and structure, readers can get lost in the content.

  Information architecture is the practice of organizing and interrelating content so the reader remains oriented and gets answers."

  [Erik Hennum et al, IBM, 2005]

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How might design patterns help?

- "By defining formal design patterns for information architecture, content providers can apply tested architectures to improve the user's experience."

  [Erik Hennum et al, IBM, 2005]

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Types of design patterns

- Interface and Lay-out
  - Window design, page layout
- Structure of information and navigation dynamics
  - TOC, related links, pop-ups
- Content
  - Information types, writing strategy

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Information Architecture pattern example #1: BREADCRUMBS

- Problem:
  Users need to know their location in the online document's hierarchical structure in order possibly to browse back to a higher level in the hierarchy

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Information Architecture pattern example #1: BREADCRUMBS

- Usage:
  - Use when the structure of the document is parted into sections which can be divided into more subsections and so on
  - Use when the user is most likely to have landed on the page from an external source, for example from a blog or a search engine.
  - Use together with some sort of main navigation.
  - Do not use on the topmost level of the hierarchy (typically the welcome page)

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Information Architecture pattern example #1: BREADCRUMBS

- Solution:
  - Show the labels of the sections in the hierarchical path that leads to the viewed page.
  - Each label of the higher level subsections have links that lead to the respective section of the site.
  - The label of the current page is at the end of the breadcrumb and is not linked.
  - Each label is parted with a separating character such as » or >.
  - The separating characters and the spaces between the links and the labels are not linked.
  - The labels of each section preferably match the titles of that section.

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Information Architecture pattern example #1: BREADCRUMBS

- Rationale:
  - Breadcrumbs show the user where he is now in relation to the site's hierarchy: how information is structured.
  - The structure of the website is more easily understood when it is laid out in a breadcrumb than if it is put into a menu.
  - Breadcrumbs take up minimal space and even though not all users use them, they still hint the structure of the website and the current location of the page in question.

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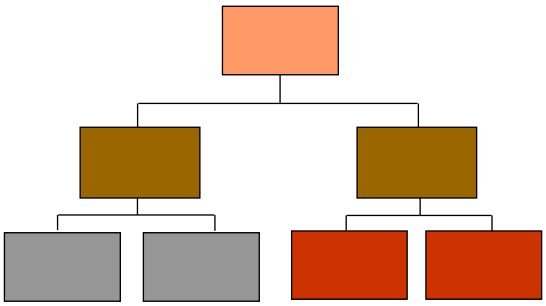
Information Architecture pattern example #2: CONTENT TAXONOMY

- Problem:
  Users need particular types of information to answer their specific questions



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Information Architecture pattern example #2: CONTENT TAXONOMY

- Usage:
  Use when creating an online document that contains a mix of different information types:
  - Overview
  - Concept
  - Reference
  - Task (how do I?)
  - Troubleshooting

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Information Architecture pattern example #2: CONTENT TAXONOMY

Solution:

- Create separate topic types
- Define standards for each topic type
  - Goal
  - Required elements, optional elements
  - Styles and template or schema
- Create a hierarchy of your content
  - Identify connections between topic types

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Information Architecture pattern example #2: CONTENT TAXONOMY

- Rationale:
  - Makes content types easier to identify
  - Focuses the information on answering particular types of question
  - Makes it easier for users to find the information they need
  - Improves the retention of the information
  - "Organizes the patterns inherent in data, making the complex clear"

[Richard Saul Wurman, 1996]

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Information Architecture pattern example #3: SIGNPOSTING

- Problem:
  Users need to know what type of information they are reading so that they can determine if the information is likely to answer their question

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Information Architecture pattern example #3: SIGNPOSTING

- Usage:
  - Use when publishing a mid to large online document with a variety of topic types
  - Use when documenting multiple modules or components within a single documentation set

