UNIT 14  CHAIN INDEXING (DDC – 19th EDITION)

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14.0 OBJECTIVES
After reading this Unit, you will be able to:
- highlight the problems of deriving subject headings from a readymade list;
- discuss the advantages and problems of chain indexing;
- prepare class index entries for a classified catalogue;
- apply chain procedure to a dictionary catalogue;
- use chain procedure with the DDC; and
- discuss the advantages and limitations of chain indexing.

14.1 INTRODUCTION
Library cataloguing is broadly divided into two categories: Descriptive Cataloguing and Subject Cataloguing. Descriptive cataloguing or is now ISBD based for which rules for description of documents are provided by many international codes such as the AACR 2-1978+. Classified Catalogue Code (CCC) (5th ed. 1964) developed by S R Ranganathan is not based on ISBDs for descriptive cataloguing. Descriptive cataloguing which satisfies author, collaborators, title and series approach to library documents, provides full bibliographic description of the documents for their identification and choice. The second process of cataloguing is called Subject Cataloguing. It serves another major and important function of a catalogue i.e., to serve the subject approach to the documents and help to know what a library has on a given subject. It serves the unknown
item approach to library documents whereas the descriptive cataloguing helps to retrieve a document of which either author, title, collaborator or series is known. In a dictionary catalogue this approach is served by subject headings assigned to a given document either as key words derived from its title/summary or given from a separate tool such as a standard list of subject headings, or a subject thesaurus. Subject headings can also be derived by a procedure such as Precis (by Derek Austin) POPSI (by G. Bhattacharyya) Cyclic Indexes (such as by T. Craven) or by Ranganathan’s Chain Procedure. The process of formulating and assigning subject headings and preparation of subject added entries is known as subject cataloguing.

14.2 CLASSIFIED CATALOGUE

A classified catalogue has two parts; classified part and alphabetical part. The main part is the classified part in which all (main) entries are arranged by the call numbers of the system used. It means here the main arrangement of entries and subsequent access is by subject. Subject approach is mostly completed in two stages. Since the lay users are not familiar with the nuances of the classification scheme, so an alphabetical approach is essential to the main part. Hence, a classified catalogue is always bipartite. It has aptly been said that words are the ultimate key to information retrieval. For alphabetical subject approach to the main part, Ranganathan has formulated Class Index Entries which are termed as Subject Added Entries in a dictionary catalogue. Subject Headings for the Class Index Entries in the alphabetical part are derived by a procedure now known as Chain Indexing.

14.2.1 Problems of Subject Cataloguing

C.A. Cutter (1837-1903) first provided systematic guidelines for subject cataloguing in his famous work, *Rules for a Dictionary Catalog* (1876, 3rd ed. 1903). Apart from that, pioneers like Julius Otto Kaiser (1868-1927) also formulated basic but simple rules for subject indexing. To bring uniformity and consistency in subject cataloguing some readymade lists of standardised subject headings were prepared. The pioneer among them are ALA List of Subject Headings and the voluminous Library of Congress Subject Headings (LCSH) for big and research libraries and then came the Sears List of Subject Headings (SLSH) in 1923. The latter two lists are still popular.

But it has been observed that no authoritative and consensual rules have been formulated for subject cataloguing to overcome the problems it usually poses. Subject cataloguing, being a highly intellectual work, is a field full of uncertainties. J. Mills (1992, p.307) aptly writes “The failure of cataloguers to develop a consistent and coherent theory of alphabetical subject cataloguing is a notable feature in the history of cataloguing...”.

Here there are no concrete and unambiguous rules like the rules given in AACR 2. It is a work of flair at best. Indeed, it is a work of skill and intelligence. Many librarians find it difficult to design subject catalogue due to lack of expertise.

Ranganathan considered the subject headings in dictionary catalogues illogical and quite ineffective, and saw no justification in continuing the use of headings that way. The subject headings lists give us only choice among synonymous terms, and some current concepts are always missing, as if by default. But such lists do not present any uniform rule nor help in selecting more specific headings. No help is provided in eliminating the wrong headings. Identical materials may get entered under different headings and the users/cataloguers are led to different paths. Moreover, all such lists are heavily biased towards the country and culture of their origin. The indexers in other countries have to make many adaptations and additions to use them. Hence, there is a widespread dissatisfaction with the subject headings on account of numerous drawbacks.
In many cases the cataloguers will not be certain as to under which headings the user would approach. See and See also references make the catalogue bulky, thus increasing the cost of cataloguing, especially in manual catalogues.

