

Information Retrieval

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Guest Lecturer

IS-10010 Introduction to Information Studies

November 6 2009

Objectives of Session

- Develop an awareness of the range of methods used to organise and retrieve information and a basic understanding of how this has changed over time.
- Understand the concepts and importance of information surrogates, and related concepts of access points and indexing to facilitate effective organisation and retrieval of information.
- Identify three main conceptual approaches to organisation of information.
 - Distinguish between them in terms of objectives, features and practical effects.
 - Recognise the practical applications of these approaches in information retrieval systems.

Outline of Session

- ▣ Definition of information retrieval.
- ▣ Brief outline of changes in information retrieval over time.
- ▣ Applications of information retrieval.
- ▣ Information surrogates, access points, indexing.
- ▣ Objectives of information retrieval.
- ▣ Identify three main conceptual approaches to information retrieval
 - ▣ Describe each approach with definitions and examples
- ▣ Recommended reading

Information Retrieval: Definition

Information Retrieval =

Searching for the **information** you need in an information

resource or system, e.g.:

- ▣ A search engine on the Web
- ▣ A library, including its catalogue
- ▣ An electronic database e.g. LISAnet
- ▣ An encyclopedia or other reference work

Information Retrieval System =

A manual or computerised process for storing, organising

and accessing information items, e.g.

- ▣ A database
- ▣ A catalogue
- ▣ A printed or electronic directory

What other examples can you think of?

Information retrieval: A formal definition

Information Retrieval:

“the purposeful searching for information in a system, of whatever kind, in which information – whether in the form of documents, or their surrogates, or factual material ('information itself'), are stored and represented.”

(Bates, J; Bawden, D; Cordeiro, I; Steinerová, J; Vakkari, P & Vilar, P (2005) 'Information Seeking and Information Retrieval' in: Kajberg, Leif & Lørring, Leif (eds) *European Curriculum Reflections on Library and Information Science Education*. The Royal School of Library and Information Science, Denmark. p. 88)

Information Retrieval changing shape over time

- ▣ 1950s/1960s
- ▣ 1970s/1980s
- ▣ 1990s
- ▣ 2000s

[Information Revolution](#). Michael Wesch. 2007 (Video)

Information retrieval: brainstorming

- How has the way we organise information changed over time?
- What does this mean in terms of changes in how we retrieve information?

Information retrieval: beginnings

1940s-1960s

- Vannevar Bush's "[As We May Think](#)" appears in Atlantic Monthly: concept of manual indexing.
- Late 1940s: US military confronts problems of indexing and retrieval of wartime scientific research documents captured from Germans.
- Late 1940s: IBM (Luhn) mechanized punch-card based system for searching chemical compounds.
- 1950s: Growing concern in the US for a "science gap" with the Soviets – leads to mechanised literature searching systems.
- 1960s: different indexing methods invented by scholars including probabilistic indexing.
- Relevance feedback developed.
- Important scholarly texts on information retrieval e.g. definitions, principles etc. are published.

Information retrieval: online options lead to significant changes

1970s/1980s

- Early 1970s: first online commercial systems evolve--NLM's AIM-TWX, MEDLINE; Lockheed's Dialog; SDC's ORBIT. Abstract and indexing systems. 1980s: steady increase in number of online databases.
 - High learning curve necessary for effective searching of these systems – era of the intermediary expert searcher.
- 1970s: Major developments in computerised library catalogues – OCLC developed containing Library of Congress records.
- 1980s: Spread of information retrieval systems for use by non-specialists.
 - Libraries began adopting online library catalogues (OPACs) widely.
 - CD-ROM based IR systems.
- 1980s: move toward full-text retrieval systems, e.g, magazines and newspapers.

Information retrieval: emergence of the World Wide Web.

1990s

- Tim Berners Lee and invention of World Wide Web (1989)
- Empowers the user to search for, use and even create information in electronic format.
- Mosaic is the first graphical browser – means graphical elements of information become extremely important.
- Explosion in full-text information e-resources.

2000s:

- Web 2.0: social networking (facebook etc.), social tagging (flickr), social bookmarking (delicious), folksonomies, blogging, wikis (Wikipedia).
- Web 3.0: semantic web.

Applications of information retrieval

- ▣ Relevant in diverse aspects of our daily lives:
 - ▣ Personal
 - ▣ Educational
 - ▣ Career
-

Information retrieval: Recent Obama declaration emphasizes value of skills in retrieving information effectively



- October 2009 declared National Information Literacy Awareness Month in U.S.A.
- Key message: Need to pay attention to importance of information literacy including information retrieval skills.

Selected excerpts from Obama's proclamation:

“Every day, we are inundated with vast amounts of information. A 24-hour news cycle and thousands of global television and radio networks, coupled with an immense array of online resources, have challenged our long-held perceptions of information management. Rather than merely possessing data, we must also learn the skills necessary to acquire, collate, and evaluate information for any situation.”

Selected excerpts from Obama's proclamation:

“Our Nation's educators and institutions of learning must be aware of -- and adjust to -- these new realities...The ability to seek, find, and decipher information can be applied to countless life decisions, whether financial, medical, educational, or technical.”

Selected excerpts from Obama's proclamation:

“I call upon the people of the United States to recognize the important role information plays in our daily lives, and appreciate the need for a greater understanding of its impact”.

Occupational applications of information retrieval: some examples

- ▣ Art galleries
- ▣ E-learning
- ▣ Electronic publishing
- ▣ Libraries
- ▣ Museums
- ▣ News agency
- ▣ Office files
- ▣ Knowledge management
- ▣ Records management (print and electronic)
- ▣ Web-site development (internet and intranets)

Information surrogates, access points, indexing.

- Introduction to what they mean

and

- Why they are critical in understanding the concept of information retrieval

Information surrogate: definition

- “A surrogate is a replacement for an original item, which enables the existence of the item to be established from a number of different perspectives, gives some description of the original item, and usually includes details of where the original is located and how it can be obtained.”

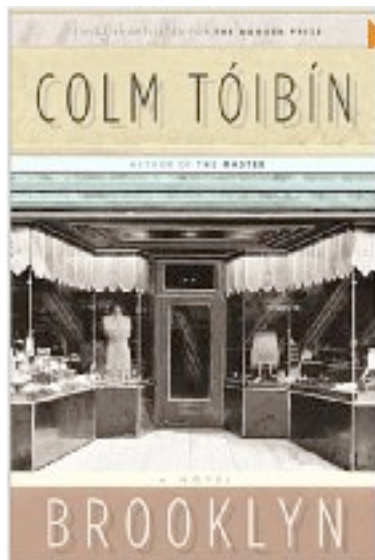
(Burke, 1999, p.47)

Information surrogate components

- ▣ Access points
 - ▣ Description
 - ▣ Location
-

Information surrogate: example 1

Library book (information item)



Library catalogue record (surrogate)



Author Tóibín, Colm, 1955-
Title Brooklyn / Colm Tóibín.

