LIBRARY CLASSIFICATION THEORY

B.L.I.Sc., Semester – I, Paper-II

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FOREWORD

Since its establishment in 1976, Acharya Nagarjuna University has been forging ahead in the path of progress and dynamism, offering a variety of courses and research contributions. I am extremely happy that by gaining 'A' grade from the NAAC in the year 2016, Acharya Nagarjuna University is offering educational opportunities at the UG, PG levels apart from research degrees to students from over 443 affiliated colleges spread over the two districts of Guntur and Prakasam.

The University has also started the Centre for Distance Education in 2003-04 with the aim of taking higher education to the door step of all the sectors of the society. The centre will be a great help to those who cannot join in colleges, those who cannot afford the exorbitant fees as regular students, and even to housewives desirous of pursuing higher studies. Acharya Nagarjuna University has started offering B.A., and B.Com courses at the Degree level and M.A., M.Com., M.Sc., M.B.A., and L.L.M., courses at the PG level from the academic year 2003-2004 onwards.

To facilitate easier understanding by students studying through the distance mode, these self-instruction materials have been prepared by eminent and experienced teachers. The lessons have been drafted with great care and expertise in the stipulated time by these teachers. Constructive ideas and scholarly suggestions are welcome from students and teachers involved respectively. Such ideas will be incorporated for the greater efficacy of this distance mode of education. For clarification of doubts and feedback, weekly classes and contact classes will be arranged at the UG and PG levels respectively.

It is my aim that students getting higher education through the Centre for Distance Education should improve their qualification, have better employment opportunities and in turn be part of country's progress. It is my fond desire that in the years to come, the Centre for Distance Education will go from strength to strength in the form of new courses and by catering to larger number of people. My congratulations to all the Directors, Academic Coordinators, Editors and Lesson-writers of the Centre who have helped in these endeavours.

Prof. P. Raja Sekhar
Vice-Chancellor (FAC)
Acharya Nagarjuna University

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B.L.I.Sc., Semester – I, Paper-II

Syllabus

Course Objectives (COs):

1. To impart to the student an understanding of the principles and nature of knowledge classification.
2. To develop skills in document classification.
3. To acquaint the student with well-known classification systems\schemes such as DDC and CC.

Course Outcomes (COs):

1. It gives comprehensive ides on the Universe of knowledge and its attributes: need purpose and general theory of classification
2. It gives the idea of Modes of formation of subject's and its basic principles Species of Classification schemes
3. It covers the Overview on Standard schemes of classification. i.e. DDC, UDC and CC
4. It gives biographical history DR. SR Ranganathan-CC-structure and five fundamental categories
5. Students will understand the importance of DD and its structure Standard Subdivisions and Subdivisions of Individual Languages

Unit-I

Theory of Classification: Growth and Structure of Knowledge – Need and Purpose of Library Classification – General Theory of Library Classification – Species and Schemes of General Classification

Unit-II

Postulation Approach: Fundamental Categories: Basic facet, Isolate, Rounds & Levels – Principles of Facet Sequence and Helpful Sequence –Relations – Common Isolates – Canons of Classification

Unit-III

Notational Development: Notation-Need, Types and Functions – Mnemonics and Devices – Call Number, Book Number and Collection Number

Unit-IV

Schemes of Library Classification: Dewey decimal classification – Universal Decimal Classification– Colon Classification – Trends & Developments in Library Classification

Text books:

1. Melvil Dewey: Dewey Decimal Classification, 20th ed., New York.
2. S.R. Ranganathan: Elements of Library Classification, 3rd ed., Bombay, Asia.
3. S.R. Ranganathan: Prolegomena to Library Classification, 3rd ed., Bombay.
4. C.D. Needham: Organizing knowledge in Libraries: An introduction to classification and cataloguing, 2nd ed., London, Andre Deulah, 1971.
5. A.N. Raju: Grandhalaya Vargikarana Siddhantam', Hyderabad, Telugu.
6. Neelameghan, Ed.: Global System for ordering information system, 1978.
7. J.S. Comorami and Satizamp: Dewey Decimal Classification – History and current status, New Delhi, Sterling, 1989.
8. Krishan Kumar: Theory of classification, 4th new ed., New Delhi,Vikas, 1989.

LIBRARY CLASSIFICATION THEORY

CONTENTS

LESSON - 1
GROWTH AND STRUCTURE OF KNOWLEDGE

AIM AND OBJECTIVES

Library plays an important role in the society by acquiring, organizing, preserving and disseminating the documents. The documents contain knowledge generated by the humankind for the development of the society. The libraries follow different methods to arrange these documents of knowledge in a helpful order. Library classification is one of the methods followed to map the universe of knowledge contained in the documents. Different classification schemes are designed taking intoconsideration the structure of knowledge and formation of subjects.

After studying this unit you can understand

- the characteristics and structure of knowledge
- the modes of formation of subjects

Structure:

1.1 INTRODUCTION

Human mind is constantly in the desire for new ideas, theories and philosophies. Consequentlythe knowledge is being generated perpetually. The utility of this knowledge is known only when it is used by the society, beyond time and space. Man invented writing and starts recording the knowledge to communicate. This recorded knowledge manifested in

various forms starting from stone carvings, papyrus rolls, books to present day CD ROMs in digital form. The term 'Document' can be used toinclude all these forms. Libraries have been acquiring these documents and arranging them in some systematic order to facilitate speedy transmission of knowledge to the society. Various methods andtechnique have been followed and adopted to arrange the documents. The documents are generallysought by their subject content. The value of the document and its relationship with others can be easily identified by knowing knowledge contained in it. The documents are related to one another only by their thought content not by any other physical feature of the document.

1.2 KNOWLEDGE

Knowledge is what one knows by his sensory experiences such as hearing, seeing, smelling, touching, tasting or thinking. If anyone says that he knows a certain thing, he is aware of what it wouldbe. It may be an idea, a thing, a place or an event.

Knowledge, information, thought, and idea are often being used as synonymous terms.

1.2.1 Definition

Chambers 21st century dictionary (2001) defined knowledge as follows:

- The fact of knowing
- What one knows i.e. the information one has acquired through learning or experience.

According to Oxford Advanced Learners Dictionary (2000) knowledge means 'the state of knowingabout a particular fact or situation; the information understanding and skills that you gain through education or experience.'

In the words of S.R.Ranganathan 'knowledge is the totalities of the ideas conserved. An idea is the product of thinking, reflecting, imaging etc., got by the intellect of integrating with the aid of logic and / or apprehended by the intuition and deposited in the memory.'

The New Hamlyn Encyclopaedic Dictionary (1988) defines "knowledge is an organized body of information, or the comprehension and understanding, consequent on having acquired and organizeda body of facts." According to this dictionary Information is "knowledge communicated or received concerning some fact or circumstance".

In simple pragmatic terms the 'knowledge' is what I know and information is what we know. So knowledge is a fact. If these facts or ideas are recorded on some medium to communicate to othersbeyond space and time, it becomes 'information'.

1.2.2 Characteristics of knowledge:

The Universe of knowledge i.e. universe of subjects has the following characteristics.

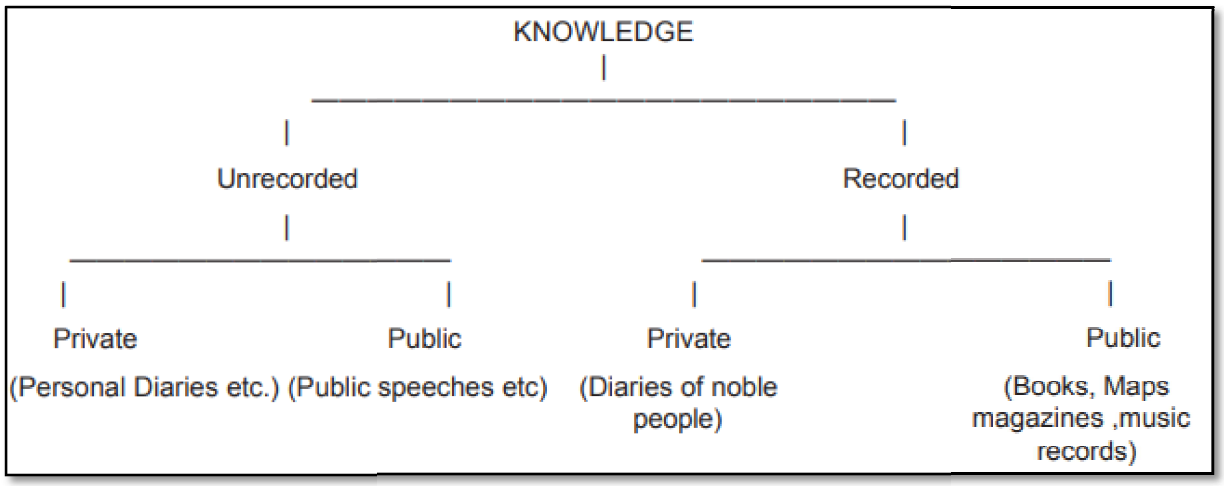
- Dynamic continuum: knowledge is not static. It is ever changing. New knowledge emerges outof continuous reaction with other existing knowledge
- Infinite: Knowledge is endless. In the knowledge structure between any two points, an indefinite number of new points may com up.
- Multi-dimensional: The inter-connections of ideas spread out in many directions. Knowledge is multi-dimensional. It may be the outcome of single trait of sensory

experience such as hearingor seeing. It may be the outcome of the interaction of all traits of sensory experience.