### 14.3 ADVENT OF CHAIN INDEXING

In his *Theory of Library Catalogue* (1938) Ranganathan introduced Chain Procedure to derive subject headings for alphabetical part of a classified catalogue. From a hit or miss method, assignment of subject headings became a sure and almost mechanical method. It is an economic, cleverly simple, but ingenious method of mechanically deriving subject headings from the class number of the document itself. It completely eliminates the endless permutation of components of a heading in cyclic methods. Ranganathan claims in his (CC 5th ed, p. 30) that its advantages due to economy are being appreciated all over the world. British National Bibliography (BNB) and the Indian National Bibliography (INB) have been its major users.

#### 14.3.1 Mechanism of Chain Indexing

A hierarchical class number consists of linked digits which can be unravelled in a chain of verbal terms to show back each link. In this context a chain may be defined as a hierarchical string of terms obtained by retranslating the meaning of each digit of the class number into a natural language. It is the reverse process of reverting back to the verbal plane from the notational plane. In the unravelling of the chain we proceed from general to specific, i.e. in the PMEST order if using the CC. But the corresponding component terms get automatically arranged from specific to general to maintain the context. Each step in the unravelling of the chain is called a Link. So there are as many links in the chain as the number of digits in the class number. A digit is any distinct symbol, whether semantic or indicative of the facet or phrase. For example 500.2 Physical Science (DDC-19th edition) has five digits in all. The first digit makes the First Link. The first two digits make the Second Link. The Last Link is the closing link of the chain which emanates from the full class number. Apart from these two links a few more links in the chain have been identified and formally defined by Ranganathan in his CCC 5th 1964, Chap. KB, pp. 287-289. These are:

**False Link**

A link which emanates from a non-semantic digit that is an indicator digit. This is either a punctuation mark (in the CC) or the digit 0(zero) or a . (dot). Such a link does not represent a subject but is indicator of the type of facet to follow. Ranganathan also designates the Time Facet as a False Link as it may not correspond to some verbal heading (CCC-5th ed., Rule KB Number 5, p. 288).

In context of the DDC the statutory filler zeroes, to make the number of digits to a minimum of three digits, will also be considered False Links. The dot after the third digit and the initial zero in a standard subdivision are false links. For example, take the following chain for the Class Number 500.2

<table>
<thead>
<tr>
<th>Digit(s)</th>
<th>Link Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Natural Science</td>
</tr>
<tr>
<td>50</td>
<td>False Link</td>
</tr>
<tr>
<td>500</td>
<td>False Link</td>
</tr>
<tr>
<td>500.</td>
<td>False Link</td>
</tr>
<tr>
<td>500.2</td>
<td>Physical Science</td>
</tr>
</tbody>
</table>
But the two most important links of practical use are: Unsought and Sought Links.

**Unsought Link**

It is a substantive heading on which either there is no published material or a user is unlikely to ask or look for material on that subject in the library. But it is not anything absolute and may differ from library to library. It may depend upon the factors listed in the CCC itself (KB3, p. 288). To simply summarise, it varies on the local situation depending upon:

a) Library users’ interests and needs, and

b) Level and kind of services provided by the library.

Hence each library has to make a policy on what and how to define and designate Unsought Links.

**Tips for Students**

The sorting out of Sought or Unsought Links requires experience and knowledge of the subject. It needs flair, too. However, for students like you there is a simple mantra to decide the issue: put a question to yourself “Is any library user likely to ask material on this topic”. If the answer is yes, then treat it a Sought Link; if no, it might be an Unsought Heading. Some cases may be on the fence seemingly belonging to both sides. In such cases give the benefit of doubt and treat that as a Sought Link. Anyhow, this sort of judgement can only be learned with error and trial, which takes time.

**Sought Link**

It is a link which is neither false nor unsought. Some library user is most likely to ask some material on it. The first link is always a sought heading. The last link too is a sought heading if it does not end with a Time Facet. A link from the Time Facet is a False Link. Each Sought Heading generates one Class Index Entry. Thus, the number of class index entries depends upon the number of sought headings in the chain.

**Upper Link**

It could be any link other than the last link. It is relative like the broader/narrower terms. An upper link for one may be lower link for other. For example:

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>954</td>
<td>History of India</td>
</tr>
<tr>
<td>900</td>
<td>History</td>
</tr>
<tr>
<td>950</td>
<td>Asia, History</td>
</tr>
<tr>
<td>954</td>
<td>India, History</td>
</tr>
</tbody>
</table>

Here, 950 is the Lower Link for 900, while for 954 it is the Upper Link.

**Lower Link**

A link next to its upper link. In the above example 950 is the lower link of 900 while 954 is an upper link of 950. The last link has no lower link.

