INFS 324:
INDEXING AND ABSTRACTING

Session 8– INDEXING SYSTEMS II: POST-CO-ORDINATE INDEXING SYSTEMS

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INTEGRI PROCEDAMUS

Session Overview

- In the previous Session we saw what indexing systems are and learned about Pre-Coordinate Indexing Systems. In this Session, I will be looking at the second group of indexing systems namely Post-Coordinate indexing Systems. Basically, I will tell you what they are, how they started, and how they work

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Session Objectives

At the end of the session, you should be able to:

- Note the major attributes that distinguish the post-coordinate indexing system from the pre-coordinate indexing system.
- Explain how post-coordinate indexing works.
- Give examples of post-coordinate indexes.
- Identify difficulties in the use of post-coordinate indexes.

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Session Outline

The key topics to be covered in the session are:

- Topic 1: How Post-Coordinate Indexing Systems Begun

- Topic Two: Modern Post-Coordinate Indexing Systems

- Topic Three: Information retrieval in Post-Coordinate Indexing Systems

- Topic Four: Merits and Demerits of Pre-Coordinate and Post-Coordinate Indexing Systems

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Topic One:

HOW POST-COORDINATE INDEXING SYSTEMS BEGUN

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Introduction

The other group of Indexing Systems is the Post-coordinate indexing systems.

- Post-coordinate indexing systems have so been designated because of the way they treat the contents of documents for searching and retrieval.

- A post-coordinate indexing system is one in which the indexer analyses the contents of composite subjects

- selects relevant terms for the purpose of retrieving information

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Introduction(Cont.)

- coordination of the terms for the purpose of retrieving documents or information is done by the information seeker at the search stage.

- Post- coordinate indexing systems began in the 1940s using various types of cards.

- They were implemented as a means of solving the difficulties of pre-coordinate indexing systems that prescribed the use of one term at a time to search.

- Examples of earlier post-coordinate systems are

   -Uniterm Index,

   -Edge-Notched Cards and

   -Optical Coincidence Cards or Peek-a-boo Cards.

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The Uniterm Index

- It is a single post-coordinate indexing system developed by Mortimer Taube in 1953.

- It consists of creating index entries for each unit term identified by the indexer.

- This is done by preparing a card for each term considered to be a relevant index term for a particular document. The card is divided into columns of ten from 0 to 9.

- The selected term is indicated at the top of the card.

- The document to be indexed will have a number which may be its accession number or the number of the particular document.

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The Uniterm Index(Cont.)

- This number will be written on the card by a technique called "terminal digit posting".

- This is a technique by which the number of the document is written in a column based on the right-most digit in the document number.

  -For example:

  > if a document number is 23, 3 will be the right   most digit so the number 23 will be written under column 3 on the card.

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The Uniterm Index(Cont.)

- At the indexing the indexer simply prepares a card for each term if a card does not exist already.

- He will then use the technique of terminal digit posting to write the document number in the appropriate column.

- The searcher at the search stage will coordinate the terms by picking all the cards pertaining to the question or query.

- He then matches each number in a given card with all the numbers in all other cards.

- This process turns out be quite tedious for the searcher especially if each card bears quite a few numbers.

- This can happen where a large collection of documents have been indexed.

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Optical Coincidence Cards or Peek-a-boo Cards

- This is a system in which a card is divided into small units of numbered squares.

- The card bears a selected term at the top.

- Each unit has a specific number.

- A document number is punched on the appropriate position on the card.

- Thus each card will bear a number of small holes.

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- Each hole represents a particular document number in which the term on top of the card appears.

- At the search stage, the user picks all the cards matching a specific query. The cards are then placed in a box against a source of light.

- Light will filter through those cards that have punches at the same position.

- The numbers represented by these positions will contain all the terms presented in the query.

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- This system was designed to solve some of the difficulties searchers go through with the Uniterm system.

- A peek-a-boo card just like a Uniterm card has space at the top of the heading or term.