1.2.3 Types of knowledge

Knowledge can be broadly categorized into two types namely 'private knowledge' and 'public knowledge. The knowledge that a person acquires and do not want to share with others is called private knowledge. Personal diaries, personal experiences about an event or God etc. are consideredas private knowledge.

The knowledge which was written, spoken in public or in print form meant for circulation to beshared by others is called public knowledge. Private knowledge is subjective and public knowledge is objective. The knowledge can be recorded in different forms such as pamphlets, broachers, magazines,books, gramophone records, microfilms, maps, CD ROMs etc. So the knowledge can also be categorized as recorded knowledge and unrecorded knowledge. Private and public knowledge exist in both recorded and unrecorded form. The libraries mainly stores public recorded knowledge. Sometimes private recorded knowledge such as diaries of noble persons (Diaries of Mahatma Gandhi, Jawahar Lal Nehru, C.V. Raman etc) also available in libraries.



1.2.4 Knowledge and Libraries

The libraries are mainly concerned with public recorded knowledge. Libraries acquire the recorded public knowledge available in different forms for use and preservation for the posterity. Libraries perform classification and cataloguing, in order to arrange the acquired documents in a helpful orderand to disseminate the knowledge contained in the documents.

The person who classifies the documents is called 'Classifier' and the person who design the scheme of classification, for book classification is called 'Classificationist'. The job of the classifier in the library is to classify documents containing different subjects. The classificationist designs a scheme for classification mapping the whole universe of subjects. Therefore the classifier and classificationist should have an idea about the structure and formation of subjects.

All the classification schemes adopt symbolic representation called notation to denote the knowledge contained in the document. This notation helps in mechanical and meaningful arrangement of books on the shelves. Some classification schemes were designed to accommodate the existingsubjects and the subjects anticipated in future. These schemes are called enumerative schemes which need to be revised frequently to include the emerging subjects. There are some schemes of classification which advocates the analysis of the content of the document into facets or isolates and then synthesize class numbers using the notational symbols adopted by the scheme. These schemes are called analytico-synthetic classification schemes.

In the following sections the growth of recorded knowledge and formation subjects is discussedin detail.

1.3 GROWTH OF KNOWLEDGE

1.3.1 Universe of subjects:

As you have learned in the earlier sections of this unit, knowledge is dynamic continuum and multidimensional. The man's quest for better living goes on creating knowledge indefinitely. The interdisciplinary and group research produces knowledge in multidimensional form. The knowledge accumulated in a particular area is called subject. The whole universe of knowledge can be grouped into different subjects such as Social sciences, Sciences, Philosophy, Religion, Language, Literature, History etc. Since the knowledge is dynamic in nature we can speak of universe of knowledge only inthe context of time.

1.3.2 Formation of Subjects

An idea is the product of thinking, imagining etc., got by the intellect with the help of logic. Knowledge is the totalities of the ideas conserved. A subject is an organized body of knowledge. So the universe of ideas constitutes universe of knowledge. This universe of knowledge is otherwise called universe of subjects. As we have discussed earlier, the knowledge is multi-dimensional, infinite and dynamic continuum. These characters of the knowledge implies that a subject is a synthesis of interconnected, many directional ideas. Many philosophers and library scientists have methodicallystudied the relationship of ideas and modes of formation of subjects.

Dr S.R.Ranganathan and his followers have analyzed the subjects and their inter-relationships systematically. On analysis of subjects, they have identified the following modes of formation of subjects:

1. Loose assemblage
2. Lamination
3. Fission
   - Dissection
   -Denudation
4. Fusion
5. Distillation

6. Agglomeration
7. Cluster

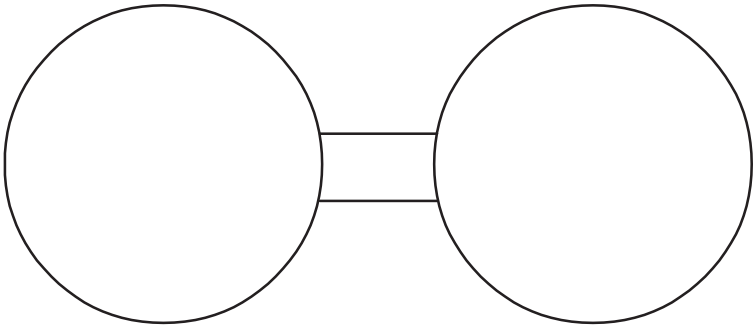
1. Loose Assemblage: Loose assemblage is the assembling together of two or more of subjects or isolate ideas. The subjects formed by this method are called complex subjects. In this mode of formation, the subjects or isolate ideas are mutually related. Six types of such relationships are identified among the components, they are:

a) General Relation b) Difference

c) Bios d) Influencing

e) Comparison f) Tool

The loose assemblage can be represented diagrammatically as follows:



Examples:

Subject	**Relation**
Mathematics and Physics	General
Mathematics for Doctors	Bios
Comparative study of Hinduism and Buddhism	Comparison
Difference between library and sociology	Difference
Role of religion in politics	Influencing
Application of computers in libraries	Tool

Three kinds of loose assemblages are identified basing on the levels of relation among the components assembled to form complex subject.

Loose Assemblage (kind-1): In this kind two or more basic subjects (simple or compound) are related in any of the six types of relationships stated above. This is identified as inter-subject orintra subject phase relation.

Loose Assemblage (kind-2) : In this mode of formation of subjects, two or more isolateideas of the same schedule are assembled to form new subjects. The relationship of the isolate ideas are any one of the six types of relations already stated.

Loose Assemblage (kind-3): Here the complex subjects are formed by the assembly oftwo or more isolates of the same array (except the array of the first order) in any one of the six typesof relations stated above.

Examples of subjects formed in three kinds of loose assemblage.

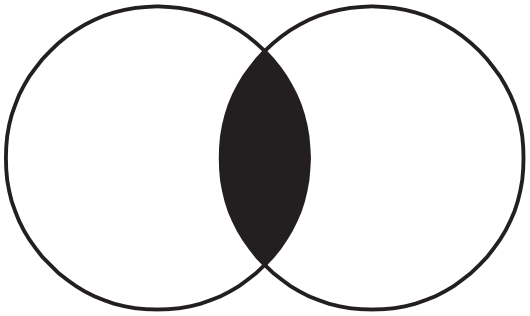
Relationship	Loose Assemblage-1 Intra-subject relation	Loose Assemblage-2 Intra-facet relation	Loose Assemblage-3 Intra-array relation
General	Introduction to Botanyand Zoology	Introduction to Hinduism& Buddhism	Study of inductive and deductive logic
Bias	Psychology for Managers	Cataloguing in Special libraries	Consumer survey for marketing
Comparison	Comparative study of geography and history	Comparative study of Jainism & Buddhism	Study of rural and urban areas.
Difference	Botany and Agriculture	Difference between chemotherapy and radiotherapy	Difference between export and import duty
Influence	Role of religion inpolitics	Influence of cataloguing on reference services	Influence of classification on cataloguing
Tool	Computers in Libraries		

2. Lamination: Lamination is construction by overlaying facet on facet just like we make sandwich by laying vegetable layer over a slice of bread. The basic layer is a basic subject and theother layers are isolate ideas. The subjects formed in this mode are called compound subjects.

According to S.R.Ranganathan following kinds of lamination are identified in formation of subjects: **Lamination (kind-1):** In this type one or more isolate ideas are combined with a basic subject.Ex: Administration of college libraries

In this example library science is the basic subject and college libraries and administration are isolate ideas.

The diagrammatic representation of Lamination



Lamination (kind-2): In this type two or more species of the basic subjects going with thesame primary basic subject are laminated over one another giving rise to compound subject

.

Ex: Quantum theory of mechanics.

(BS) (BS)

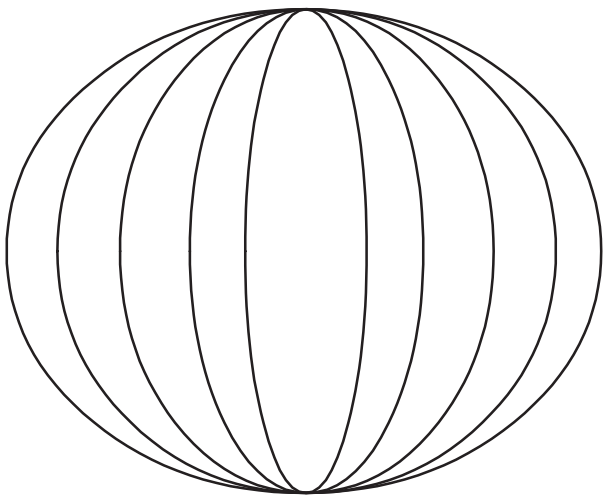
Two or more isolates from the same schedule are laminated to form compound isolateEx: Rural working class.