Publisher London : Viking, 2009.

Bib Id 1830632

ISBN 9780670918126 (hbk.) :

0670918121 (hbk.) :

9780670918133 (pbk.) :

067091813X (pbk.) :

Physical details 251p. ; 25cm.

Subject Irish - New York (State) - New York - Fiction.

Brooklyn (New York, N.Y.) - Social life and customs - Fiction.

Ireland - Social life and customs - Fiction.

Shelved at 823 IR

[See other titles for this subject](#)

Copies:
Location

Location	Shelfmark	Loan Type	Availability	Copies	Loans	
James Joyce Library	GEN 823 IR/TOI	Week loan	Available	2	1	Show details
James Joyce Library	Received		Not available	1	0	Show details

Reserve

Access
point
example:
Author

Information surrogate: example 2

Journal article (information item)

Barry Sandywell

MONSTERS IN CYBERSPACE

Cyberphobia and cultural panic in the
information age

This paper explores popular attitudes toward the Internet (and computer-mediated communication more generally) by mapping some of the more threatening, transgressive and 'monstrous' images associated with cyberspace. An account of risk consciousness is developed in three parts: (1) comparisons with earlier information technologies reveals similarities and differences with regard to public attitudes toward cyberspace and its risks; (2) the development of a model of contemporary teratological space derived from images of boundary-dissolving threats, intrusive alterities and existential ambivalences created by the erosion of binary distinctions and hierarchies; and (3) possible historical and sociological explanations of cyberpanic drawing on recent theorizations of globalization (capitalism/information society theory, risk society theory, reflexive modernization theory, and alterity theory).

Keywords cyberspace; cyberphobia; cybercrime; cyberterrorism; teratological space; moral panics; digital capitalism; globalization; risk society; alterity theory; critical Net research

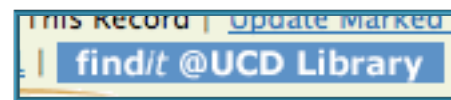
Introduction

The last decades of the twentieth century spawned many life-threatening monsters, among the most publicized of these being: depletion of the ozone layer, hyper-pollution, apocalyptic anxieties about the Millennium Bug, AIDS/HIV, the foot and mouth epidemic, SARS, bio-industrialization (GM crops), the extension of animal cloning to human cloning (the Human Genome Project, xenotransplantation, cloning of new life forms), the erosion of public space and the decline of civility, weapons of mass destruction and the threat of global terrorism. Public concern about the viral spread of cyberspace and the subversive implications of computer-mediated communication (CMC) has been added to the inventory of risk consciousness.



Information, Communication & Society Vol. 9, No. 1, February 2006, pp. 39–61
ISSN 1369-118X print/ISSN 1468-4462 online © 2006 Taylor & Francis
<http://www.tandf.co.uk/journals> DOI: 10.1080/13691180500194207

Journal database record (surrogate)



Database PsycINFO

Title **Monsters in cyberspace: Cyberphobia and cultural panic in the information age.**

Author [Sandywell, Barry¹](#)

Affiliation (1)Department of Sociology, University of York, York, United Kingdom

Source Information, Communication & Society. Vol 9(1), Feb 2006, pp. 39-61

ISSN 1369-118X

Access
point
example:
Subject

Descriptors

☐ Internet* ☐ Public Opinion* ☐ Technology* ☐ Computer Mediated Communication*

New Search Using Marked Terms: ☒ Use AND to narrow ☐ Use OR to broaden

Add to Current Search: ☐ Use AND to narrow ☐ Use OR to broaden

Go

Abstract This paper explores popular attitudes toward the Internet (and computer-mediated communication more generally) by mapping some of the more threatening, transgressive and 'monstrous' images associated with cyberspace. An account of risk consciousness is developed in three parts: (1) comparisons with earlier **information** technologies reveals similarities and differences with regard to public attitudes toward cyberspace and its risks; (2) the development of a model of contemporary teratological space derived from images of boundary-dissolving threats, intrusive alterities and existential ambivalences created by the erosion of binary distinctions and hierarchies; and (3) possible historical and sociological explanations of cyberpanic drawing on recent theorizations of globalization (capitalism/**information society** theory, risk **society** theory, reflexive modernization theory, and alterity theory). (PsycINFO Database Record (c) 2009 APA, all rights reserved) (journal abstract)

Information surrogate: example 3

Movie (information item)




Internet Movie Database record (surrogate)

Overview

User Rating:  8.2/10 [15,474 votes](#)

[Top 250: #197](#) ([register to vote](#))

MOVIEmeter:  Down 17% in popularity this week. See [why](#) on [IMDbPro](#).

Director: [Marc Webb](#)

Writers [\(WGA\)](#): [Scott Neustadter](#) (written by) & [Michael H. Weber](#) (written by)

Contact: View [company](#) contact information for (500) Days of Summer on [IMDbPro](#).

Release Date: 2 September 2009 (UK) [more](#)

Genre: [Comedy](#) | [Drama](#) | [Romance](#) [more](#)

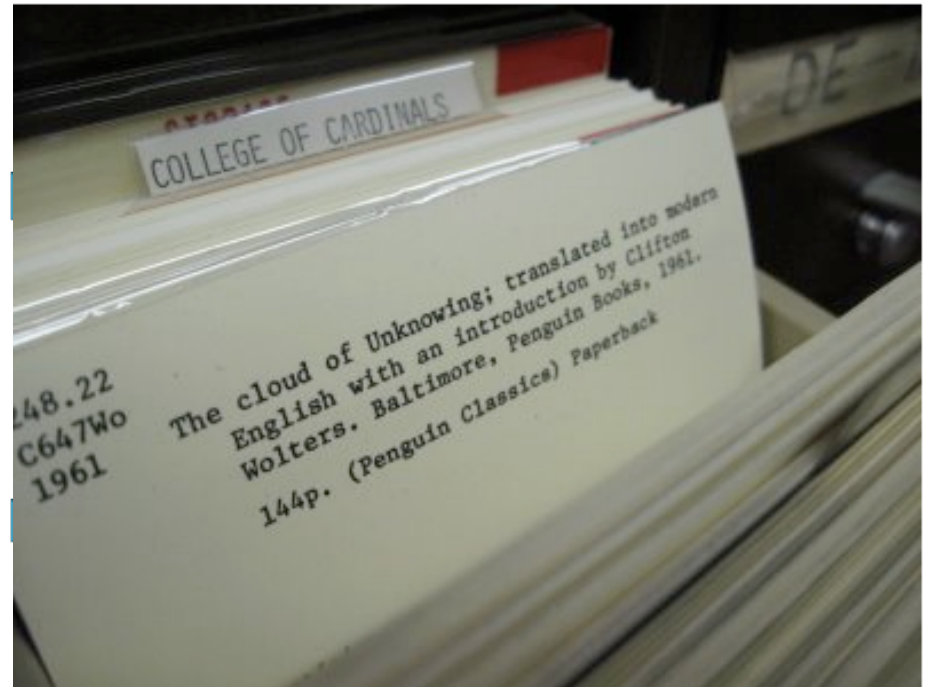
Tagline: Boy meets girl. Boy falls in love. Girl doesn't. [more](#)