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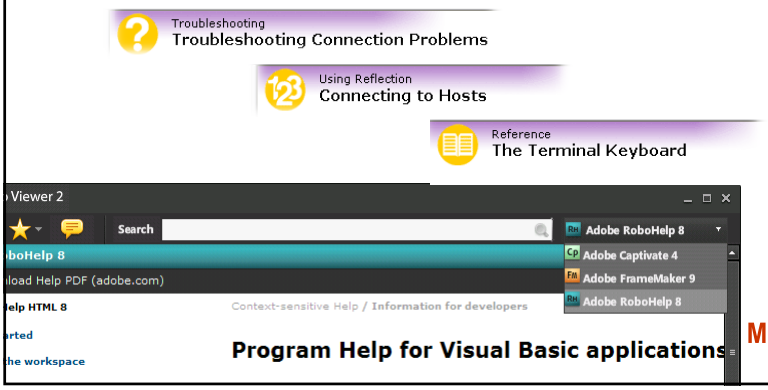
Information Architecture pattern example #3: SIGNPOSTING

- Solution:
  For each topic, clearly identify the information type or component to which it belongs



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Information Architecture pattern example #3: SIGNPOSTING

- Rationale:
  - Makes boundaries between sections very clear
  - Provides the user with a strong "scent of information"

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Information Architecture pattern example #4: POPUPS

- Problem:
  The document may use terminology that is familiar to many users, but might present a stumbling block to some. The same could apply to acronyms or icons.

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Information Architecture pattern example #4: POPUPS

- Usage:
  - Use when users may be unsure of a term but do not want to jump out of their flow to do additional background reading.
  - Use when experienced users might resent having to read through basic definitions or explanations.
  - Do not use when the term is repeated within the same topic.
  - Do not use when the user might want the information to persist or print.

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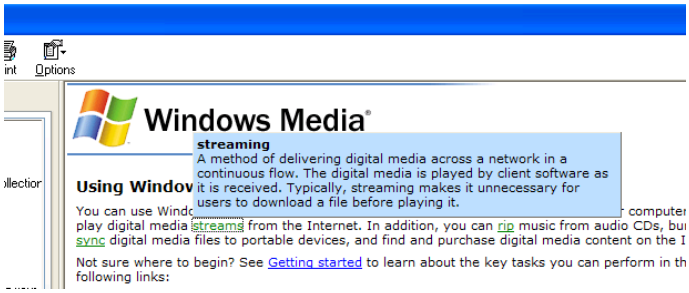
Information Architecture pattern example #4: POPUPS

- Solution:
  - Provide in a popup window the minimal amount of information to keep the user moving.
  - The popup window is displayed by clicking on the term and should not obscure the context of the term being displayed
  - The popup link should be indicated with a different format than for other types of links



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Information Architecture pattern example #4: POPUPS

- Rationale:
  - Provides on-demand information without distracting power users
  - Keeps user's focus in topic

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Example of design pattern for user assistance

- Proposed by Michael Hughes, 2007
- Problem:
  User is in a task and is uncertain about the purpose or rules around a specific field or interaction device, e.g., radio button group.

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Example of design pattern for user assistance

- Solution:
  The application determines when a particular field or screen element is the point of focus and provides critical information on how to interact with that component or interpret the information.

  Field-level Help should:
  - Attract the user's attention
  - Apply directly to a core information need
  - Be clearly associated with its component

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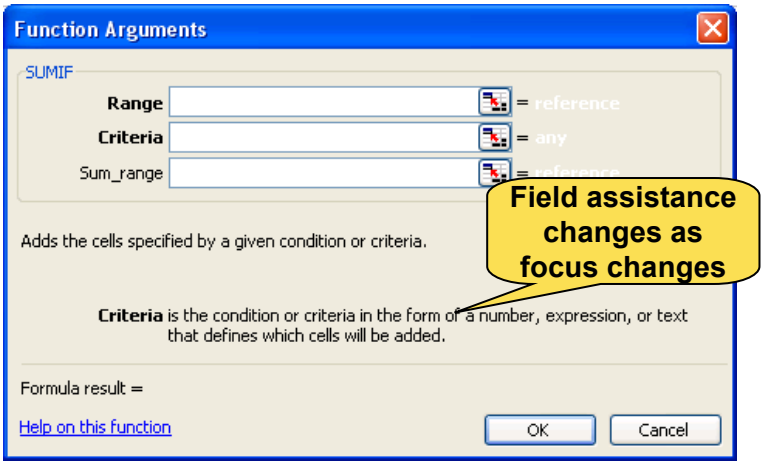
Example of design pattern for user assistance