3. Fission: In this mode, subjects are formed by splitting or cutting into parts, just as a pieceof bread is cut into slices. When these parts are ranked i.e. placed in hierarchy, they form an array. Each part is called lamina. Two kinds of fission are identified by means of which basic and compound subjects are formed. They are:

a) Dissection: In this kind of fission the universe of entities was cut into parts of co-ordinatestatus,that means each lamina formed by dissection stands independent of another. It is one of themethods of formation of basic subjects and isolates.

Ex: Asia, Europe, Africa.

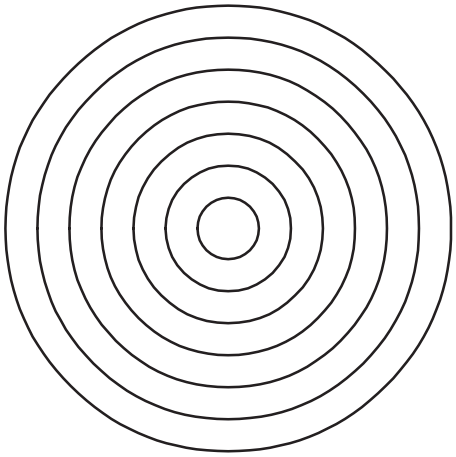
Diagrammatic representation of Dissection Looks as follows



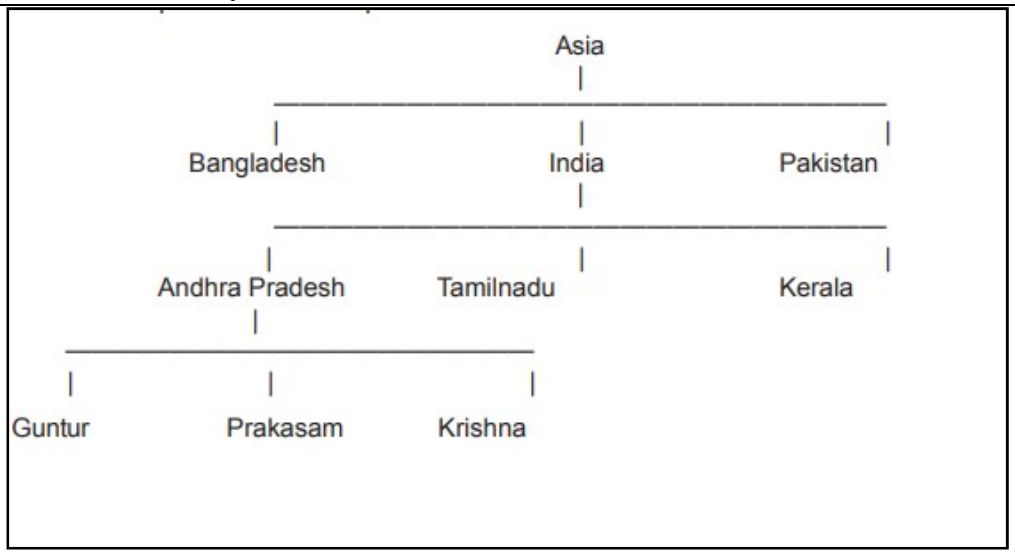
b) Denudation: In this mode subjects are formed as gradual subdivisions of a larger subject. So denudation is the progressive decrease of extension and increase of intension. In the words of Dr.Shera, Denudation is "the exposure of a new area of knowledge by erosion or divestment through research or enquiry". The denuded subjects when ranked or placed in a hierarchy form a chain. In anenumerative classification the term denudation applies not only to basic subjects but also to compoundand complex subjects.

Ex : Mathematics
Algebra, Trigonometry, Calculus,
Geometry etc.,Asia, India, Andhra Pradesh
Philosophy, Logic, Inductive logic

Diagrammatic representation of Denudation Looks as follows



Dualism: The subjects formed by fision displays dualism. Let us consider the following schematic representation to explain this feature.



When viewed in the context of chain, the isolate idea GUNTUR is the result of successive denudation of the isolate idea Asia. But when viewed in the context of its array, the isolate idea GUNTUR is one of the isolate ideas got by the dissection of Andhra Pradesh.

4. Fusion: Fusion is a process or result of joining two or more things together to form one. Inthis process the two things that are joined together loose their identities to form a new thing with newproperties. In this mode two or more primary basic subjects are merged in such a way that each loses itsidentity and form a new primary basic subject.

Ex: Bio-Engineering (this primary basic subject is formed by fusion of biology and engineering).Bio-chemistry (This is formed by fission of biology and chemistry)

5. Distillation: We all use the term distilled water to denote pure water, which is obtained byheating, until it becomes gas, then cooling it and collecting the drops that form distilled water. Likewise in this mode a pure discipline is formed as main subject out of its appearance-in-action in diverse subjects. Lot of literature has been published recently in this type of distilled main subjects.This type of subjects can be applied to any subject.

Ex: Research
Methodology
Management
science

6. Agglomeration: In this mode several main subjects are comprehended integrally to form broad subject areas which are studied as subjects. S.R.Ranganathan used the term 'Partialcomprehension' for this mode of formation of subjects.

Ex : Natural sciences
Physical
sciences
Social
sciences

7. Cluster : Cluster means group of identical things. In this mode a new subject is

formed as a result of different subjects brought together out of exigency without any substantial integration. For convenience in organizing research, the preliminary results and the data which are obtained in different subjects in the study of some phenomenon or entity are published in one and the same book disjunctivelyfor further investigation, this results into the formation of a new subject bundle or cluster.

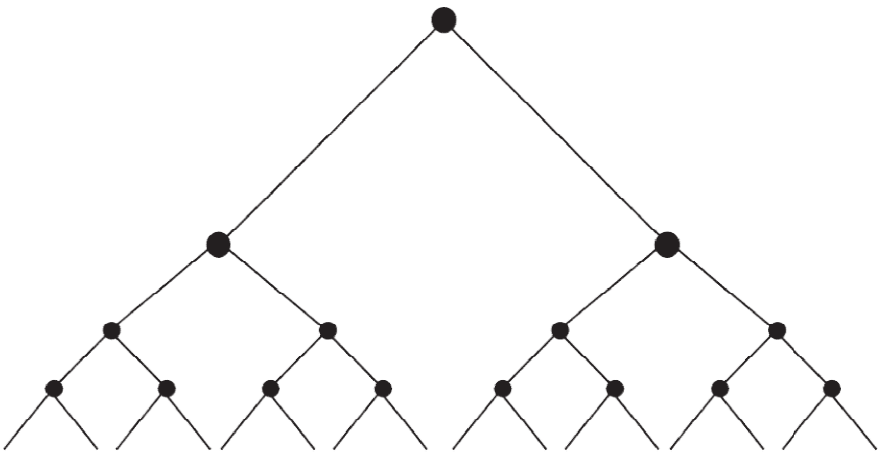
Ex : 1. Space Science (Here space is the entity that forms the focus of the cluster)
2. Gandhiana (Here all studies about Gandhi are Clustered)
3. Indology (Here all the literature that generated about India)
4. Ocean Science (Here ocean is the focus of the cluster).

1.4 STRUCTURE OF SUBJECTS

Library classification refers both to the organization of the field of knowledge and to the art of arranging documents in conformity with such a scheme. In other words Library classification means both the creation of a classification scheme and its application. The structure of the subject dependsupon its mode of formation. In the following sections brief descriptions of some kinds of subject structures that are identified for the purpose of classification are given.

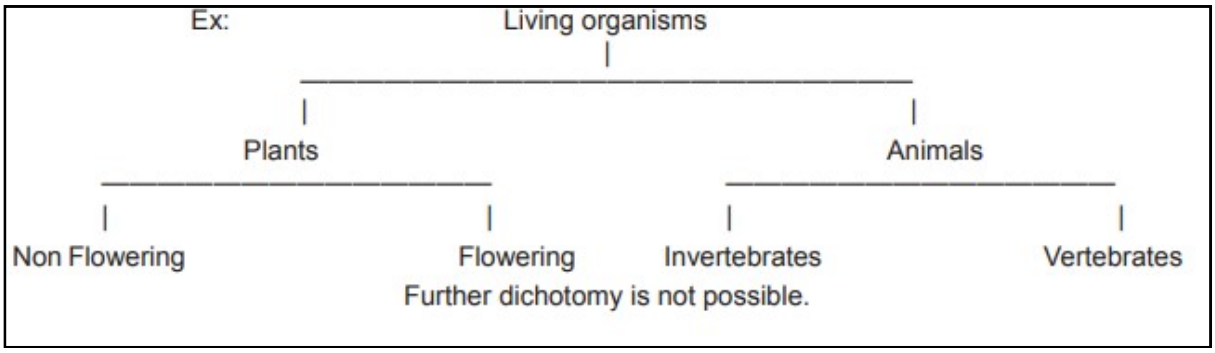
1.4.1 Dichotomy :

"Dichotomy" refers to division into two. This is also called a 'Binary classification'. In Dichotomy two divisions are formed in the first stage. Two diversions of each of these divisions are formed in the second stage. In this manner the process of divisions may be continued, with a certain characteristic as the basis for division at each stage. The division at each stage is restricted to two only. The schematic representation of dichotomy is called the "Tree of Porphyry".



The early man might have found dichotomy sufficient for the purpose of organizing universe ofsubjects, but soon it was found in sufficient to apply for the entire knowledge, which is ever growing. In 18th century Immanual Kant attempted a dichotomous picture of the entire universe of subjects, but realized that it is not possible to restrict the division into two at each stage. Following is an exampledichotomy.