Plot: An offbeat romantic comedy about a woman (Deschanel) who doesn't believe true love exists, and the young man (Gordon-Levitt) who falls for her. [full summary](#) | [full synopsis](#)

Access
point
examples:
Director &
Genre

Information surrogate: examples 4 – the print variety

Library card catalogue (now basically extinct!) – but at the heart of library organisation before computers



Information surrogate: example 5 – the print variety

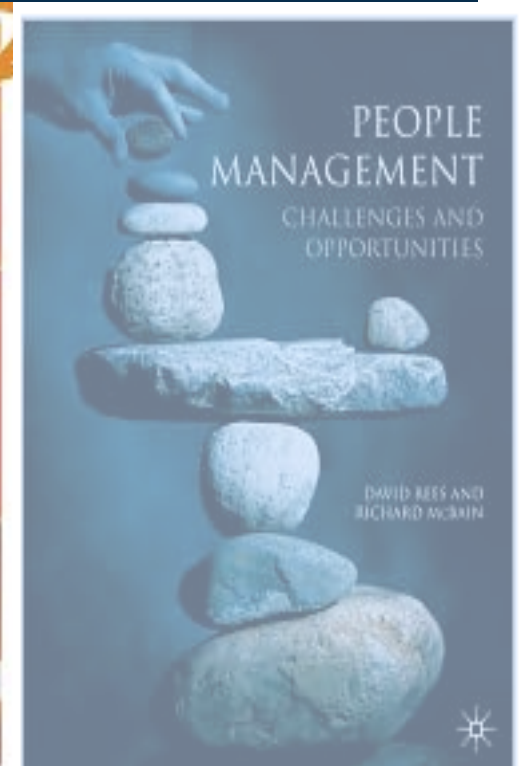
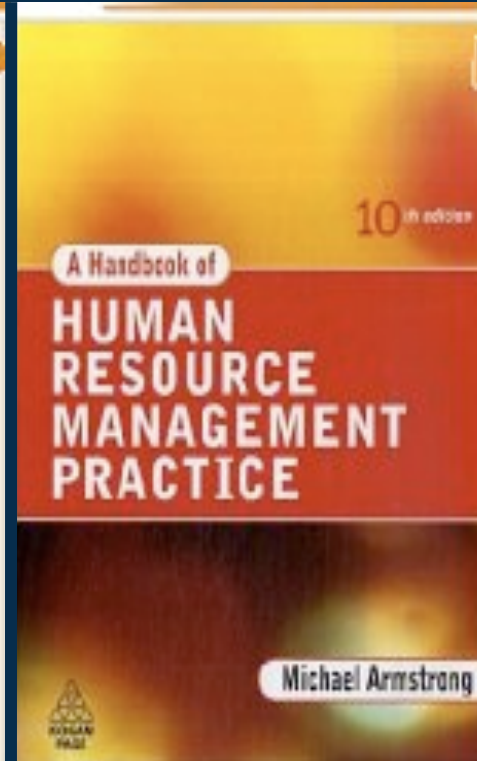
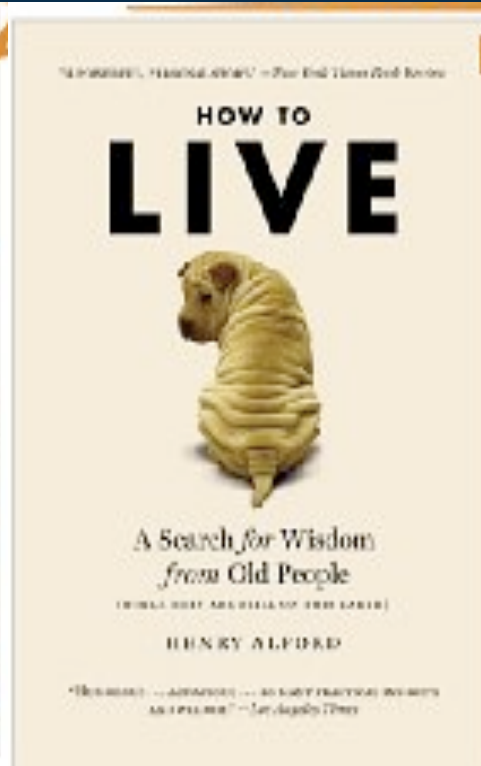
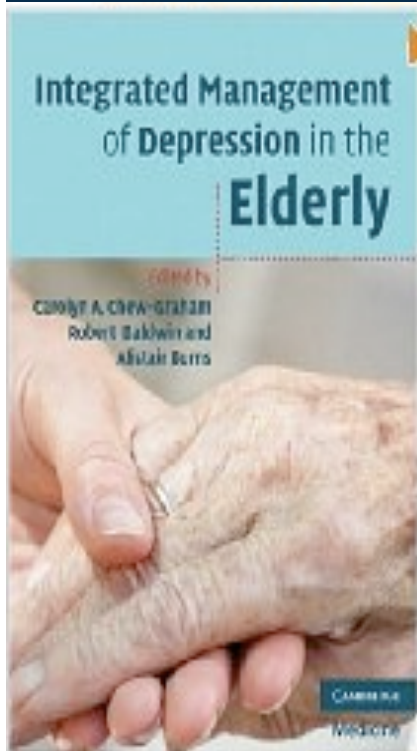
Ikea Catalogue



Concept of Indexing – Controlled Vocabulary

- Principles of organisation applied to access points used in surrogates e.g. author, subject.
- Need for consistent vocabulary, terminology, use of coding etc.
- Can apply to all kinds of access points e.g. authors, subjects and more...

Take example of subject access points – how does this work when there are multiple ways of describing the same concept?



Controlled vocabulary

An example is the Library of Congress Subject Headings – used in library catalogues as guide for creating subject labels.

- Elderly, old people, the aged
 - **Library of Congress Subject Heading: aged**
- Human resource management, people management, personnel management.
 - **Library of Congress Subject Heading: personnel management**

[Example Search: UCD Catalogue](#)

Subject indexing: electronic – another example (Database: Academic Search Premier)

Title: Long-Term Nursing Care of *Elderly People*: identifying ethically problematic experiences among patients, relatives and nurses in Finland.