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Alexander's emphasis on spatial patterns

- ...each pattern is a relationship between a certain context, a certain system of forces which occurs repeatedly in that context, and a certain **spatial configuration** which allows these forces to resolve themselves

Lets now look for design patterns in some state-of-the art online documents…

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Online doc example #1: Telegraph.co.uk

- Objectives:
  - Entertain the reader
  - Enable the reader to browse areas of interest
  - Enable the reader to find more detail on specific aspects of a story
  - Enable the reader to find background information to a story
  - Enable the reader to move easily between different (and possibly unrelated) areas of the document

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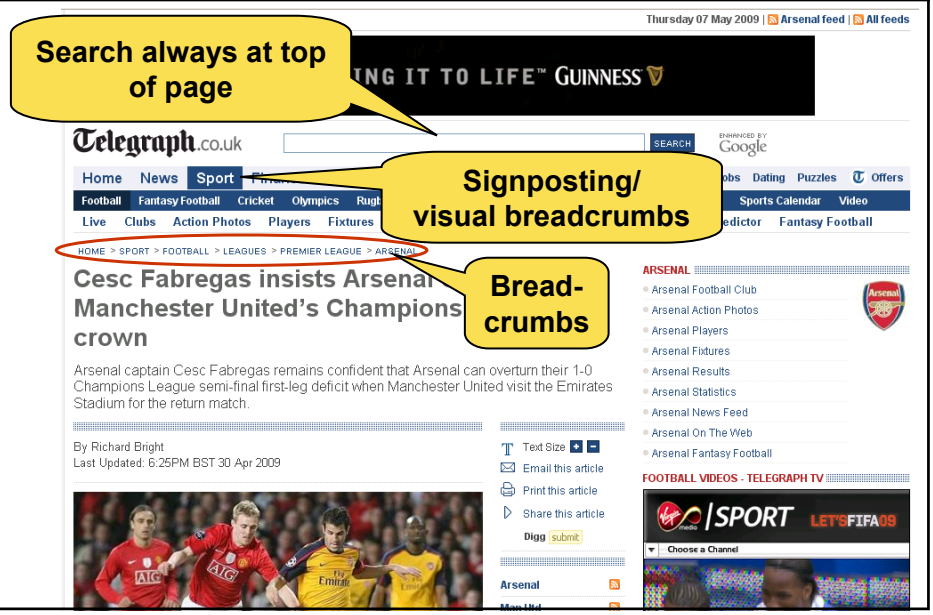
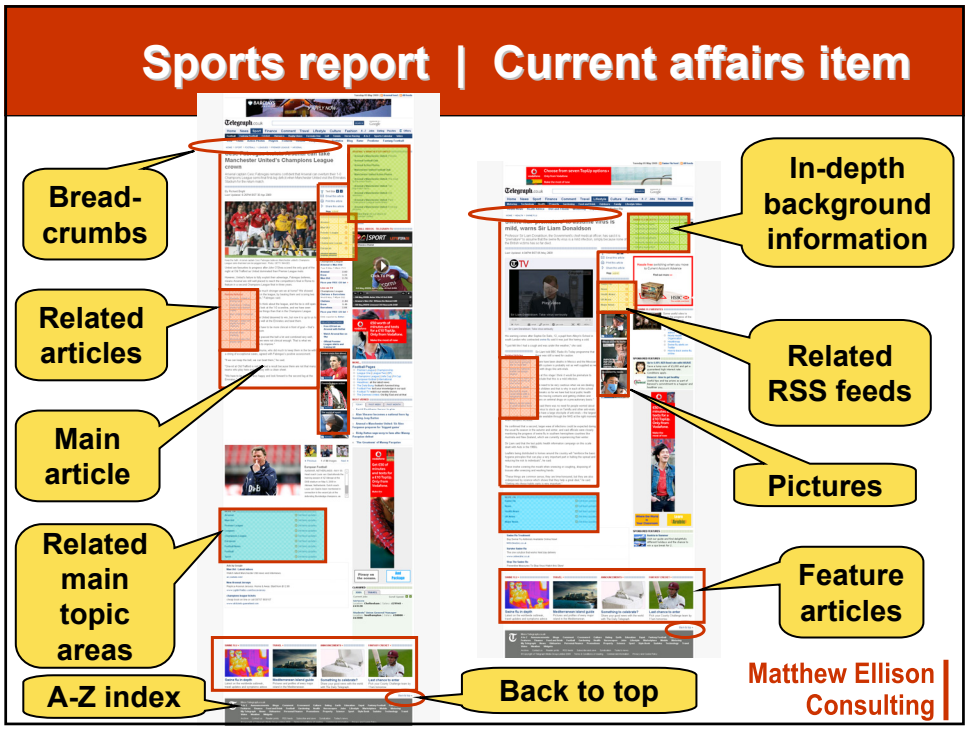
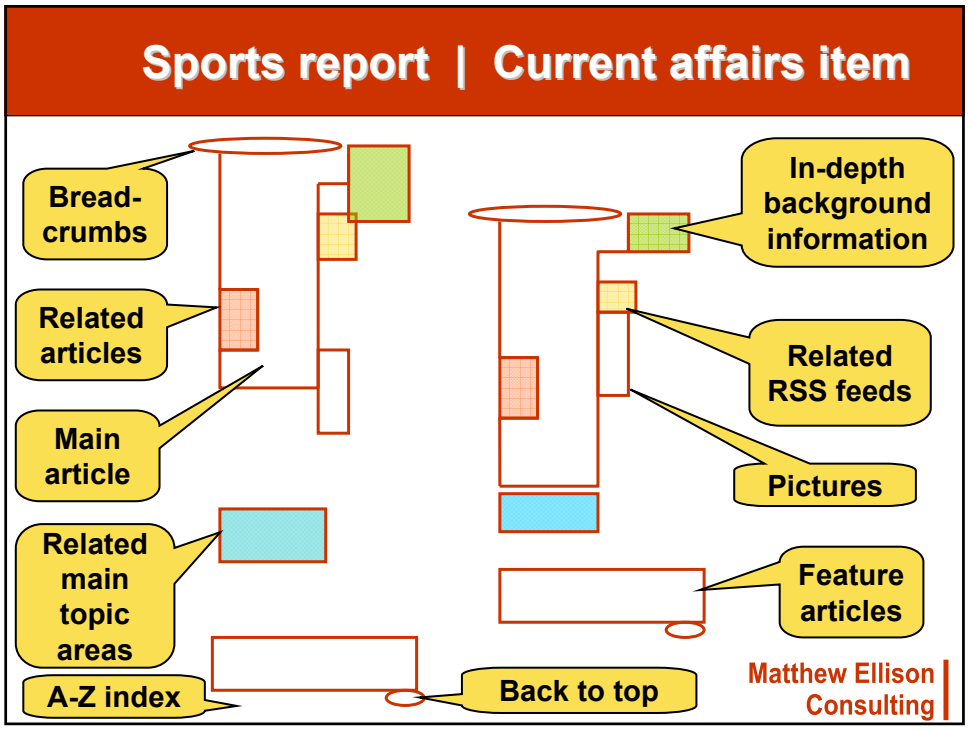
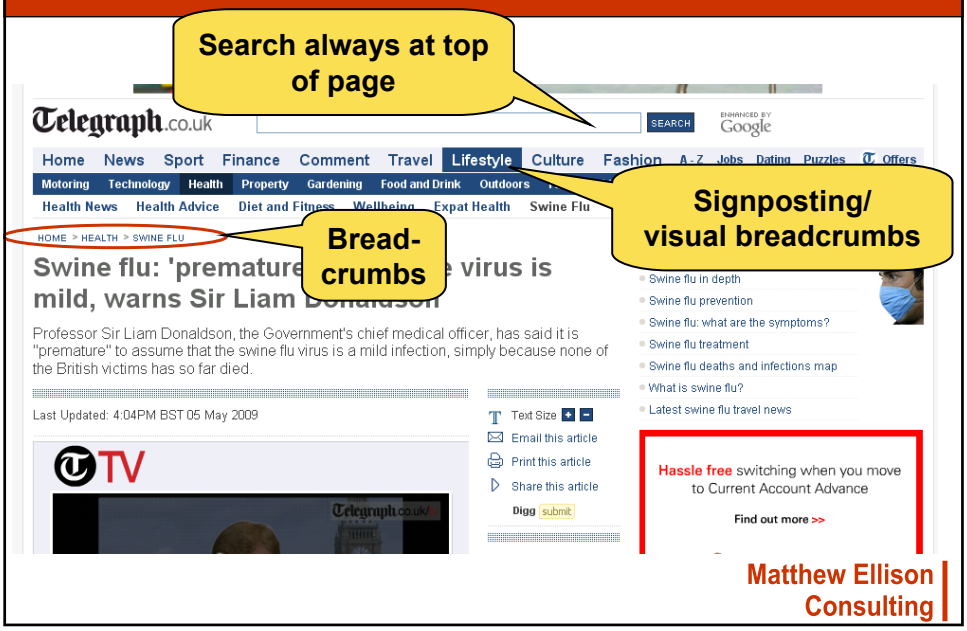
Online doc example #1: Telegraph.co.uk