Ex:



1.4.2. Decachotomy :

Deca means ten. Chotomy means division. Decachotomy refers to division into ten. It was Melvil Dewey who for the first time divided the whole universe of subjects into nine main classes andtenth class was formed to accommodate general documents not belonging to any of the nine main classes. This process of division into ten at each stage is continued till as many sub-sections requiredhave been obtained in any topic.

Following illustration explains clearly the process of decachotomy followed in DDC.

Generalia	Sciences	Botanical Sciences
Philosophy	Mathematics	Botany
Religion	Astronomy	Spermatophyta
Social Science	Physics	Dicotyledons
Languages	Chemistry	Monocotyledons
Sciences	Earth sciences	Gymnosperms
Technology	Paleontology	Cryptogamia
The Arts	Life Sciences	Pteridophyta
Literature	Botanical Sciences	Bryophyta
Geography & History	Zoological sciences	Thallophyta

There is a criticism that it is unrealistic to bind the universe of subjects to a decachotomy, because of its multidimensional, infinite, dynamic continuous nature. However, Dewey decimal classification which followed decachotomy, has been following by most of the libraries throughout theworld.

1.4.3 Polychotomy :

Poly means many and chotomy means division as you already know. Polychotomy refers to adivision into many. You have already seen that the universe of knowledge is ever growing and multidimensional, giving raise to new subjects continually. So the division of every subject into nineparts is arbitrary in nature, though it is satisfactory in practice. Hence some classificationists divided the universe of subjects into as many divisions as required to accommodate the existing and anticipatedsubjects.

In 1893 Charles Amme Cutter introduced polychotomy in his Expansive classification. He made 24 divisions at each stage. Within 50 years, the rate of growth of the subjects found 24 divisions to be too restrictive to accommodate the whole universe of subjects.

1.4.4 Proliferation :

According to Ranganathan "Various are the ways in which the Universe of Subjects going with abasic subject can get proliferated". Factors responsible for this proliferation are :

a) A complex subject may be formed by attaching are basic subject to other basic subject as afacet.
b) A compound subject may be formed by attaching one or more isolate ideas to the basic subjects.
c) Various combinations of isolate ideas leads to proliferation of isolate ideas and subjects.

From the above discussion you have understood that the number of divisions to be incorporatedat a given stage of division should not be predetermined.

1.5 SUMMARY

The classification of documents is an important activity in any library. The documents contain knowledge or information. The terms 'knowledge', and 'information' are used synonymously. Knowledge is what one knows by his sensory experiences such as hearing, seeing, smelling, touching, tasting or thinking. In simple pragmatic terms the 'knowledge' is what I know and information is what we know. The knowledge can be classified as public and private knowledge. This public and private knowledge appear in recorded and unrecorded form. The libraries are mainly concerned with recorded public knowledge. The knowledge is dynamic, infinite and manifesting into multidimensional subjects.

Knowing the structure and formation of subjects is considered important for designing the schemes of library classification. Ranganathan identified different modes of formation of subjects such as lamination, loose assemblage, fission, fusion, distillation, cluster and agglomeration which are more useful in understanding and designing of the various schemes of library classification. For the purpose of organizing the documents the whole universe of subjects is divided into groups by following different methods like dichotomy (division into two at each stage), decachotomy (division into ten at each stage) and polychotomy (division into many at each stage) etc.

1.6 SELF ASSESSMENT QUESTIONS

1. Define knowledge and explain the characteristics and types of knowledge.
2. Explain different modes of formation of subjects with suitable examples.
3. Discuss the structure of subject and its role in library classification

1.7 SUGGESTED READINGS

1. Krishan Kumar. Theory of classification. New Delhi: Vikas publishing House, 1979.
2. Ranganathan, S.R. Prolegomena to library classification, 3rd ed. Bangalore: SRELS, 1989
3. Ranganathan, S.R. Elements of library classification. 3rd ed. Bangalore: UBS Publishshers,1990.

LESSON – 2

NEED AND PURPOSE OF LIBRARY CLASSIFICATION

AIM AND OBJECTIVES

In the previous unit you have learned the nature of knowledge and formation of subjects. This unitdiscusses the records of the knowledge, nature and organization of the documents. In the library thedocuments are arranged to facilitate the user. The different approaches of the users to documents are explained. The need and functions of library classification is also discussed.

The study of this unit shall make you to understand
- nature of documents
- organization of documents on library shelves
- need and functions of library classification

Structure

2.1 INTRODUCTION

The idea of 'Classification' flourishes with the evolution of the 'human being.' Classification is orderly arrangement of things. Each individual from childhood to old age, consciously or unconsciously implies classification in his daily functions. The techniques of classification are inherent in mankind. Without classification, human progress would be impossible.

Human mind is constantly in the quest for new ideas, theories and philosophies.

Consequently the knowledge is being generated perpetually in different divisions of all disciplines and subject. This resulted in publication explosion. Library is the only permanent and effective centre which maximizes the social utility of recorded knowledge and information. Thus the library acquires, organizes and disseminates information to those who need it. Therefore the basic and the most essential function of the libraries is to ensure maximum utilization of the accumulated recorded information – every reader his/her document and every document its reader. In order to achieve this, the libraries have been using various methods and techniques for organizing documents systematically on shelves. The users visit the library for a document of which the author is known or title is known or subject is known. The subject approach is the prominent among all approaches of the users. The library has to take into consideration different needs of the users and find suitable method for arranging the documents. Library classification helps to arrange the documents in the library. In the following sections meaning, need and functions of library classification are explained.

2.2 RECORDS OF KNOWLEDGE

The early man used to communicate though pictures, sounds, gestures and sounds. In the process of improving the communication man invented different languages to communicate. The media used for writing is also evolved from writings on cave walls, stones, bark of trees to present day digital storage devices. (ex. DVD). The writing instruments are also evolved corresponding to media from edged stone, stylus and brushes to present day ball pen, optical and laser devices.

The early records of knowledge are clay tablets, leaves, skins, cloth and papyrus rolls. With theinvention of paper and printing the records of information are growing exponentially. These records of knowledge are appearing in different forms such as books, journals, maps, sound recordings, cartographic material, audio and video cassettes, motion pictures, CD ROM, DVD etc. All these different types of records of information can be called with a generic term 'Document'.

Even though the knowledge is recorded in different forms, book is still the predominant media of information in libraries. That is why the different types of documents are categorized into two groups: Books and Non-book materials. However the term document is used to refer to any type of record thatstores information.

2.3 NATURE OF DOCUMENTS

Physically the document is any of the types of recorded knowledge listed in the previous section.It may be a book, periodical, sound record etc. Internally each document posses the following characteristics:

- Documents contain information
- Document stores information for posterity
- Documents contain knowledge on single subject or several subjects
- Documents are written by single author or multiple authors.
- Documents are related to one another basing on their subject

ORGANIZATION OF DOCUMENTS

As you have seen in the earlier sections the knowledge is being recorded in different types of documents. In the olden days there were few types of recorded knowledge such as clay tablets, papyrus rolls etc. As the technology advances the knowledge is being recorded in variety of forms like Micro films, CDROM etc. Library as a social institution takes the responsibility of collecting all these documents and organize for use and preserve them for posterity.

The Five Laws of Ranganathan are the five commandments to the library profession. These insist the libraries to see that every reader his/her book and every book its reader. The libraries adopteddifferent methods to organize these documents systematically on the shelves to facilitate browsingand easy retrieval as and when required by the users.

2.4.1 Factors determining the Arrangement

There are several factors to be considered for determining the arrangement of documents in the library. J. Mills stated some of the factors which determine the sequence and arrangement of documents in the library. They are as follows:

1. Age of the user: Children's books are to be distinguished from books for others.
2. Use of material: Documents for lending purpose are distinguished from those which are to beconsulted in the library itself.
3. Documents of unusual size: Documents of abnormal size i.e. over size and under size documentsare to be shelved separately.
4. Documents of unusual gross body: Micro-cards, gramophone records, tapes, slides etc. are tobe shelved separately.
5. Thought content of the documents (Subject matter): Generally fiction books are arranged in terms of author, language or literary form; while non-fiction books are arranged by subject.
6. Language of the document: Books in different languages are arranged separately under thelanguages concerned.
7. Value of the documents: Rare books which can not be acquired easily, or which are costly andprecious are arranged separately.
8. Form of presentation: Because of their peculiar form of presentation periodicals are arrangedseparately after the volume is completed and bound.
9. Date of printing: 'Incunabula' i.e. early printed books are separately shelved.
10. Local history collection: Because of the nature of collection which gives local emphasis, documents of this nature are arranged separately.

The above factors listed by Mills stated the arrangement of books in different groups. However ineach group the subject arrangement is followed to ensure maximum utility.

2.4.2 Types of Arrangement:

Many types of arrangement of documents are possible. The history of libraries shows that there are varied arrangements of documents that are being followed in the past. In the process of arranging documents one can think of either physical or thought content as the basis of arrangement. The size, colour of the binding, author, title, publisher and subject of the documents are some of the criteria which can be used for systematic arrangement of

documents in a library.