Subject Terms:

- *[OLDER people -- Institutional care](#)
- *[OLDER people -- Long-term care](#)

Title: The UK national study of abuse and neglect among older people.

Subject Terms:

- *[OLDER people -- Abuse of](#)
- *[COMMUNITIES](#)
- *[OLDER people -- Care](#)
- *[DEPRESSION in old age](#)

Indexes: Print

- ▣ Find indexes at the back of many books, where typical arrangement is alphabetical e.g.,
 - ▣ Directory of companies.
 - ▣ Cookbooks.
 - ▣ Retail catalogues.
 - ▣ Encyclopedia.
 - ▣ Atlas.

Examples of Index Types:

- ▣ Index - product names
- ▣ Index – company names
- ▣ Index - geographical index.
- ▣ Index – by subject.

Index: IKEA Catalogue

Index

AKURUM kitchens110-133
Accessories..... 330-341
Armchairs.....44-59
Appliances (kitchen)112-129

Baby-care/furniture 246-253
Basement/garage storage.....
292-295
Bar stools 99, 104-105
Bathroom 196-207
Bathroom organizers ...199, 206
Bed frames168-169
Bed textiles208
Bed-sofas60-65
Bedroom 138-185
Bedroom collections138-165
Bedside tables/chests...138-165

Duvet covers..... 208-213, 219
Duvets216-217

EFFEKTIV storage..... 270-271
EKTORP sofa series ... 44-45, 57
Entrance/Hall furnishings
286-291
Extending beds253
Extending tables .88, 94-96, 98,
100-103

Floor lamps 320-321
Flooring 136-137
Food storage..... 310
Footstools..... 32-33
Free-standing kitchens .126-127
Frames/pictures 338-341

Web 2.0: Social tagging/Social bookmarking – Ordinary folks add their own language to describe Web sites, videos, pictures etc.

- User created tags.
- A manifestation of indexing based in the open web.
- See examples in Flickr, YouTube, delicious etc.



**Positives?
Negatives?**

Three conceptual approaches to information retrieval

- ▣ Pre-coordinate
- ▣ Post-coordinate
- ▣ Multi-coordinate

Objective of an Information Retrieval System

It's obvious

- ▣ Enable people (users) find the information they need

But is it so obvious?

- ▣ Users have different characteristics & different information needs

These include:

- ▣ Users who don't really know what they're looking for until they find it.
AND
- ▣ Users who are looking for a very specific item.

---> Two Main Objectives

- ▣ Facilitate browsing by grouping items or surrogates in a logical sequence (related items are adjacent / close to each other)

How could items be organised or grouped?

OR

- ▣ Enable users to retrieve items when they are looking for specific information and know exactly what they want.

Can you think of any examples of systems that enable users to do this?

Pre-coordinate

Information and its surrogates organised in logical order (linear sequence).

Assumes there is a preferred order for arrangement.

Little or no attempt to cater for users who want to retrieve information in different ways.

Leads to pigeon-holing: putting each item in one place and one place only – mono-dimensional.



Pre-coordinate: Examples of Applications

- Items arranged on supermarket shelves.
- Correspondence in filing cabinets.
- The use of a classification scheme such as Dewey to arrange books on shelves in libraries
<http://www.oclc.org/dewey/>
Example of Dewey applied to web sites: [Cyber Dewey](#)
- A listing of entries in a printed directory or index, e.g. index at the back of a cook book or retail catalogue, index at the back of a company directory or encyclopedia.

- 000 – Computer science, information & general works
- 100 – Philosophy and psychology
- 200 – Religion
- 300 – Social sciences
- 400 – Language
- 500 – Science (including mathematics)
- 600 – Technology
- 700 – Arts and recreation
- 800 – Literature
- 900 – History, geography, and biography

**Dewey
Decimal
System
broad
subject
categories**

Pre-coordinate: Examples of Applications

Subject directories or guides online e.g. [BrowseIreland](#), or [Ebay](#).

- Nowadays these online directories typically offer search functionality also but this is not part of the precoordinate approach to organising information.

The screenshot shows the 'BROWSE IRELAND' website. At the top is the logo. Below it is a navigation bar with links: 'discussions', 'new sites', 'help', 'advanced search', and 'log out'. A search box with a 'Search' button is located below the navigation bar. The main content area is divided into two columns. The left column contains the text 'Advertise your website with : Irish Website Advertising'. The right column lists various categories with their respective counts and a 'new' tag: 'Art, Irish (1674) new', 'Ireland Vacation Packages - Travel - Tourism (3426) new', 'Business (6865) new', 'Irish History (224)', 'Irish Regions (2248)', and 'IT Computers SFO (25281) new'. Each category is followed by a list of sub-topics.

BROWSE IRELAND	
<p>Directory of Irish Sites</p> <p> discussions new sites help advanced search log out </p> <p> <input type="text"/> <input type="button" value="Search"/> </p>	
<p>Advertise your website with : Irish Website Advertising</p>	<p> Art, Irish (1674) new Artists, Literature, Architecture, Photography, Pictures, Film, Museums, Galleries, Dance, ... </p> <p> Business (6865) new Finance, Mortgages, Irish Property, Jobs, Building and Construction, Irish Auctioneers - Estate Agents, Business Services, Irish Law, ... </p> <p> Current Affairs, News (246) new Current Events, Weather, Radio, TDs, Online, ... </p> <p> Ireland Vacation Packages - Travel - Tourism (3426) new Accommodation, Guides, Airlines, Agents, Ireland Golf Vacation, Ireland Map, Ireland Travel, Dublin Short Term Apartments... </p> <p> Irish History (224) Modern, Places, Archaeology, Walks, Tours, Places of Interest, ... </p> <p> Irish Regions (2248) Dublin, Cork, Galway, Kerry, Clare, Northern Ireland, ... </p> <p> IT Computers SFO (25281) new </p>

Pre-Coordinate: Combining Terms

A system of indexing in which the preferred terms allocated to a particular document or item are syntactically combined in one or more sequences representing the only combinations available for retrieval purposes e.g. when using pre-coordinate indexing, a manual on bicycle repair might be assigned the indexing string made up of three preferred terms in combination:

- ▣ **bicycles - repairing - instruction books**

This brings all aspects of repairing bicycles together in a catalogue or browsing list, and might be followed by

- ▣ **bicycles - repairing - tools**

There would be no direct alphabetical access to this subject under **repairing**, **instruction books**, or **tools**. This does not mean that the individual concepts within a pre-coordinated string cannot be searched for separately, either as controlled preferred terms or as free text, but such methods are not part of the pre-coordinate indexing system.