- Again like the Uniterm each card is divided up into numbered squares ranging between 500 and 1000 and sometimes up to 10,000.

- A drawback to this system is the fact that if there are a large number of punches in a card, it could become easily mutilated after being used a number of times.

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- The important thing to note about these earlier post-coordinate systems is that they may be described as the forerunners of the modern post-coordinate indexing systems.

- The same principles that were used in the earlier post-coordinate systems are being used in modern computer-based online systems.

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Topic Two:

MODERN POST-COORDINATE INDEXING SYSTEMS

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Modern Post-Coordinate Indexing

- Post-coordinate indexing systems today are computerized systems.

    -Examples of these include

    MEDLARS

    ERIC

    CARIS

    FAME

    GAINS

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MEDLARS

It is the acronym for Medical Literature Analysis and Retrieval System

- It was developed from a manual or printed indexing system called **Index Medicus.**
- It began in 1961 and contains references from over 3,000 biomedical journals published worldwide.
- The objectives of **MEDLARS** were to:
- Increase the quality, quantity and speed of production of Index Medicus (that is, the manual form of MEDLARS)
- To increase the depth of indexing
- To expand the coverage of Index Medicus to include monographs
- To reduce the incidence of duplication in the coverage of medical literature

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ERIC

- Another example of computer- based post-coordinate system is **ERIC.**

- It is the acronym for Educational Resources Information Center.

- Set up by the National Institute of Education in the USA

   serves as a clearinghouse for educational information.

Other Post-Coordinate Systems

- Others include **FAME** (Financial Analysis Made Easy) which is a numerical database;

- CARIS (Current Agricultural Research Information System.

- In Ghana we have **GAINS**

Ghana Agricultural Information Network System).

Topic Three:

INFORMATION RETRIEVAL IN POST-COORDINATE INDEXING SYSTEMS

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Introduction

Post-coordinate indexing systems offer easier and quicker access to information than pre-coordinate indexing systems.

- They do these through the varied access to information that they provide.

- Post-coordinate indexing systems allow for varied access to information.

   For example:

   -the searcher can retrieve information directly from the system, e.g. legal or statistical information

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Introduction (Cont.)

-they provide reference or document numbers which make for easy identification of documents

-they permit the manipulation of data to obtain desired results

Information retrieval in Post- coordinate indexing systems is affected by two main factors namely:

- **The quality of the Index** and

- **The Skills of the Searcher**

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Quality of the Index

This is affected by a number of issues namely:

- The nature of the document that has been indexed, that is whether the document is in text or tables or diagrams

- The audience or user orientation of both the original document and index

- The standard of indexing, that is the thoroughness and consistency of the indexing

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Quality of the Index (Cont.)

- The quality of the thesaurus used for the indexing. -
  -Thesauri are often printed by organizations for their specific use.

  -The quality, therefore, varies greatly.

  -However, where common terms have been used in the thesaurus it will facilitate retrieval.

  -On the other hand where highly technical terms have been used it may not help retrieval by ordinary searchers.

- The quality of the document being indexed also affects retrieval.

  A simply written and straightforward document may be easy to index than a complex one which is difficult to understand.

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Skills of the Searcher

In a search, the aim of the investigator is to retrieve relevant documents.

- The success of the search does not depend on the quality of the index alone.

- It depends also on the skills of the searcher.

- A skilled searcher can effectively combine terms in an index to produce results.

- If one strategy does not produce results, a new one may be adopted.

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Search Strategies

- There are different strategies that a searcher may use in accessing an index:

- These include

      -Boolean Search Logic

      -Truncation

      -Field Searching

      -Command Language etc.

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Boolean Search Logic

The first one involves the application of search logic. This includes

Boolean search logic with the

AND

OR

NOT, operators.

- These allow for retrieval either on individual subjects or a combination depending on which operator is used.