On the basis of colour :

Classification of documents on the basis of the colour of binding is not suitable due to followingreasons.

i. The number of colours used for binding in small, thus, too many documents would be found inthe same colour.
ii. The colour of binding is not permanent.
iii. When the document is rebounded the colour of binding may be changed. Depending upon theavailability.
iv. The colour of document hardly indicates the thought content.

On the basis of Size :

Arrangement on size of the documents also bears no relation to their content. So it is difficult to locate a particular book by its author, title or subject. If the documents are arranged on the basis ofsize, related documents get scattered. However there were libraries in the olden days where the documents are arranged basing on the size. Ex. Alexandria library

On the basis of Author :

If the documents are arranged by author too many groups are formed and within each group thenumber of documents will be less. If this arrangement is followed it is difficult to trace a document of which the author is not known and only subject is known. This type of arrangement shall group all thedocuments written by an author. The documents of the same subject get scattered. However, author arrangement may be found useful for arranging documents dealing with fiction.

On the basis of title :

If the documents are arranged on the basis of title, the number of groups formed would be verylarge. Each group would be too small consisting mostly of one item only. In this type of arrangement also the documents related by subject get scattered. It is very difficult to remember the title of the document, since in majority of cases it is lengthy. The titles would sometimes change from one edition to another.

On the basis of subject :

The subject approach of classification of documents is both convenient and essential since it brings together documents on the same subject and on related aspects of the subject. This approach provides the arrangement of documents in APUPA pattern. This is the arrangement of books basedon the thought content of the documents. The arrangement is such that one can find books on relatedsubjects in close proximity.

Let us analyze APUPA pattern of arrangement of documents, which is based on the subject. Inthe centre 'U' stands for Umbral (i.e. core subject) 'P' stands for Penumbral (i.e. related subjects on both sides) 'A' stands for Alien (i.e. foreign or unrelated). If the documents are arranged on the basis ofsubject content of them, at any point on the shelf documents on the core subject will be found. If onemoves from the core subject on either direction the relation of the documents gets decreased.

It is an established and proved opinion that any basis of arrangement or organization of documentsother than according to subject is liable to fail in any library.

2.5 CLASSIFICATION

2.5.1 Origin and Meaning:

The term classification is derived from the Latin word 'classis' used in Roman Empire to divide the people on the basis of wealth and importance. Similarly in India the analogues term 'vargikarana' in 'Sanskrit' has been used in 'Vedas','smrites' and 'Upanishads' for distinguishing like objects. However to understand the process of classification one must keep in mind the following things.

i) Classification is done of things: To start the process of classification one must have those things or objects which one wants to divide group or arrange. It means the techqnie of classificationmay be employed only when there are things or objects to group or divide.

ii) The basis: to group the things into like and unlike there must be a basis i.e. characteristic. This characteristic may be natural or artificial.

iii) Purpose: There must always some purpose or reason to divide or group things or objects intolike and unlike groups.

iv) Mental process: In this whole process our mind is constantly involved and it may be said that classification is a mental exercise or process.

Meaning:

The term classification is used and defined in almost every sphere of knowledge by various philosophers, social thinkers and scientists. Following are few meanings from different sources:

"The act or system of arranging things"

- Twentieth century chambers dictionary.

"The act or process of putting people or things into a group or class"

- Oxford advanced learning dictionary.

"Classification is mode of knowledge, a way of grouping the units of certain things and the relationbetween various kinds of things"

- A.Wolf.

In simple terms classification is a method for systematic grouping of things or objects on the basis of shared or variant characteristics

2.5.2 Library Classification:

The ordinary classification deals with the arrangement of ideas or objects in a systematic order. In the Library classification the objects are documents. The term 'document' includes all forms of recorded knowledge such as books, periodical publications, non-book

materials and so on.

The term library classification has been defined by various library and information scientists.

Few such definitions are as follows:

"The arrangement of books on shelves, or description of them, in the manner which is most useful to those who read" - W.C Berwick Sayers.

"Classification is a series or system of classes arranged in some order according to some principle or conception, purpose or interest, or some combination of such".
-H.E. Bliss.

"It is the translation of the name of the subject of a book into a preferred artificial language of ordinal numbers, and the individualization of the several books dealing with the same specific subject by means of further set of ordinal numbers which represent some features of the book other than theirthought content" - S.R Ranganathan.

2.5.3 Need and purpose of library classification:

Library acquires documents for use. These documents are to be arranged in such a way whichcan enhance their utility to the optimum level. A document can be traced easily if the collection of documents in a library is in hundreds. When the collection grows beyond hundreds, unless some arrangement is followed it is very difficult to locate the required document in the collection. Moreover the documents are being produced in varying forms with varying purpose. Hence it is essential to arrange them systematically on the shelves. Library classification helps in the organization of documents and information so that the user can use the sources of information efficiently.

- Classification enhances the utility of the documents.
- Classification save the time of the user as well as library staff.
- Classification provides a comprehensive view of documents on a subject.
- Classification is one of the essential techniques adopted in the libraries to achieve the aim of the librarianship, which is to bring the user in contact with the specific document or information.

Libraries have been using various methods and techniques for organizing documents systematically on shelves for their maximum and expeditious utilization. The selection of the methodsfor the purpose of organizing documents, generally depend on the need and purpose of the library aswell as the number of the documents and their users.

2.5.4 Functions of Library Classification:

The main functions of the library classification are:

1. To arrange books and other information sources in a systematic and helpful order on the shelves so that :

i) Users may find all the documents of his subject or interest in juxtaposition. In other words,related documents would be grouped in close proximity;

ii) Helps the library staff in providing expeditious service to the users;
iii) Browsing is made beneficial.

2. Ensures specific name to each document, thereby makes possible ;

i) Prompt location of the documents;
ii) Speedy restoration of the documents when returned by users after use by means of mechanizedarrangement induced into classification through notation;
iii) To know the number of copies of the book available in the library; and
iv) To know about the various editions of a book.

3. Helps the library in:

i) Compilation of adhere bibliographies and union catalogue.
ii) Book display;
iii) Weeding out old editions of a book,
iv) Adding new editions of a book;
v) Providing correct plan on shelve to a book published on a new subject;
vi) Providing pinpointed expeditions service to users;
vii) Stock verification; and
viii) Arrangement of Catalogue cards in the classified part of the catalogue.

4. The classified part of the catalogue in turn:

i) Assist the user of a catalogue to refer to the location of the document on the shelf;
ii) Informs user the artificial numbers used for arranging the documents of his subject and interest;
iii) Provides a clear picture of the available documents in his subject or interest in the library;
iv) Helps in preparing reading lists; and
v) Assists the cataloguer in deriving subject headings by mean of chain procedure.

Thereby, the library classification makes possible the

i) free and uninterrupted transmission of recorded knowledge and information;
ii) makes the library operation from acquisition to circulation smooth and mechanical;
iii) helps user in the discovery of knowledge in literature; and
iv) Save the time and energy of both the user and library staff.

2.6 SUMMARY

The invention of paper and printing made the society to have the records of knowledge in differentforms such as books, periodicals, reports, maps etc. All these forms can be referred by a single term ‘document’ in the context of libraries. The advancement of technology leads to the exponential growth of information and publications.

The role of the library in the society is to acquire and organize all these documents for the maximum utilization. The libraries organize these documents on their shelves meeting the various approaches of the users. Library classification helps to organize the documents on the basis of subject, which is the most common and useful approach many users. The need and functions of thelibrary classification is also discussed and felt necessary for all libraries.

2.7 SELF ASSESSMENT QUESTIONS

1. Explain the term 'Knowledge' and its characteristics
2. Discuss the different types of organization of documents in a college library.
3. Define library classification and explain its need, scope and functions

2.8 SUGGESTED READING

1. Dhyani, Puspha. Library classification: theory and principles. New Delhi: Wishwa Prakashan, 1998Krishan Kumar. Theory of classification. New Delhi: Vikas publishing House, 1979.
2. Mills, J. A modern outline of library classification. Bombay: Asia publishing house, 1962. Ranganathan, S.R. Prolegomena to library classification, 3rd ed. Bangalore: SRELS, 1989 Ranganathan, S.R. Elements of library classification. 3rd ed. Bangalore: UBS Publishshers,1990.
3. Sayers,W.C.B. Manual of classification for librarians and bibliographers. 3rd ed. London: Andre Deutsch,1962.

LESSON – 3

GENERAL THEORY OF LIBRARY CLASSIFICATION

AIM AND OBJECTIVES

Various schemes of library classification are designed to map the thought content embodied inthe universe of documents. All these classification schemes are designed basing on certain postulates and principles. These schemes are evolved by incorporating new principles and discarding those principles which could not accommodate the ever growing subjects. Many classificationists designed new schemes overcoming the drawbacks found in the earlier schemes. This unit discusses the contributions of J.D. Brown, E.C. Richardson, E.W. Hulme, W.C.B. Sayers, H.E. Bliss and S.R.Ranganathan, towards the general theory of library classification.

The study of this unit shall enable you to understand the theories of library classification put forward by library scientists namely,

- Brown
- Richardson
- Hulme
- Sayers
- Bliss and
- Ranganathan

Structure

3.1 INTRODUCTION

The previous unit explained you the knowledge structure, characteristics and formation of subjects. You have also learned that this knowledge generated is embodied in documents of different kinds. The role of the library in the society is to acquire these documents, arrange in a systematic order and preserve them for use and posterity. Therefore, the basic and most essential function of the libraries is to ensure maximum utilization of the accumulated knowledge and information. For this libraries have been using various

methods and techniques for organizing documents systematically on shelves.