(<http://www.willpowerinfo.co.uk/glossary.htm#pre-coord>)

Precoordinate: Exercise

- Spend 3 minutes looking at this example of a web page to find where a pre coordinate approach / structure is used
 - Check to see if your neighbour agrees with you
 - Discuss what you like or dislike about the pre coordinate structure
 - Be prepared to tell the class what you have found
-

You are here: [Home](#) >

Welcome to Citizens Information

Citizens Information is an Irish eGovernment website provided by the Citizens Information Board. The site provides public service information for Ireland. Learn [more about Citizens Information](#) or [how to use this site](#).

•Birth, Family and Relationships

[Before your baby is born](#), [Getting married...](#)

•Education and Training

[Primary and post-primary education](#), [Third-level education...](#)

•Environment

[Planning and development in Ireland](#), [Waste management and recycling...](#)

•Housing

[Renting a home](#), [Buying a home...](#)

•Travel and Recreation

[Motoring](#), [Travel abroad...](#)

•Consumer Affairs

[Consumer protection](#), [Financial services...](#)

•Employment

[Starting work and changing job](#), [Retirement...](#)

•Government in Ireland

[European government](#), [Elections and referenda...](#)

•Money and Tax

[Tax](#), [Personal finance...](#)

•Moving Country

[Moving abroad](#), [Moving to Ireland...](#)

•Death and Bereavement

[Before a death](#), [After a death](#), [The deceased's estate...](#)

•Justice

[Criminal law](#), [Courts system](#), [Children and young offenders...](#)

•Health

[Children's health](#), [Hospital services...](#)

•Social Welfare

[Irish social welfare system](#), [Social welfare payments...](#)


View this site

- [In English](#)
- [As Gaeilge](#)
- [Po Polsku](#)
- [In Romana](#)
- [En Francais](#)

What's New

- **Today:** [This is Anti-Racist Workplace Week](#)
- **Today:** [Do you have to be a minimum age in order to be an organ donor?](#)
- **Today:** [What can you do about racism in the workplace?](#)
- [Click for more news Items](#)

 [Voluntary and Community Sector News](#)

 [Citizens Information RSS Feed](#)
[How to use RSS](#)

Browse this site

- [Life events](#)
- [Reference Documents](#)
- [Subject Index](#)
- [Title Index](#)
- [More Ways to Browse](#)

You can also get Citizens Information:

By Phone: By phoning the Citizens Information Phone Service. Lo Call 1890 777 121

In Person: By visiting your nearest [Citizens Information Centre](#)

You can find your nearest Citizens Information Centre by using [our directory](#) or by checking the Golden Pages.

When is pre-coordinate approach useful

- General users who are rather vague about their information needs, looking for something on a topic rather than comprehensive answers to complex questions.
 - Where preference is for browsing rather than searching.
-

Post-coordinate approach

- ❑ No attempt to put information items in a logical sequence.
- ❑ Recognises the multi-faceted nature of many items.
- ❑ Rely on the combination of multiple terms at the search stage rather than at the input stage.
- ❑ Browsing not facilitated.



Post-coordinate approach: examples

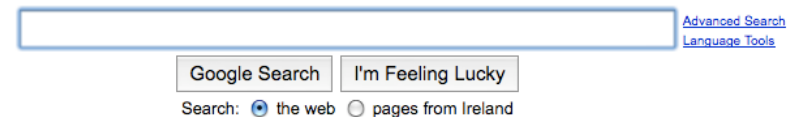
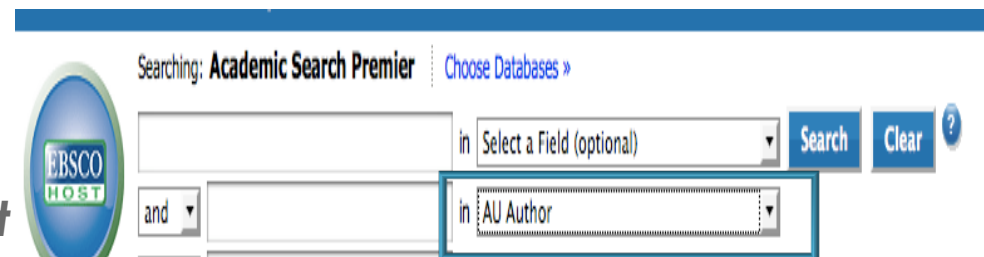
- ▣ Databases or other systems which allow for the combination of search terms at point of retrieval.
- ▣ May be manual, or computerized.
- ▣ Computerisation only efficient way of achieving post-coordination.
- ▣ **Computerisation alone does not automatically mean post-coordinate approach.**
 - ▣ **Need to create indexes to information resource or its surrogates based on simple search concepts.**
 - ▣ **Facilitates field searching e.g. limit search to author field.**
 - ▣ **Need to allow these concepts to be combined using Boolean logic.**

Post-coordinate approach: examples

- Web search engine e.g. Google,
- Library catalogue.
- Library journal database, e.g., Academic Search Premier.

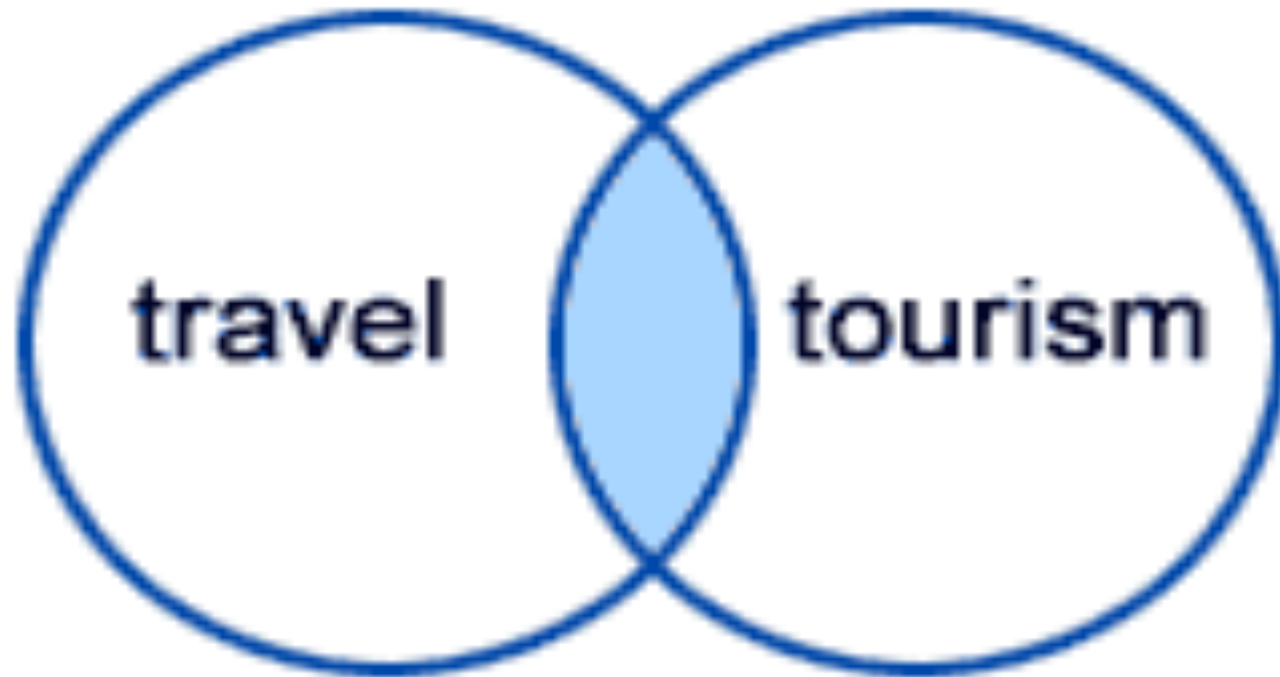
Simple or advanced searching typically supported.