**Missing Link**

It is a bypassed link which occurs in an un-modulated chain. It is an invisible link without its rightful upper link.
14.3.2 Step by Step Method

Chain indexing was devised to prepare class index entries for a classified catalogue. According to Rules KSD (CCC, Ed 5, pp 327-334) subject heading for a dictionary catalogue can also be derived by Chain Indexing. According to Professor G. Bhattacharyya (1936-2006) a close associate of Ranganathan, there are eleven steps in deriving subject headings from a class number and subsequently preparing class index entries. But these eleven steps also include the steps for synthesising the class number from a Raw Title. Here, we will only learn to derive class index entries from a given class number. The chain indexing was designed for CCC (first published in 1934) and the classification used for this purpose was CC (first published in 1933). Later especially in 1950 it was found that chain indexing can also work with any hierarchical classification system. We will make use of DDC, 19th edition (1979) to illustrate the working of chain indexing.

Self-Check Exercise

Note: i) Write your answers in the space given below.
   ii) Check your answers with the answers given at the end of this Unit.

1) What is subject cataloguing?

2) Define a Sought Heading. How is a Sought Heading identified in the chain?

14.3.3 Working with the DDC

It is not easy to work out chain indexing with a system such as the DDC due to its many cognitive and structural defects. The DDC aims at only grouping of subjects rather than to individualise each document on the shelves as aspired by the CC. However, the DDC being largely a hierarchical scheme, is amenable to chain indexing with some modifications and concessions.

Core Steps

- Make the First Link from the first digit which is always a main class digit and provides the anchoring context to the latter headings.
- Make the second link from the first two digits, and the third from the first three digits and so on till the last digit of the whole class number.
- Write the links vertically one below the other in two columns. Class number digit(s) on the left and corresponding verbal heading as taken from the schedules on the right—latter preceded by an equal to sign.
- Always qualify the terms in the new link by the terms of the upper link to maintain the full context.
- Supply heading for the missing link, if any.
- Categorise all the headings into Sought Headings (SH) and Unsought Headings (USH)
Indexing – Sears List of Subject Heading

- Against any False Link write FL without writing the terms of the upper link.
- After solving all the links of the chain pick up all the Sought Links and arrange them in the specific to general order. It simply means start picking the sought links from the last sought link in the chain and move upward to the first link which is listed last in the sorted and arranged Sought Headings.
- Sought Headings may be edited by the indexer to make the terms bit tidy by removing the intervening terms which are no more needed to keep the headings in context. Ranganathan allows the use of an axiomatic phrase if it exists to replace the whole heading to make it brief and cryptic (Rule KD3, CCC-5, p. 300).

Examples

Let us learn the procedure with the help of examples given below.

Title History of India during the Mogul King Shah Jahan.

Class No. 954.0257

Chain:

954.0257 History of India during the Mogul King Shah Jahan
900 = General Geography and History, etc. (USH)
930/990 = History (SH)
950 = Asia, History (SH)
954 = India, Asia, History (SH)
954. = False Link
954.0 = False Link
954.02 = Asian Dynasties, India, History (SH)
954.025 = Mogul Empire, India, History (SH)
954.0257 = Shah Jahan, Mogul Empire, India, History (SH)

Now, the sought headings are sorted in the following order along with some editing of the headings.

Shah Jahan, India, History 954.0257
Mogul Empire, India, History 954.025
Muslim period, India, History 954.02
India, History 954
Asia, History 950
History 930/990

You may note the replacement of heading for 954.02, and also insertion of heading 930/990 for History which is a sort of missing link.

14.3.4 Preparation of Class Index Entries (CIEs)

It may be noted that a CIE is not a bibliographic entry but a reference. It does not refer
to any specific publication. It is about the reading materials or topics enshrined in various
documents in the library. It has three parts:

a) Heading: A sought heading derived from the class number. Ranganathan prescribes
it to be written in capital letters or in red ink.

b) Directing Elements: It reads:
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number.
   (In case of a library catalogue in book form the directional element being long may
be removed altogether (KF22 CCC-5, p. 306)). In case of periodical publications
this directional element is also not required. It is omitted except in case of in case
ordinary CIEs of a periodical publication.

c) Class number, call it Class Index Number
   For the above sorted Sought Headings the Class Index Entries are:
   SHAH JAHAN, INDIA, HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 954.0257
   MOGULS, INDIA, HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 954.025
   MUSLIM PERIOD, INDIA, HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 954.02
   ASIA, HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 950
   INDIA, HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 954
   HISTORY.
   For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 930/990
   Since the spellings of the term Mogul vary from book to book, it is essential to use
one spelling once for all and make cross reference entries from others in popular
use.
   Mughals see Moguls
Also in the above entry we have supplied the missing link of 930/990.