The philosophers in their pursuit to explore the structure of the universe of knowledge provided various philosophical schemes of knowledge classification to suit the needs of individual philosopher, whereas library classification schemes are designed to organize documents. The knowledge contained in a document may not always be the exposition of single subject. A document may deal with two ormore subjects; say for example there is a book on politics and religion and another on science andsociety. Due to multidisciplinary nature of research the documents are also being produced in interdisciplinary nature causing problems to find place in the arrangement of documents. In this regard several library scientists developed the theory of library classification and schemes of classification to arrange the the documents in helpful order.

The following sections of this unit provide brief descriptions of the principles enunciated by J.D.Brown, E.C. Richardson, E.W. Hulme, W.C.B. Sayers, H.E. Bliss and S.R.Ranganathan, towards the general theory of library classification.

3.2 JAMES DUFF BROWN

J.W. Brown may said to be the first classificationist who considered library classification as a discipline and based his scheme on scientific methods and principles. Being dissatisfied of the American bias of the Dewey decimal classification, Brown developed three classification schemes for the BritishLibraries. In collaboration with J.M.Quinn, he devised Quinn-Brown Classification in the year 1894. Later Adjustable Classification and Subject classification schemes were published in 1897 and 1906 respectively. The third edition of Brown's subject classification appeared in the year 1939.

The principles of 'Subject Classification' (1906) developed by Brown are as follows:

1. The universe of subjects is being organized on the basis of scientific theory. According to him every science and art originated from some different source. In the order of things there were matterand force in the beginning which in turn gave place to life. Life in the course of time developed mind from which springs the records of thought.

2. One place theory :- According to Brown 'in book classification the constant or concrete subjectshould be preferred to the more general or occasional subjects'.

Every subject is capable of being treated from a large number of stand points and each of thesemay be the centre of 'large literature'. e.g.;- The subject rose may be viewed from the standpoint of Botany, Horticulture, Art, Geography, History, Therapeutics and so on. He considered the Rose concreteand the standpoints are general. All the books that dealt with the subject rose were placed at one place.

3. Collocation: - Brown tried to place each subject as near as possible to the science on whichit is based. For this he used many conventions, distinctions and groupings which are considered asarbitrary by later classificationists.

3.3 E. WYNDHAM HULME

E.W. Hulme was the librarian in the Patent office Library, London. He tried to provide some fundamental principles suggesting that the theory of library classification should be worked at first, on the basis of which a scheme should be designed. His theory of library classification was published as a series of six articles in library association records

from October 1911 to May 1912 under the heading‘principles of book classification’.

Hulme’s principles of book classification are:-

1. Principle of Literary Warrant: Library classification is purely book classification which is mechanical. It is based on literary warrant. According to him the basis for the enumeration of subjects in the scheme of classification should be the group of books and not the group of subjects. He suggestedthat if there is a book on heat and light, then there must be a provision in the scheme for classification for it as a concrete aggregate subject.
2. Principle of collocation.
3. Principle of co-ordination.
4. Principle of relativity of classes.

Hulme is best known for his principle of ‘literary warrant’ which attracted the attention of later classificationists. Library of Congress classification, Dewey decimal classification, colon classificationhave taken help of this principle for enumeration of classes. Ranganathan considered the principle ofliterary warrant as one of the principles for helpful sequence.

3.4 E.C. RICHARDSON

E.C. Richardson may be termed as the first library scientist who provided few fundamental principles, to guide the library classification. He used the term ‘criteria’ for his principles of classificationfirst published in the year 1901 as ‘Classification: theoretical and practical’.

The criteria laid down by E.C. Richardson are given here under.

1. Classification should follow the order of things, order of history and order of evolution.
2. Classification should be carried out in minute detail.
3. Classification scheme should be provided with notation. This notation should allow indefinite subdivision. The notation used must be mixed symbols with predominant decimal base.
4. Classification scheme should be provided with detailed and specific index, for easy handling of the scheme.
5. The value of the classification scheme is increased in direct ratio to the generalness of its use.The library acquires books and arranges them on shelves for effective utilization. Hence it is theuse which should be the motive of the classification.

3.5 W.C. BERWICK SAYERS

Sayers is one of the renowned library classification specialists. He has not designed any scheme for classification. It is through his books and papers that he has contributed in the development of the theory of library classification. Dr.S.R.Ranganathan described Sayers as ‘grammarian of classification’. He has enumerated ‘canons’ for designing a scheme for classification and rules for grouping of books. Sayers has written the following books:

1. Grammar of classification.
2. Introduction to library classification –theoretical, historical and practical (1918).
3. Manual of library classification (1926) (4th edition 1967)

These books have played important role in the development of theory and practice of library classification.

Canons of classification: - Sayers called his principles of classification as Canons. In general terminology, canon means-a rule, regulation, standard test or criterion. The six canons enumerated in his manual are further sub divided to form total 29 canons. These are as follows:

1.	As to Definition	-	6 sub canons.
2.	As to division	-	7 sub canons.
3.	As to Terms	-	4 sub canons.
4.	As to book classification	-	5 sub canons.
5.	As to notation	-	5 sub canons.
6.	As to Bone classification scheme	-	3 sub canons.

Let us see the brief description of these canons.

1. Definition :- Classification is an intellectual process in which things are recognized and arranged basing on their likeness into classes. In a scheme of classification these classes are to be arranged in a systematic order. The order is based on the theory of knowledge. The six sub canonsare identified to define the term classification, subject covered in classification, types of schemes and the order which the general classification scheme should follow.

2. Division :- The classes are formed basing on their likeness and separated basing of the degrees of unlikeness. This process is called Division. The characteristic chosen for this division must be most useful for the purpose of the scheme. The characteristic may be natural or artificial. The division should proceed with great extension and small intension. The process of division continued until further sub-division is impossible. The use of the characteristics must be consistent at each stage of division.

3. Terms:- Any classification scheme is the expression of knowledge in class-names or terms. The terms can be a word or phrase. The terms used to denote a meaning should be the same wherever the term is used in a scheme of classification. The terms used in a scheme may be technicalor popular, but they must be permanent.

4. Book classification:- A book classification is devised for arrangement of books or otherlibrary material by subject or form or both, or by any logical order finds useful. Book classification scheme should be:

- General
- Capable of expansion
- Equipped with to include form classes like poetry, fiction, drama etc.

- Equipped with systematic schedules for discrimination of the forms in which subjects are presented. (e.g. History of botany)
- Notation which shall provide a symbol for every class/term.
- Provide an index.

5. Notation: - Notation of a scheme is a systematic and logically ordered signs representing the class-names in the classification. Notation must be brief, simple, flexible and mnemonic.

6. Book classification scheme:- A classification scheme should provide schedules in order of the precedence of subjects as far as possible, so that hierarch of the subject is exhibited. The scheme should provide with illustrative introduction which explains how to use the schedules etc. The classification scheme must have a mechanism for continuous revision so as to keep pace with growing knowledge.

3.6 H.E. BLISS

Henry Evelyn Bliss was born on 29th January 1870 in New York. In 1891 he was appointed asdeputy librarian in the college of the city of New York. Bliss may be termed as an outstanding library science scholar who formulated norms and principles and then designed the scheme for classification. While working for the library of the college of city of New York, he found that none of the existing schemes for classification were adequate and suitable. According to Bliss classification for librariescan be adequate and efficient only if grounded on the fundamental principle of the organization andclassification of knowledge. He further stated 'A classification of books is structural organization of knowledge. He wrote two books before designing his Bibliographic classification scheme. His first book, 'The organization of knowledge and the system of the sciences' published in 1929. The second book 'Organization of knowledge in libraries and subject approach to books' published in the year1933. In the first book, Bliss analyzed the works of philosophers and scholars to understand their method of dividing and arranging of subjects. In the second book he described 32 principles of classification, the role of classification and notation. A critical evaluation of the then existing classification schemes isalso given in his second book.

Bibliographic classification

The outline of 'Bibliographic classification' was first published in the form of an article in 1910. An extended outline of this scheme appeared as a system of bibliographic classification in 1935. It consisted of main classes 1-9 and A-Z together with four systematic or auxiliary schedules of general application (form, place, time and language) and number of special auxiliary schedules. The full version of the scheme was prepared and published in a span of thirteen years from 1940 to 1953 in four volumes with the title 'Bibliographic classification- extended by systematic auxiliary schedules for composite specification and notation'.

Principles :- Bliss is of opinion that 'the most adequate classifications are those that are most consistent with the organization of knowledge relevant to the interests in view. The efficiency of classification scheme depends on two basic principles:

(1) Sub-ordination of the more specific to the more generic relevant subjects.
(2) Collocation of closely related subjects.

Accordingly, he based bibliographic classification on certain principles. These are – consensus, coordination and subordination, adaptation and notation.