Field searching often possible (advanced mode) e.g. ability to limit search to author field, title field etc. These are access points.

The image shows a snippet of the Google Ireland search page. It features a large search input box, a "Google Search" button, and an "I'm Feeling Lucky" button. Below the buttons, there are radio buttons for "the web" (selected) and "pages from Ireland". Links for "Advanced Search" and "Language Tools" are visible on the right.The image shows a snippet of the Academic Search Premier search interface. It includes the EBSCO HOST logo, a search bar, and a dropdown menu for selecting a field (currently set to "Select a Field (optional)"). There are "Search" and "Clear" buttons. A second search bar is visible below the first, with a dropdown menu set to "AU Author".

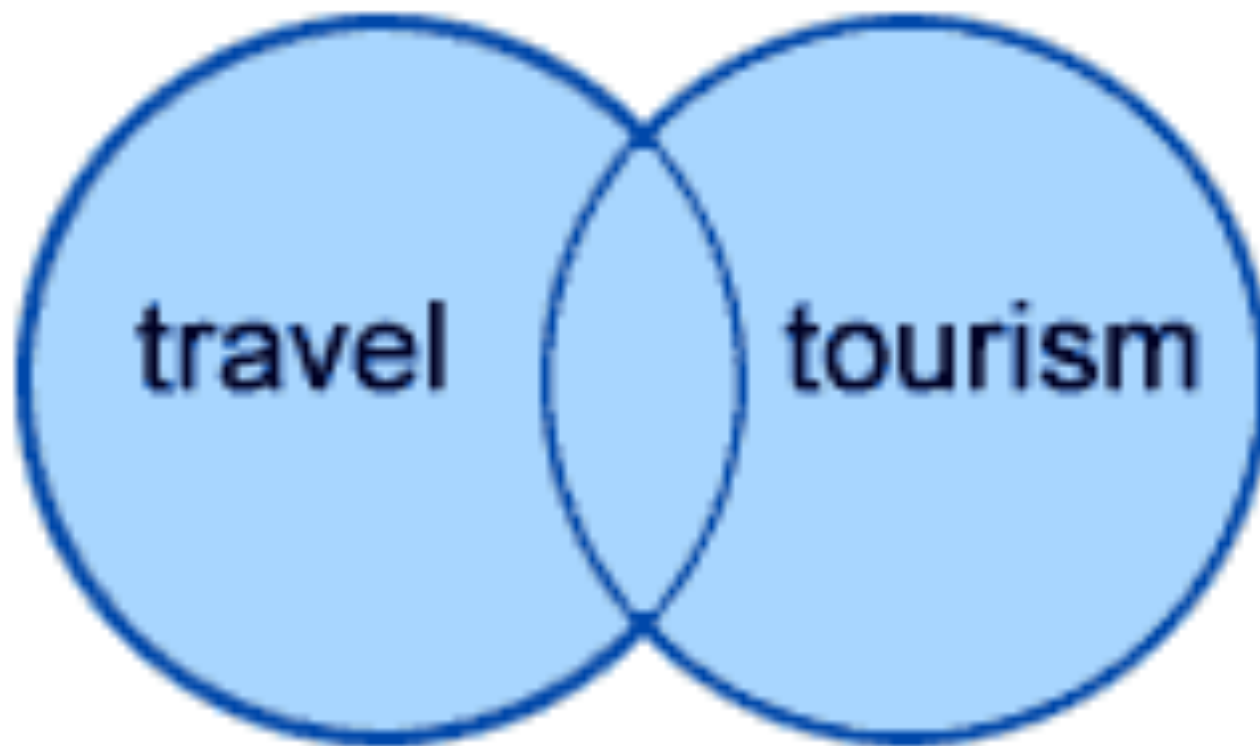
Boolean Logic

- Three main Boolean operators AND, OR, NOT
- Some related (less important) operators e.g. NEAR
- Mathematical basis in Venn diagrams and set theory
- Context here is retrieval of information using a post-coordinate approach