Take another example

Title  British Rule in India.

Class No.  954.03

Chain:

British Rule in India 954.03

\[
\begin{align*}
900 & = \text{Geography, History, etc.} \\
930/980 & = \text{History} \\
950 & = \text{Asia, History} \\
954 & = \text{India, History} \\
954. & = \text{False Link} \\
954.0 & = \text{False Link} \\
954.03 & = \text{British Rule, India, History}
\end{align*}
\]

The sorted Sought Headings are:

\[
\begin{align*}
\text{British Rule, India, History} & = 954.03 \\
\text{India, History} & = 954 \\
\text{Asia, History} & = 950 \\
\text{History} & = 930/990
\end{align*}
\]

It may be noted that CIEs on the last three headings have already been prepared, so there is absolutely no need to prepare them again.

A Class Index Entry for a given heading is prepared only once in the library. So the only CIE to be made now is:

BRITISH RULE, INDIA, HISTORY.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 954.03

An Example with a Standard Subdivision

Title  A History of Arya Samaj in 20th century.

Class No.  294.55630904

Chain:

A History of Arya Samaj in 20th century=294.55630904

\[
\begin{align*}
200 & = \text{Religion} \\
290 & = \text{others [than Christian religion]} \\
294 & = \text{Religions of Indic origin}
\end{align*}
\]
The sought headings sorted from the above chain are:

1) History, Arya Samaj
2) Arya Samaj
3) Reformation movement, Hinduism
4) Sects, Hinduism
5) Hinduism
6) Indic Religions
7) Religion

You may note that headings at serial number 3, 4 and 6 have been bit modified to replace them with popular or standard terms in literature, or edited them to make them tidy.

Followings CIEs will be made for this chain:

HISTORY, ARYA SAMAJ.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 294.556309

ARYA SAMAJ.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 294.5563

REFORMATION MOVEMENT, HINDUISM.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 294.556

SECTS, HINDUISM.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 294.55

HINDUISM.

For documents in the Class and its Subdivisions, see the Classified Part of the catalogue under the Class Number 294.5
INDIC RELIGIONS.

For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 294

RELIGIONS.

For documents in the Class and its Subdivisions, see the Classified Part of the
catalogue under the Class Number 200

Authority Record

If we make some modifications in headings as we did above then a formal subject
authority list will have to be maintained to record such decisions for uniformity in their
later use. Indeed, it will make the chain indexing less mechanical.

Self-Check Exercise

Note:  i) Write your answers in the space given below.

ii) Check your answers with the answers given at the end of this Unit.

3) Draw the chain and prepare CIEs for a book on “Women Workers in Agriculture
Sector” 331.48 3

14.3.5 Chain Indexing for a Dictionary Catalogue

A dictionary catalogue is unipartite and all the entries and references are arranged in
one single A/S order. Here apart from a few see and see also references all are
bibliographic entries which specify a document in the library. The subject headings are
also given to a specific book rather than to a class of subjects. After lot of experience
and wide discussion Ranganathan discovered that chain indexing could be applied with
certain modifications to derive subject headings for a dictionary catalogue (Rule KSD,
CCC-5, 1964). As back as 1953 Ranganathan was told by A J Wells and Eric J
Coates (both of the BNB) that those who use the dictionary catalogue would like to
have benefits of SHs derived mechanically and consistently from class numbers and
also retains the benefits of a list of subject headings. He found the chain indexing versatile
enough to produce SHs for a dictionary catalogue with some modifications in rules. He
produced an alternative set of rules for this purpose (Rule KSD 403-405, CCC-5, pp.
330-331).

Modified Rules

In case of SHs by chain procedure for a dictionary catalogue the chain is conceptually
divided into parts. The First Part (Main) is of the links before the common isolate or
standard subdivision digit.

Common Isolate Part

It is the part of the chain beginning with the common isolate digit till the next common
isolate digit, if any.
Subsequent Parts

In this way every common isolate including the geographical isolate is a part of its own. Each phase in a complex class is also regarded as a separate part of the chain.

Examples:

Title A Dictionary of Hinduism.
Class No. 294.503

Chain:

A Dictionary of Hinduism 294.503 by Richard K. Martin

1st Part

200 = Religion
290 = others [Non-Christian religions]
294 = Indic Religions
294. = (FL)
294.5 = Hinduism

2nd Part

294.503 = Hinduism, dictionaries

In the second part, it may be noted the heading for the common isolate has been used as a subdivision instead of a lead heading. Secondly the lengthy heading for the standard subdivision 03 Dictionaries and Encyclopedias has been shortened to Dictionaries only for brevity. The subject headings for the First Part will be as usual. The SHs for the Second Part along with the full entry will be:

HINDUISM—DICTIONARIES

Martin, Richard K.