Consensus :- According to Bliss 'a classification is best qualified to serve, if it confirms fundamentally to the organization of knowledge established in the scientific and educational consensus. By scientific consensus he meant the view point of the subject specialists, as to how they expect their material to be organized; whereas educational consensus reflects the way in which subjects are taught in the academic institutions. Bliss also held that the basic structure of knowledge is relatively permanent and traditional disciplines represent this basic structure. Thus, Bliss made constant effort to make his bibliographic classification scheme both scholarly and utilitarian.

Subordination :- Subordination means that 'a class may be divided into sub-classes and these into their subordinate sub-classes, by clearly different characteristics at each stage of division. Subordination is the most dominant principle of the bibliographic classification. Bliss has recognized two kinds of sub-ordination Viz. (1) The subordination of the special to general and (2) Gradation byspecialty.

Subordination of the special to general:- This is otherwise called principle of 'decreasing extension'. General subjects are placed first and special subjects are subordinated to general. For example Zoology is subordinated to Biology and coordinated with Botany.

Gradation of specialty :- According to bliss special schemes are dependent on general sciences. This principle is defined as the principle by which the several sciences and studies, distinguished their conceptual scope and their relations to the real order of nature, are arranged in serial order from the most general to the most special. In the bibliographic classification the order of major classes is determined basing on this principle.

Collocation:- Collocation means to bring the closely related subjects according to their inherent similarities. Faulty grouping of subjects affect the efficiency in service to the uses. Bibliographic classification attempted to group the theory and application of any particular science and other related subjects. One such example is of placing side by side the pure sciences and their applied technologies. In bibliographic classification this principle of collocation is applied consistently.

Adaptation:- The principle of adaptation by alternatives is the distinct feature of bibliographic classification. The provision of alternatives helps in accommodating the classifiers views and circumstances of library. Accordingly the placing of documents may be decided keeping in view thepurposes and interests of the users. According to Bliss the alternatives are of two kinds:

1) Alternative locations:- In BC two or more alternative location for certain subjects are provided, giving the option to individual libraries to decide upon the location suitable for them.

The use of alternativeplacing must be consistent. Table V of the Bibliographic classification enumerates all the importantalternative locations of main subjects or classes.

2) Alternative arrangements or treatments:- The concept of alternative arrangements/treatments is used to provide a choice of different arrangements within particular classes.

Notation :- The notation of bibliographic classification is both pure and mixed. Bliss followedhis notation for BC to be simple and brief. Most subjects would not require more than three digits. Without synthesis the notation of BC is easy to read and write. Bliss secured hospitality in notation by following fraction principle to accommodate new emerging subjects. Bliss used systematic and literal mnemonics in his notation for bibliographic classification.

3.7 S.R. RANGANATHAN

Shiyali Ramamrita Ranganathan, though a teacher of mathematics, has worked most part of his life to provide the guiding principles comprehending each and every activity of library science. Dissatisfied with the existing classification schemes for keeping pace with infinite, dynamic and unknown universe of subjects, he has designed 'colon classification' and applied to classify the collection of the Madras University library where he is working as librarian. The first edition of colonclassification was published in the year 1933. Thus an era of dynamic theory of library classification begins. He has propounded some norms and principles for his library classification. In 1931 Ranganathan published his 'five laws of library science' which provided some guiding principles foreach activity of the library. He has provided some ideas and guiding principles for library classification in his first edition of 'colon classification'. His theories and principles of library classification were first published in 'prolegomena to library classification' in the year 1937. A more advanced version of hisdynamic theory of library classification was presented in the third edition of 'prolegomena to library classification' in 1967. He is the strong advocate of co-extensive class number, which reflects the extension and intension of the thought content of the document. He is also of the opinion that the classifier be given autonomy to revise the classification schemes to provide place to the emerging subjects. In his latest edition of 'prolegomena to library classification '(1967), Ranganathan formulated11 laws, 43 canons, 13 postulates, 4 principles for facet sequence and 18 principles for helpful sequence and 9 devices. W.C.B. Sayers has described 'prolegomena to library classification' as "a most precise, theoretical, practical and comparative exposition of library classification theory". Ranganathan has also written many books emphasizing the theories in all aspects of library science such as classification,cataloguing, library services, library administration etc. which earned him the title "Father of LibraryScience in India".

Mapping of universe of knowledge: - In classifying the entities of a universe we are to adapt a scheme of classification and assign each entity to the appropriate class of the scheme. That means we are transforming the multidimensional universe of knowledge into one-dimensional universe to facilitate arrangement of books on the shelves, which are the containers of universe of knowledge.The descriptive theory, which was enunciated by earlier classificationists, was influenced by practice. The dynamic theory enunciated by

Ranganathan influence the practice. He has postulated some normative principles to map the universe of knowledge and to design the classification scheme. His normative principles include basic laws, fundamental laws, canons, principles, postulates and principles for facet sequence. These normative principles are briefly described below.

Basic laws:- Ranganathan formulated six basic laws to guide the classificationist in resolving conflicting demands of the five laws of library science or of canons of classification. These laws govern the process of thinking. The basic laws are as follows:

- Law of Interpretation
- Law of Impartiality
- Law of Symmetry
- Law of Parsimony
- Law of Osmosis
- Law of Local variation.

Fundamental Laws:- Ranganathan formulated five laws of library science in 1928 and later published as a book entitled 'Five laws of library science' in 1931. These laws are considered as fundamental laws, because these are capable of resolving any problem arising in library science, library service and library practice.

In the context of library classification, these laws help in resolving the conflict between canons and / or principles. If a problem in classifying exceeds the capacity of the canons and principles, the five laws of library science provide the solution. These five laws are:

- Books are for use.
- Every reader his/her book.
- Every book its reader.
- Save the time of the reader;
- Library is a growing organism.

Canons :- Ranganathan has provided specific norms for designing a scheme for classification and classifying of documents according to it. In designing a scheme for classification, the classification has to deal with dynamic, infinite and multidimensional universe of knowledge which needs to be analyzed and transformed into an artificial language for smooth use of the scheme as well as systematic and helpful arrangement of documents. To make this complicated procedure systematic Rangananthan separated the work of classification in three planes. The canons are accordingly provided for these three planes. He formulated 43 canons for all the three planes of classification. The canons are involved in the designing of a classification scheme.

Summary of these canons is given below:

Canons for Idea plane:- In the idea plane all aspects of the universe of knowledge are analyzed its structure, dimensions, qualities, characteristics, kind of relationship and the bond of strength among each item of knowledge. On this the format of a scheme for classification is depended. Ranganathan formulated 15 canons for idea plane and divided into five sets of canons as detailed below:

1. Canons for characteristics – 4 : these deal with process of division of knowledge selection andpermanence of characteristics.

2. Canons for succession of characteristics – 3 : these deal with the application of more than one characteristic in the process of division of knowledge.

3. Canons for Array – 4 : these canons state that the classes in an array should be exhaustive, exclusive and sequence of classes must be helpful and consistent.

4. Canons for chain – 2 : these canons deal with division of knowledge from general to specific i.e. extension of the classes must decrease and intension should increase at each stage of division. These also regulate the process of division.

5. Canons for filiatory sequence – 2 : these canons state that a scheme for classification shouldclearly identify both co-ordinate and sub-ordinate classes and the arrangement among themselves.

Canons for verbal plane:- Four canons are formulated for work in verbal plane. These canons are helpful for the classificationist and the classifier in the correct interpretation of terms. These deal with language and terminology aspects in the classification scheme. The terms used to denote the isolates must indicate the context, and should be current in usage and should not be critical.

The four canons are:-

- Canon of context
- Canon of Enumeration
- Canon of currency
- Canon of Reticence.

Canons for notational plane:- The term notation denotes the artificial language of signs and symbols which is used in a scheme for classification for translating the words, and classes of natural language enumerated on the basis of the work of verbal plane.

The canons enunciated for notational plane deal with determination of the type of notation; removalof synonyms and homonyms; various mnemonics; extrapolation and intrapolation; provision for construction of book numbers. 24 canons formulated for notational plane are further divided as follows:

- Canons for notational plane – 12

- Canons for Mnemonics – 5

- Canons for growing universe – 4

- Canons for book classification – 3

Postulates of Fundamental categories :- Aristotle is the first person to use the term

'categories' to express the classes of being or terms used to express being. Ranganathan developed fully the application of Aristotelian principle to the analyzing of the structure of recording information. His understanding of the way the subjects are formed made him to identify a variety of facets or aspects of relationships among the constituent parts of all subjects. Ranganathan believes that most of the subjects are divisible into five very broad categories. These five fundamental categories are personality, matter, energy, space and time. These categories are usually written merely as PMEST. Space and time simply denote geographical, chronological divisions. The category energy denotesan operation or action. Matter is represented by materials and personality is best thought of as the core of any subject.

Ranganathan formulated several postulates dealing with fundamental categories and facet analysis, which contributed a lot to the theory of library classification.

Ranganathan also postulated that these fundamental categories PMEST, may manifest themselves in specific subjects, not necessarily once only but as often as necessary and at successivelevels.

Principles of Facet sequence:- According to Ranganathan there were no objective principles for deciding the sequence of the facets in any given subject. However in 1964 he enunciated five principles which govern the order of the facets. These principles are as follows:

1. Wall picture principle
2. Commodity – raw material – transformation principle.
3. Act and – action – actor – tool principle
4. Cow – calf principle

5. Whole – organ principle.

Of these five principles the wall picture principle is the basic one. The other four are more likecorollaries.