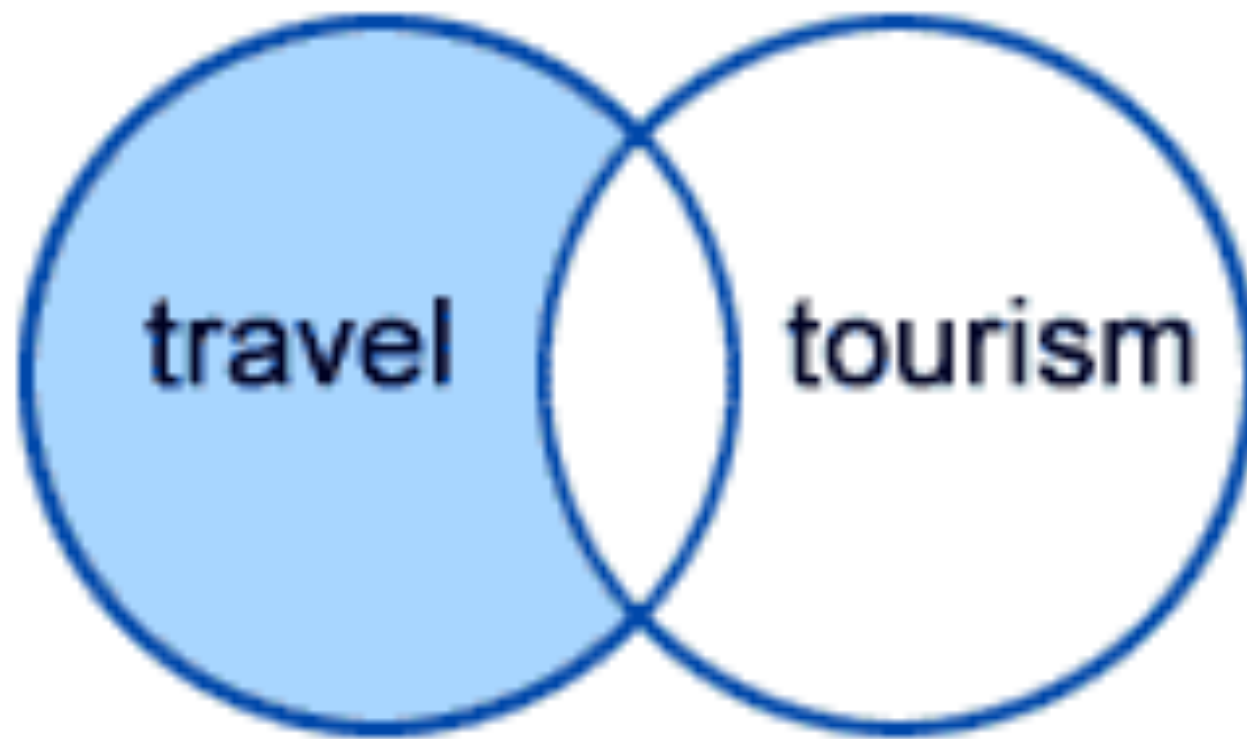
travel **AND** *tourism*

(<http://www.rmit.edu.au/%20browse;ID=725ojuuiffy4>)



travel **OR** *tourism*

(<http://www.rmit.edu.au/%20browse;ID=725ojuuiffy4>)



travel **NOT** *tourism*

(<http://www.rmit.edu.au/%20browse;ID=725ojuuiffy4>)

More on Boolean Logic

- The research topics we search for are often multifaceted so Boolean logic is critical.
- We may want to ensure that the retrieval system finds all core concepts in each result, i.e., the Boolean connector **AND** is needed.
 - **Poverty AND children AND Ireland**
- There are often more than one way of saying the same thing, e.g., synonyms or like terms apply. We want to make sure the system picks up items which have either term or both in them, i.e., we use the Boolean connector **OR**:

e.g. **web OR internet, recruit OR hire**

Nested Boolean

- For more complex searches which require the use of ANDS and ORs together.

Example

(teenagers OR adolescents) AND computer games AND marketing

Truncation

Use truncation symbols where you wish to find relevant variants on a word.

Example

manag* finds manager, manages, managing, managed etc.

Time to Practise

- Which of these two Boolean operator serves the function of narrowing a search?
 1. and
 2. or

Time to Practise

Which one of the following search strings will retrieve the most results?

- a. Fraud in accounting
- b. Fraud or accounting
- c. Fraud and accounting

Time to Practise

You're searching a database for a low-fat recipe for pasta with either shrimp or chicken. Which one of these searches demonstrates the proper use of nesting to get many search results that are very relevant?

- ❑ Noodles or (pasta and shrimp) or chicken and low-fat
- ❑ (Noodles or pasta) and (shrimp or chicken) and low-fat
- ❑ Noodles or pasta and (shrimp or chicken) and low-fat
- ❑ (Noodles or pasta) and shrimp or (chicken and low-fat)
- ❑ Noodles or pasta and shrimp or chicken and low-fat

Time to Practise

To retrieve all variations on the word “canada”, i.e., canada, canadian etc., which truncated form would best?

- a. Can*
- b. Canada*
- c. Cana*
- d. Canad*

Post-Coordinate retrieval: Demonstration by searching

UCD Library catalogue

Welcome to UCD Library Catalogue

New Materials

Journals

Databases

Library Home

Search

Keyword

Title

Author

Collection

Full Catalogue

Library Site

All

Year


all years

Search

Clear

Post-Coordinate retrieval: Demonstration by searching

- Academic Search Premier (contains articles of relevance to information studies)



Searching: **Academic Search Premier** [Choose Databases »](#)

<input type="text" value="social tagging or social bookmarking"/>	in	<input type="text" value="Select a Field (optional)"/>	<input type="button" value="Search"/> <input type="button" value="Clear"/> ?
<input type="text" value="and"/>	<input type="text" value="librar*"/>	<input type="text" value="Select a Field (optional)"/>	
<input type="text" value="and"/>	<input type="text" value=""/>	<input type="text" value="Select a Field (optional)"/>	

[Add Row](#)

Post-Coordinate approach

- ▣ Advantages
- ▣ Disadvantages



Ideas?

Post-coordinate approach

- ▣ Facilitates precise retrieval of specific items.
- ▣ Enables access from different perspectives.
- ▣ Browsing is not well supported.
 - ▣ Items not ordered in a linear sequence
 - ▣ User does not benefit from helpful arrangement of items.

Multi-coordinate approach

- ▣ Allows both pre- and post- coordinate retrieval of a collection of items.
- ▣ Provides multiple connected pathways through a body of information.
- ▣ Relates to the associative processes of human memory.
 - ▣ Vannevar Bush in 1945 influenced by way human memory works when anticipated the basics of hypertext.
- ▣ Allows users to jump easily from one topic to a related one.
- ▣ Allows for retrieval from different perspectives.
- ▣ Requires creation and updating of links.
- ▣ Users may become disorientated / lost

Multi-coordinate approach: Example of Application - Wikipedia

Hypertext - Wikipedia, the free encyclopedia - Microsoft Internet Explorer


File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print

Address <http://en.wikipedia.org/wiki/Hypertext> Go Links

Sign in / create account

Have questions? Find out how to ask questions and get answers.

 **WIKIPEDIA**
The Free Encyclopedia

navigation

- Main page
- Contents
- Featured content
- Current events
- Random article

interaction

- About Wikipedia
- Community portal
- Recent changes
- Contact Wikipedia
- Donate to Wikipedia
- Help

search

Go Search


toolbox

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- Cite this article

in other languages

- Brezhoneg
- Català
- Česky
- Dansk
- Deutsch

article discussion edit this page history

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"Wikipedia has taught me more than most college classes I've taken." – Anon.

Hypertext

From Wikipedia, the free encyclopedia

"Metatext" redirects here. For the literary concept, see [Metafiction](#).

Hypertext most often refers to [text](#) on a [computer](#) that will lead the user to other, related information on demand. Hypertext represents a relatively recent innovation to [user interfaces](#), which overcomes some of the limitations of written text. Rather than remaining static like traditional text, hypertext makes possible a dynamic organization of information through links and connections (called [hyperlinks](#)). Hypertext can be designed to perform various tasks; for instance when a user "clicks" on it or "hovers" over it, a bubble with a word definition may appear, or a web page on a related subject may load, or a video clip may run, or an application may open.