A dictionary of Hinduism/ by Richard K. Martin. — New Delhi: Munshilal
Manohar Lal, 1979.—xvi, 207p.; 25cm. 294.503 MAR

Rule KSD 499 states that “There is to be a See also Subject Entry corresponding to each of the Sought links of the Chain, upper or lower to the Link contributing the Main Heading of the Specific Subject Entry’… (p. 332). This will require the following See also entries

Hinduism See also Hinduism—Dictionaries
Indic Religions See also Hinduism—Dictionaries
Religions See also Hinduism—Dictionaries

We can also have a see entry:

Dictionaries, Hinduism See HINDUISM—DICTIONARIES
### Take another example

**Title**  
Drug Addiction in India.

**Class No.**  
362.2930954

**Chain:**  
Drug Addiction in India 362.2930954

#### First Part

| 300   | = Social sciences  |
| 360   | = Social problems and services  |
| 362   | = Social welfare  |
| 362.  | = FL  |
| 362.2 | = Mental and emotional illness and destitute, social welfare  |
| 362.29 | = Addictions, Social welfare  |
| 362.293 | = Drug addiction, Social welfare  |

#### Second Part begins

| 362.29 309 | = FL  |
| 362.29 3095 | = Drug addiction, Asia  |
| 362.2930954 | = Drug addiction, India  |

Individualising elements may be added to make the context clear, if not already obvious.

The Sought headings are:

1) Drug addiction—India 362.2930954  
2) Drug addiction—Asia 362.293095  
3) Drug addiction, Social welfare 362.293  
4) Addictions, Social welfare 362.29  
5) Social welfare 362  
6) Social problems and services 360  
7) Social services 300

Here the specific subject entry to be given on the subject added entry is:  

**DRUG ADDICTION—INDIA**

Then there will be *see also* entries from each of the headings 2-7 to the heading 1:

Drug addiction—Asia *see also* Drug addiction—India  
Drug addiction, Social welfare *see also* Drug addiction—India  
Addictions, Social welfare *see also* Drug addiction—India  
Social welfare *see also* Drug addiction—India
Social problems and services see also Drug addiction—India

Social services see also Drug addiction—India

Take another example:

Title  Journal of Child Psychology.

Class No.  155.405

Chain:

Journal of Child Psychology 155.405

1st Part begins

100  =  Philosophy, etc.
150  =  Psychology
155  =  Differential and Genetic Psychology
155.  =  FL
155.4  =  Child Psychology

2nd Part begins

155.40  =  FL
155.405  =  Child Psychology, Journal

In the last link, we have translated 06 as Journals instead of Serial Publication as given in table. In index term “Journal” is more prevalent than the Serial Publication. The sorted sought heading according to dictionary rules are:

1)  Child Psychology—Journals  155.405
2)  Child Psychology  155.4
3)  Psychology  150
4)  Philosophy  100

The subject heading will be

CHILD PSYCHOLOGY—JOURNALS

See also entries

Child Psychology see also Child Psychology—Journals

Psychology see also Child Psychology—Journals

There is no need to prepare see also reference to philosophy, etc. as it is incidentally clubbed here, and it is not related to psychology.

Take another example for a dictionary catalogue:

Title  First aid in Heart Diseases.

Class No.  616.12 0252

Chain:
Indexing – Sears List of Subject Heading

First aid in Heart Diseases 616.12 0252

Part-1

600 = Technology (SH)
610 = Medicine (SH)
616 = Diseases, Medicine (SH)
616. = FL
616.1 = Diseases of cardiovascular system
616.12 = Heart diseases (SH)

Part-2 Begins

616.120 = FL
616.12 025 = Heart diseases, Medical emergencies (SH)
616.120252 = Heart diseases, First aid (SH)

The specific heading to be given on the book is:

HEART DISEASES — FIRST AID

See also Entries:
Heart diseases—Medical emergencies See also Heart diseases—First aid
Heart diseases See also Heart diseases—First aid
Diseases, Medicine See also Heart diseases—First aid
Medicine See also Heart diseases—First aid

Since we have used the term Medicine, not Medical Sciences, so we can make a see reference as follow:
Medical sciences see Medicine

Similarly we can make a see reference:
Applied sciences see Technology

Self-Check Exercise

Note:  i) Write your answers in the space given below.
      ii) Check your answers with the answers given at the end of this Unit.