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Truncation

This involves searching with a shortened stem

      For Example:

      -such words as

            nation,

            nationalism,

            nationality,

            national,

            nationalization

      can be searched with the stem 'nation'

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Field Searching

This is the ability to search for terms that appear in specific fields within the record.

- This allows the searcher to be more precise in searching

  For Example:

  a student's records would include fields for his
  Name
  Age
  Department
  Level
  Course
  Hall, etc.

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Command Language

It is a set of commands or instructions that a searcher uses to instruct the computer to perform certain operations.

For example the command

-**BASE** means instructing the computer for the database to be searched**.**

-**FIND** instructs the computer to input a search term.

-**DISPLAY** means displaying logical related terms**.**

-**DELETE** means terminating whatever operation is being performed.

TOPIC FOUR:

MERITS AND DEMERITS OF PRE- AND POST-COORDINATE INDEXING SYSTEMS

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Advantages of Post-Coordinate System Over Pre-Coordinate system

The post-coordinate system has a number of advantages over the pre-coordinate system.

- In the **post-coordinate system**:

  -Index terms could be combined in any way when the search is being done to produce the desired results.

  -The multi-dimensional relationship of the various terms is retained.

  -Every term given to a document carries equal weight.

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Advantages of Post-Coordinate System Over Pre-Coordinate system(Cont.)

In the **pre-coordinate system**:

- It is difficult to combine terms at the search stage

- Terms can only be listed in a particular sequence e.g. A,B,C,D, which implies that the first is more important than the others

- The multi-dimensional nature of the term relationship is difficult to show.

- To illustrate how both systems work, let's take the composite subject "Labour migration from Mozambique to the mines of South Africa".

Advantages of Post-Coordinate System Over Pre-Coordinate system(Cont.)

- The following concepts may be identified:

  Labour

  Migration

  Mines

  South Africa

  Mozambique

  Economic Relations

Advantages of Post-Coordinate System Over Pre-Coordinate system(Cont.)

The indexer will try to anticipate how the searcher will approach the system.

- In pre-coordinate the indexer will prescribe one word at a time which he believes the user is most likely to use to access the index.

- The term prescribed by the indexer may not provide the specific document or information the searcher wants.

- In a post-coordinate system, the searcher can combine a number of the terms at the search stage to produce the specific information or document that he wants.

Merits of Pre-Coordinate systems

Pre-coordination

- improves the provision of searching

- makes for indexes that are familiar to users, in that they present a more-or-less complete statement of the subject

- is traditionally used for user-conducted searchers in manual systems

- is available in well-tried, 'standard systems (particularly LCC, DDC, and LCSH in MARC records)

- in A-Z order makes one-stage 'dictionary' indexes, which can be used with little or no training

Merits of Pre-Coordinate systems(Cont.)

 -a classification system which is the only practical way to arrange the stock of open–access libraries

HOWEVER:

- a fixed citation order leads to complications in collocation and searching

- pre-coordinate indexes are only effective at summarization level, because large numbers of terms in a string become very difficult to handle

- indexing in controlled language systems is slow and costly

Merits of Post-Coordinate Systems

- **Post-coordination**

- permits indexing to any level of exhaustivity

- accommodates different kinds of searching patterns

- makes it easy to add or discard terms when searching

- is syntax-free (i.e., has no citation order) and so indexing is faster and, therefore, cheaper

- is the dominant method of computer-based searching

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Merits of Post-Coordinate Systems(Cont.)

HOWEVER:

- it cannot be used for shelf arrangement

- a limited range of syntactic relationships is shown, and false coordinations are difficult to avoid when searching

- the searcher has to input terms individually, and does not see a full statement of the subject

- indexing to higher levels of exhaustivity can lead to an excess of recall, with large numbers of marginally relevant items being retrieved

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Merits of Post-Coordinate Systems(Cont.

- formulating Boolean searches, and the protocols of computer searching, can be complicated, even in menu-driven systems

- command-driven online systems are user-unfriendly, and may require an intermediary.

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THANK YOU

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