Online doc example #1: Telegraph.co.uk



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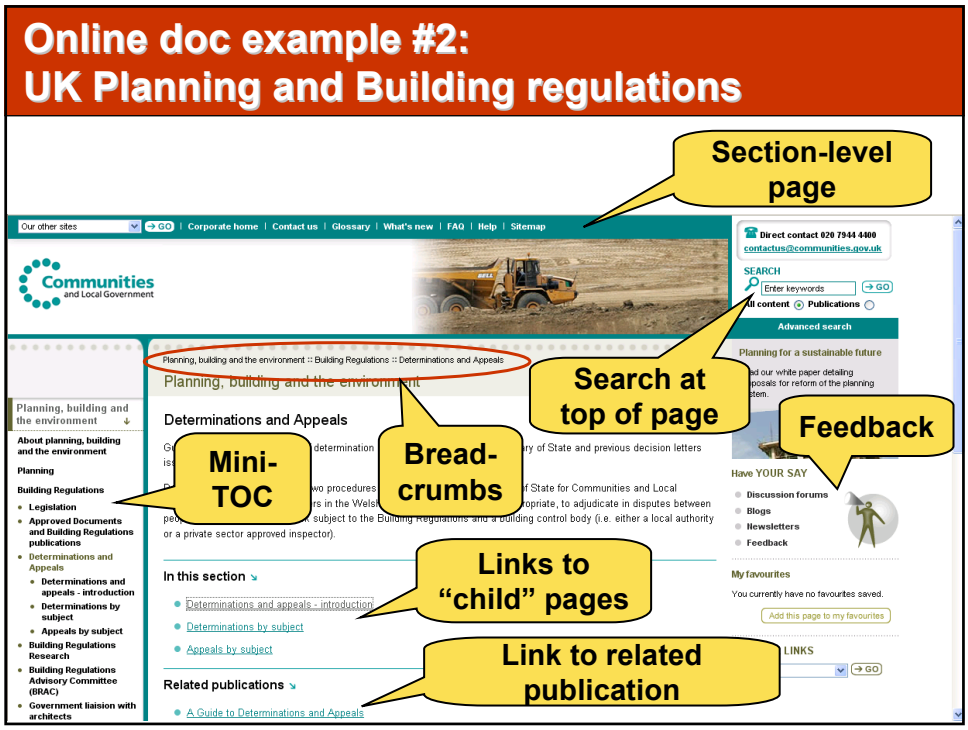