4) Draw the chain and prepare the SHs and cross references for a dictionary catalogue for the titles
   a) Index to Catholic Epistles  227.9016
   b) India Journal of Sociology  301.05

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14.3.6 Advantages of Chain Indexing

During the 1950s and 1960s, Chain Indexing became very popular and was lauded as Ranganathan’s ingenious contribution to subject indexing. Its use was popularised in Great Britain by B I Palmer, A J Wells, Eric J Coates and D. W. Langridge. It was used by the BNB for about two decades till it was replaced in early 1970s by PRECIS designed by Derik Austin (1921-2001) to suit the computerised production of the BNB. Its advantages over other indexing systems prevalent then are as follows:

1) It serves as an alphabetical subject key to the main part of the classified catalogue.

2) No separate list of subject headings like the SLSH or the LCSH is required. Lists are costly publications and are too frequently revised to incorporate new subjects. The SHs are derived from the class number of the document already assigned by the classifier.

3) It mechanises to a large extent the choice and rendering of subject headings.

4) It is thus simple and speedy.

5) It helps in avoiding arbitrary decisions.

6) Its terminology being drawn from a classification schedule it ensures coordination and correspondence between the class number and the subject headings. This coordination is not possible by using a separate subject headings list.

7) It brings out symbiosis between classification and cataloguing hitherto considered two parallel techniques.

8) A single subject heading is rarely co-extensive with the subject of the book in case of the use of subject headings lists. Usually a large number of subject added entries are prepared for a single book.

9) It brings economy in the number of subject index entries especially in case of classified catalogue. As the library grows the need for preparation of new CIEs for new documents decreases. If two or more books share the same class number (as it usually happens) there is no need to prepare CIEs for the books other than the first.

10) Even a single class number, say having four semantic digits will require only four Class Index Entries ab initio, while a permuted subject index would require \((4 \times 3 \times 2 \times 1 = 24)\) headings. Huge saving is obvious. The percentage of saving goes on increasing as a class numbers grows in length.

11) It works as a subject index to the main entries and retrieves many numbers of books for a library user to make a choice.

12) If the classification schedule is available in electronic format then the chain indexing can be made bit more automatic.

13) It is also used to prepare indexes to classification schedules. It is believed that Ranganathan got the idea of chain indexing from the Dewey’s Relative Index. Melvil Dewey used this method without giving it any proper name. He did not delve deep into it to make it a mature and objective science.

14) It can be used to derive feature headings for classified catalogue and bibliographies, and also for shelf guides in stacks.
Limitations and Problems of Chain Indexing

1) It needs logical and hierarchical scheme of classification. Chain indexing cannot be better than the scheme on which it is based.

2) It may not be easy to work with a classification system like the DDC which only broadly groups documents on the shelves.

3) It works only well with rigorous systems like the CC which aspire to individualise every document on the shelves.

4) Any error in assigning a class number is more likely to be carried over into subject headings.

5) It is not mechanical as assumed. Human intervention and experience is needed for (1) selection of sought headings and (2) editing of SHs to remove unnecessary contexts.

6) It provides no guidance in discovering synonyms.

7) Ranganathan allows the replacement of derived headings by an axiomatic heading or proper name, if it exists (KD3, CCC-5, p. 300). It requires knowledge of the subject and the language.

8) Dividing line between sought and unsought headings is thin and hazy and requires lot of discretion. Further a unsought heading for one library may not be unsought for another. Moreover, today’s unsoughts may be become tomorrow’s sought headings and vice versa.

9) As the headings broaden the context goes on vanishing.

10) There is a problem of missing links to be provided by the indexer.

11) In case of classified catalogue there is no sufficient guidance for see and see also cross references.

12) It does not retrieve any specific document. Choice is a two stage process, as said earlier. Only the last link, if it is a sought one, refers to a specific subject of the document without naming it specifically by author and title.

13) It does not refer to collateral entries in the form of related subjects.

14) There are some unique problems to be sorted out while working with the DDC:

   Problem of dual headings, e.g.,

   597   Coldblooded Vertebrates   Pisces (Fishes)
   954   South Asia   India

   Which of the two headings is to be used for 597 or 954 for chain indexing? There are so many such cases in the DDC. (In the DDC 23, (2010) these dual headings have been removed.