Contents [\[hide\]](#)

- 1 Etymology
- 2 Types and uses of hypertext
- 3 History
 - 3.1 Early precursors to hypertext
 - 3.2 The Memex
 - 3.3 The invention of hypertext
 - 3.4 Applications
 - 3.5 Hypertext and the World Wide Web
- 4 Implementations
- 5 Academic conferences
- 6 Hypertext fiction
 - 6.1 Critics and theorists
- 7 See also
- 8 References
- 9 External links

Etymology

The prefix **hvoer-** ("over" or "beyond") signifies the overcoming of the old linear constraints of written text. The term "hvoerertext" is often used where the term [hvoermedia](#) might seem appropriate. In 1992 [Ted](#)

[edit]

Internet

Multi-coordinate approach: Example of Application - Wikipedia

free encyclopedia - Microsoft Internet Explorer

Tools Help

Search Favorites Media

rg/wiki/Hypertext

9 External links

Etymology [edit]

The prefix **hyper-** ("over" or "beyond") signifies the overcoming of the old linear constraints of written text. The term "hypertext" is often used where the term [hypermedia](#) might seem appropriate. In 1992 [Ted Nelson](#) - who coined both terms in 1965 - wrote:

By now the word "hypertext" has become generally accepted for branching and responding text, but the corresponding word "hypermedia," meaning complexes of branching and responding graphics, movies and sound - as well as text - is much less used. Instead they use the strange term "interactive multimedia" - four syllables longer, and not expressing the idea that it extends hypertext. - Nelson, [Literary Machines](#) 1992

Types and uses of hypertext [edit]

Hypertext documents can either be static (prepared and stored in advance) or dynamic (continually changing in response to user [input](#)). Static hypertext can be used to cross-reference collections of data in documents, [software applications](#), or books on CD. A well-constructed system can also incorporate other user-interface conventions, such as menus and command lines. Hypertext can develop very complex and dynamic systems of linking and cross-referencing. The most famous implementation of hypertext is the [World Wide Web](#).

History [edit]

Early precursors to hypertext [edit]

Recorders of information have long looked for ways to categorize and compile it. Early on, experiments existed with various methods for arranging layers of [annotations](#) around a document. The most famous example of this is the [Talmud](#). Various other [reference](#) works (for example [dictionaries](#), [encyclopedias](#), etc.) also developed a precursor to hypertext, consisting of setting certain words in small capital letters, indicating that an entry existed for that term within the same reference work. Sometimes the term would be preceded by a pointing hand [dingbat](#), [OLIKE THIS](#), or an [arrow](#), [OLIKE THIS](#).

Later several scholars entered the scene who believed that [humanity](#) was drowning in [information](#), causing foolish decisions and duplicate efforts among scientists. These scholars proposed or developed proto-hypertext systems predating electronic computer technology. For example, in the early [20th century](#), two visionaries attacked the cross-referencing problem through proposals based on [labor-intensive](#), [brute force](#) methods. [Paul Otlet](#) proposed a proto-hypertext concept based on his monographic principle, in which all documents would be decomposed down to unique phrases stored on [index cards](#). In the [1930s](#), [H.G. Wells](#) proposed the creation of a [World Brain](#).

[Michael Buckland](#) summarizes the very advanced pre-World War II development of microfilm based rapid retrieval devices, specifically the microfilm based workstation proposed by [Leonard Townsend](#) in 1938 and the microfilm and photoelectronic based selector, patented by [Emmanuel Goldberg](#) in 1931.^[1] Buckland concludes: "The pre-war information retrieval specialists of continental Europe, the 'documentalists,' largely disregarded by post-war information retrieval specialists, had ideas that were considerably more advanced than is now generally realized." But, like the manual index card model, these microfilm devices provided rapid retrieval based on pre-coded indices and classification schemes published as part of the microfilm record without including the link model which distinguishes the modern concept of hypertext from content or category based [information retrieval](#).

The Memex [edit]

All major [histories](#) of what we now call hypertext start in [1945](#), when [Vannevar Bush](#) wrote an article in [The Atlantic Monthly](#) called "[As We May Think](#)," about a futuristic device he called a [Memex](#). He described the device as a mechanical desk linked to an extensive archive of [microfilms](#), able to display [books](#), [writings](#), or any document from a [library](#). The Memex would also be able to create 'trails' of linked and branching sets of pages, combining pages from the published microfilm library with personal annotations or additions captured on a microfilm recorder. Bush's vision was based on extensions of 1945

Multi-Coordinate Approach

- ▣ Examples of Applications:
 - ▣ hypertext (non-linear text)
 - ▣ hypermedia (text, graphics, audio, video, etc.)
 - ▣ many encyclopaedia and other reference works published on CD-ROM and browsable
 - ▣ Web based navigation on the Internet

Hypertext – Further Reading

- Vannevar Bush seminal article “As we may think” *The Atlantic Monthly*; July, 1945; Volume 176, No. 1; pages 101-108; (especially p. 106-108 on Memex).
<http://www.ps.uni-sb.de/~duchier/pub/vbush/vbush.shtml>
- <http://en.wikipedia.org/wiki/Hypertext>
- <http://dictionary.reference.com/search?r=67&q=Hypertext>
- <http://www.w3.org/WhatIs.html> and links therein

Comparison of Pre, Post and Multi / flexi Coordinate Retrieval

Feature	Pre coordinate	Post coordinate	Multi / flexi coordinate
Browsing	Easy	Difficult	"Easy" get lost?
Arrangement of items	Helpful from 1 perspective	Unhelpful	Unhelpful
Linking of concepts	Poor	Good	Poor
Items accessible by	Primary concept	Many concepts	Many concepts
Roles, links	Maintained	Ignored	Partially maintained
Applications	Printed materials & computer menus	Computer databases	Hypertext & hypermedia

Reading on Information Retrieval – Today's Lecture

- Burke, Mary A. (1999) *Organization of multimedia resources*. Aldershot: Gower.
- Norton, Melanie J. (2000) 'Information retrieval', In: *Introductory Concepts in Information Science*, p. 51-62. Medford, New Jersey.

How Well Have You Understood?

- You enter several words in an online library catalogue. Is your search:
 1. hypertext
 2. post coordinate
 3. pre coordinate
 4. all of the choices above
 5. two of the choices above
 6. none of the choices above

How Well Have You Understood?

- When you browse through the index at the back of a book, is your search:
 1. hypertext
 2. post coordinate
 3. pre coordinate
 4. all of the above
 5. two of the above
 6. none of the above

How Well Have You Understood?

- Which approach to information retrieval makes use of hypertext and hyperlinks?
 1. Pre coordinate
 2. Post coordinate
 3. Flexi/multi coordinate

Information Retrieval on the Web

- ▣ **Precoordinate** =

- ▣ Search Directories & Menus

- ▣ **Postcoordinate** =

- ▣ Search Engine

- ▣ **Flexi / Multi Coordinate** =

- ▣ Miscellaneous Hypertext Links

IS10010 Introduction to Information Studies

Presentation on Information Retrieval

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modifications and additional material.