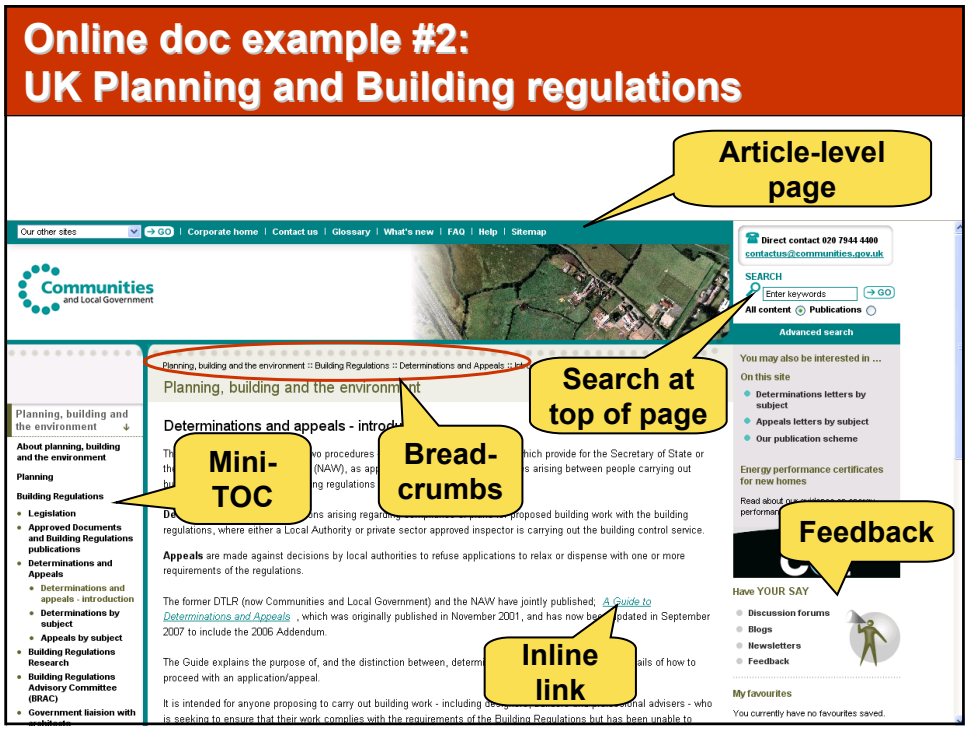

How can we define our design patterns?

- Pattern statements (problem, usage, solution, rationale, etc.)
- Style guide
- Schema

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Style Guide vs. Pattern Language

Style Guide

- Rules-based
- Structural
- Language focused
- Can be product-specific
- "Present this kind of content this way"

Pattern Language

- Heuristic
- Behavioural
- Information-focused
- Consistent across products
- "In this scenario, make the Help act this way"

[Hughes, 2007]

[Boggan, 2007]

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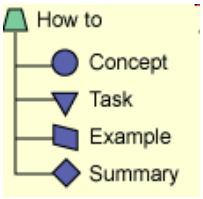
Enforcing patterns

- Structured authoring
- XML
- DITA
  - Topic specializations
  - Map domains



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References

- A Pattern Language, Christopher Alexander, 1977
- Information Architects, Richard Saul Wurman, 1997
- http://ui-patterns.com/
- Don't Write Guidelines - Write Patterns!, Richard N Griffiths and Lyn Pemberton
- A Pattern Language for User Assistance, Michael Hughes, 2007
- Design patterns for information architecture with DITA map domains, Erik Hennum et al, IBM, 2005
- Design Patterns in Online User Assistance, Scott Boggan, 2007
- http://www.telegraph.co.uk/
- http://www.communities.gov.uk/planningandbuilding/

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Questions?

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