   Problem of Alternative headings:

   In many cases there are alternative headings, e.g.,

   597   Pisces (Fish)
   381   Internal Commerce (Domestic trade)
   657.2   Recording (Book Keeping)
A library will have to choose one of the two alternatives once for all and make its subject authority record. And also prepare see references from the headings not used to the headings used. For example, if we prefer the term Domestic trade then make the following see reference: Internal Commerce see Domestic trade

Cantered headings have their own problems.

383–384 Specific kind of communications.

This is apart from the problem of the DDC being a broader grouping scheme, where the BNB had to use verbal extensions to make a number specific to or co-extensive with the subject of the book.

For a dictionary catalogue it provides only one specific heading derived from the full class number. A composite book dealing with multiplicity of topics may not get adequately indexed.

15) In a dictionary catalogue lot of see also references clutter the catalogue.

16) Chain indexing rules for a dictionary catalogue as given in the 5th ed (1964) of the CCC are tentative, if not rudimentary. Ranganathan urged for further research, but no further work has been done on this area for the last fifty years. Hence the chain indexing is old and dated in the era of OPACs.

14.4 SUMMARY

In 1938 S R Ranganathan (1892-1972) invented chain procedure (now called Chain Indexing) to derive subject headings from a class number for Class Index Entries of a classified catalogue. This more or less mechanical method is not at the mercy of hit or miss chance in assigning SHs from a readymade list like the Sears List. It also generates a SH co-extensive with the specific subject of the document under cataloguing. It has been lauded as Ranganathan’s innovative and scientific contribution to subject indexing. The BNB, BCM and the INB had been its major users in 1950s and 1960s. Their feedback has contributed to its refinement to tackle the problems in applying it to a less systematic scheme like the DDC. It also motivated Ranganathan to formulate some additional rules of chain indexing for deriving subject headings and cross references for use in a dictionary catalogue. The last version of the chain indexing is available in the 5th edition (1964) of his CCC. The procedure consists in unwinding the chain one by one digit in the class number. Each step translates into one link. Verbal heading of each link has to be categorised into sought/unsought heading or a false link. Each indicator digit and the time facet correspond to a false link which is always ignored. Prepare class index entries for each of the sought link starting from narrower to broader heading. A class index entry for classified catalogue consists of three parts: (1) The SH, (2) Directional element, and (3) The Class Index Number (i.e., The corresponding class number). To count its advantages, it is mechanical, and the job of classification and subject heading assignments can be performed by the same person. It has brought out hitherto unknown symbiosis between classification and cataloguing. There is a lot of saving in making of number of class index entries, as the components are not permuted to make them access points. Further an entry once prepared is not prepared again for new documents acquired and catalogued in the library. To its limitations, it is not as mechanical as it is projected to be. Human intervention and judgment is very much required. Being classification dependent it is as good as the classification scheme as well as the classifier. Further a CIE instead of retrieving the surrogate of the document refers the users to the classified part. It means the CIEs in not providing any bibliographic
description, are mere references. Being a two stage process the users run from pillar to post, to say so. Ranganathan also formulated some additional rules for a dictionary catalogue which are rudimentary still. These are not fully grown or applied widely for feedback. In the OPACs era the classified catalogues are on the wanes which were the main stay of the Chain Indexing.

14.5 ANSWERS TO SELF CHECK EXERCISES

1) Subject cataloguing as contrasted from descriptive cataloguing is the process of providing subject access to documents in the library. It serves another major and important function of a catalogue to serve the subject approach to the documents and help to know what a library has on a given subject. It serves the unknown item approach to library documents where as the descriptive cataloguing helps to identify and retrieve a document of which either author, title, collaborator or series is known. In a dictionary catalogue subject approach is served by subject headings assigned to a given document either as key words derived from the title/summary or given from a separate tool such as a standard list of subject headings, or a subject thesaurus. Subject headings can also be derived by a procedure such as PRECIS or COMPASS or Ranganathan’s Chain Procedure. The process of formulating and assigning of subject headings. Preparation of subject added entries is known as subject cataloguing.

2) Sought Heading: A Heading on which some library user is most likely to ask some material on it. It comes from a link which is neither false nor unsought. The first link is always a sought heading. The last link too is a sought heading if it does not end with a time facet. Each sought heading generates one class index entry. Thus the number of class index entries depends upon the number of sought headings in the chain. If you think a case is on the fence seemingly belonging to both sides then give the benefit of doubt and treat that a sought link. Anyhow, this sort of judgement can only be learned with error and trial, which takes time.

3) Women Labour in Agriculture Sector 331.483

300 = Social Sciences (SH)  
330 = Economics (SH)  
331 = Labour, Economics (SH)  
331. = False Link  
331.4 = Women Workers in Specific Industries, Labour Economics (USH)  
331.483 = Agriculture, Women Workers, Labour Economics. (SH)

The Sought Headings according to the CCC are:

Agriculture, Women Workers, Labour, Economics

Women Worker, Labour, Economics

Labour Economics

Economics

Social Sciences
The CIE for the first (specific) heading is

AGRICULTURE, WOMEN WORKERS, LABOUR, ECONOMICS

For documents in the Class and its Subdivisions see the Classified Part of the catalogue under the Class Number 331.483.

Similarly CIEs for rest of the SHs can be prepared, if needed.

4a) Index of Catholic Epistles 227.9016

First Part

200 = Religion
220 = Bible
[225] = New Testament, Bible
227 = Epistles, New Testament, Bible
227. = FL
227.9 = Catholic Epistles, New Testament, Bible

2nd Part

227.90 = FL
227.9016 = Indexes, Catholic Epistles, New Testament, Bible

Following is the SH for a Dictionary Catalogue:

Catholic Epistles, New Testament, Bible—Indexes

This heading will appear on the Subject Added entries. See also entries are:

Catholic Epistles, New Testament, Bible see also Catholic Epistles, New Testament, Bible—Indexes

Epistles, New Testament, Bible see also Catholic Epistles, New Testament, Bible—Indexes

New Testament, Bible see also Catholic Epistles, New Testament, Bible—Indexes

Bible see also Catholic Epistles, New Testament, Bible—Indexes

Religion see also Catholic Epistles, New Testament, Bible—Indexes

4b) Indian Journal of Sociology 301.05

300 = Social sciences
301 = Sociology
301. = FL
301.05 = Serial Publications, Sociology

The specific and modified heading according to Dictionary Catalogue is

Sociology—Journals
This heading will appear on the subject added entry.

Followings are the see also entries

Sociology see also Sociology—Journals
Social Sciences see also Sociology—Journals

We can also have a see reference:

Serial Publications, Sociology see Sociology—Journals

### 14.6 KEY WORDS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Chain</td>
<td>A modulated and pre-coordinated sequence of terms in general to specific order. In a chain the terms are arranged in successively subordinated order. In other words it is a hierarchy of terms.</td>
</tr>
<tr>
<td>Chain Indexing</td>
<td>Earlier called chain procedure it is a comprehensive technique “to derive class index entries in a classified catalogue and specific subject entries, subject analytical, see also subject entries in a dictionary catalogue”.</td>
</tr>
<tr>
<td>Class Index Entry</td>
<td>A term used in Ranganathan’s Classified Catalogue Code which are subject entries in the alphabetical part and which refer the users to the main (classified part) part of the catalogue. It is a reference to a class of entries in the main classified (main) part, not a bibliographic description of any specific document in the library.</td>
</tr>
<tr>
<td>Class Number</td>
<td>Systematic set of notation denoting the subject of the document in symbols.</td>
</tr>
<tr>
<td>Classified Catalogue</td>
<td>A catalogue in which main entries are arranged by class numbers. Its main part is supplemented by a separate part providing access by authors, collaborators, series and subjects. Thus it is a bipartite catalogue.</td>
</tr>
<tr>
<td>Descriptive Catalogue</td>
<td>Part of a catalogue entry which deals with the bibliographic description of the document as contrasted from the subject cataloguing which</td>
</tr>
</tbody>
</table>
deals with providing subject access to the documents catalogued.

**Dictionary Catalogue**: A catalogue in which the main and added entries and references are arranged in one single alphabetical sequence. Also called A/S catalogue, it is uni-partite in structure.

**Digit**: Any distinct symbol including punctuation marks in a class number.

**ISBDs**: Formulated by IFLA, these are internationally agreed set of bibliographic elements and their sequence in describing a document. Though independent of a cataloguing code, AACR 2 is based on ISBDs. There are different ISBDs for different types of documents such as monographs, serials, cartographic materials, films, microforms, music, etc, but all are in consonance with the ISBD (G).

**Raw Title**: The title of the book given by the publishers and as it appears on the book. For classification purpose a raw title may usually be augmented to make it more expressive of the content of the book. In a catalogue entry it is the raw title that is given.

**See also Reference**: A reference referring the users to the additional related material on the subject or to a variant name of an entry.

**See Reference**: A cross reference directing the user from a heading not used to the heading used.

**Subject Cataloguing**: Contrasted from descriptive catalogue, it is the process of equipping a catalogue to provide complete and effective subject access to the documents.

**Subject Heading**: A keyword or a phrase to concisely denote the subject of the document. Also known as subject tag or subject descriptor.

### 14.7 REFERENCES AND FURTHER READING