Principles of helpful sequence:- The sequence of the classes in an array should be helpful. It should be according to some convenient principles and not arbitrary. Ranganathan provided following principles for implementing the demands of the canon of helpful sequence:

1. Principle of later – in – time
2. Principle of later – in – evolution
3. Principle of spatial contiguity
4. Principle of quantity
5. Principle of complexity
6. Principle of canonical sequence
7. Principle of literary warrant
8. Principle of alphabetical sequence.

The contributions of Ranganathan in the form of Basic Laws, Fundamental Laws, Postulates, canons and principles laid foundation for the theory of library classification.

Ranganthan applied most of his theory to library classification in designing his Colon Classification 4th edition onwards. His theory of library classification was widely accepted by many library scientist and several classification schemes have been designed basing on his theory.

3.8 SUMMARY

The knowledge is growing exponentially and in multi dimensional nature. This resulted in the growth of subjects and documents. The role of the libraries is to acquire these documents and arrange the on shelves in systematic and helpful order. Many philosophers in their pursuit to explore the structure of the universe of knowledge provided various philosophical systems to classify the universeof knowledge. But the knowledge contained in the documents is not as simple as thought to be. Thereare documents dealing with two or more subjects. Philosophical schemes organize knowledge, whereas library classification schemes are designed to organize documents. The normative principles in library classification provide a scientific basis to the field of classification. Till 1901 there was no specific theory or guiding principles for the designing of a scheme for classification. It was E. Richardson's contribution in 1901 started the era of library classification theory. Since then many library scientists like Sayers, Brown, Bliss, Hulme and Ranganathan have provided a firm foundation to the theory of library classification. This Unit explained the norms and principles enunciated by these thinkers.

3.9 SELF ASSESSMENT QUESTIONS

1. Discuss the contributions of W.C.B. Sayers to the theory of library classification.
2. Explain the S.R. Ranganthan's contribution to the theory of library classification
3. Explain briefly the principles enunciated by E.C.Richardson, E.W. Hulme and J.D. Brown.

3.10 SUGGESTED READING

1. Dhyani, Puspha. Library classification: theory and principles. New Delhi: Wishwa Prakashan, 1998 Krishan Kumar. Theory of classification. New Delhi: Vikas publishing House, 1979.

2. Mills, J. A modern outline of library classification. Bombay: Asia publishing house, 1962. Ranganathan, S.R. Prolegomena to library classification, 3rd ed. Bangalore: SRELS, 1989 Ranganathan, S.R. Elements of library classification. 3rd ed. Bangalore: UBS Publishshers,1990.

3. Sayers,W.C.B. Manual of classification for librarians and bibliographers. 3rd ed. London: Andre Deutsch,1962.

LESSON – 4

SPECIES OF CLASSIFICATION SCHEMES

AIM AND OBJECTIVES

The library classification is meant for arranging the documents in helpful and filiatory sequence on the shelves of the library. This unit explains the different schemes of library classification and itsbroad categories.

On studying this unit you shall be in a position to know:

- Enumerative, faceted and analytico-synthetic classification schemes
- Different species of enumerative and faceted schemes
- Principles followed for categorization of classification schemes, and to identify the category ofexisting classification schemes viz. DDC and CC.

Structure

4.1 INTRODUCTION

The classification schemes have been designed to arrange books and other documents in the library. All the classification schemes have divided the whole universe of subjects into a series of main classes, which are further sub-divided in a hierarchical manner leading to co-ordinate and sub-ordinate classes. Many such schemes of classification are available for use in libraries. It was Melvil Dewey with his Dewey decimal classification demonstrated to the librarians of world over, how 10 Indo-Arabic numerals used as decimal fractions may create a systematic subject arrangement by translating the thought content of the book.

Species is a term used to group things on the basis of common attributes and designated by a common name. Ranganathan grouped different schemes of classification into different species basing on their attributes. The following sections shall explain different species of classification.

4.2 SPECIES OF CLASSIFICATION SCHEMES

With the pioneering effort of using 10 Indo-Arabic numerals to map the universe of subjects by Dewey in 1876 began the modern history of library classification schemes. All the classification schemes that are in existence may be categorized into two groups: Schemes before Melvil Dewey and From Melvil Dewey onwards. Some of the prominent classification schemes, developed before 1876 are Assyrian Library scheme, Conrad Gesner's Bibliotheca Universalis, J.C.Brunet's scheme of classification. The era of modern library classification schemes begin with Melvil Dewey. The sole aim of these schemes is the systematic and helpful ordering of knowledge and its expeditious use. According to Ranganathan all the classification schemes from DDC (1876) to Rider's international Classification (1961) are either guided or unguided schemes. The unguided schemes enumerate virtually all the classes and so termed them as enumerative. Where as a guided scheme is one, the design of which has been based on a set of postulates and principles and analysis and synthesis is followed for constructing class number. As such the schemes may be divided into two broad speciesviz., enumerative schemes and faceted schemes.

4.2.1 Enumerative classification scheme:

Am enumerative classification scheme lists all the possible subjects of the past, present and anticipated in the future. It attempts to enumerate the whole universe of knowledge, in the form of different subjects, in its schedules. The enumerative classification divides, sub-divides the subjects and arranges them in an order with ready made numbers for each divisions and subdivisions. Thesubjects are arranged in hierarchical order to display their relationships.

Following are the some of the meanings given by library scientists.

According to Ranganathan 'A scheme of classification is enumerative, if it enumerates all possible specific subjects in a preferred helpful order along with their respective class numbers'

In the words of Palmer and Wells "Enumerative classifications lists composite subjects built up from a number of basic subjects".

Langridge stated that "Schemes that list a large number of compound subjects are known as enumerative".

From the above definitions, we can identify the following features of enumerative classification.

i) It consists of a single schedule which enumerates simple and compound subjects with readymadeclass numbers for them.
ii) It tries to encompass the whole universe of knowledge in its schedules.
iii) It provides relative index to its schedule, which is more useful for handling the schedule.
iv) It provides ready made class numbers to even compound subjects without the use of anyconnecting symbols.

Limitations:

i) The enumerative schemes are not based upon any established theory of postulates and principles. These simply enumerate all classes.
ii) The design of enumerative schemes depends solely on the flair and intuition of each individualclassificationist.
iii) It lacks the provision to include new subjects as and when they arise.
iv) The schedules of enumerative schemes are bulky as these attempt to enumerative all the subjectsknown to be existed and those that can be anticipated to appear in future.
v) Enumerative schemes lack provisions to indicate various kinds of relationship that may appearamong basic classes, facet or isolate ideas.
vi) Class numbers provided by enumerative schemes tend to be monolithic in nature.

Types:

Ranganathan has recognized the following two species of enumerative classification schemes.

Purely Enumerative Scheme. Almost Enumerative Scheme.

4.2.2 Purely Enumerative Scheme:

Purely Enumerative schemes for classification consists essentially of a single schedule enumerating all subjects – of past, present and the anticipated future. Most of these schemes haveno provision or limited provision to accommodate new subjects. No separate schedules are availablefor common isolates.

Eg: Library of Congress Classification – 13 Volumes.
Rider's International Classification.

4.2.3 Almost Enumerative Scheme :

An almost enumerative scheme for classification consists of a large schedule enumerating most of the subjects of the past, the present and the anticipated future, and in addition a few schedules of common isolates.

Eg: 1. J.D. Brown's subject Classification: It consists of only two schedules – The main schedule and the categorical tables. The man schedule enumerates the whole universe of subjects, and compound subjects. Additional compound subjects may be devised with the help of the isolates listed in categorical tables.

Eg. 2. Dewey Decimal Classification: DDC is considered an almost enumerative scheme, because it is unable to construct co-extensive class numbers for all subjects. However, some synthetic principle has been followed to construct numbers. It provides independent schedules for form divisions, space and time isolates. The DDC in its course of evolution through revised editions, transformed from enumerative nature to synthetic nature to accommodate new subjects and to provide co-extensive class number to subjects. 20th edition of DDC is in 4 volumes. The 2 and 3 volumes enumerates the universe of subjects, volume 4 provides relative index to the schedule. In volume 1, various tables are provided. The add device and subject device are used to construct numbers for complex subjects and to accommodate new subjects.

4.3 FACETED SCHEME

A faceted scheme for classification consists of schedules of Basic classes, Common isolates and Special isolates only. The class numbers for compound subjects are constructed with the help of Basic subjects, special isolates and the common auxiliary tables. Some quality of synthesis is inherent in faceted schemes of classification. Faceted schemes recognize and enumerate different facets and sub-facets presented by the subject of the document and then combining these facets and sub-facets with the help of some connecting symbols. The class number synthesized by using faceted scheme of classification presents a clear picture of the thought content of the document.

Meaning: Palmer and Wells defined a faceted scheme in the following words.

"Faceted classification list the basic terms and leaves the building of the derived composite terms to the classifier".

According to Ranganathan, "in a faceted classification there will be no schedule enumerating compound subjects. The Class numbers of any compound subject is constructed with the aid of the Basic subjects, the common isolates and the special isolates enumerated for each subject. The class numbers of a compound subjects will have connecting digits of species different from the semantically rich digits used in the schedules for Basic Class Numbers and the Isolate numbers. Therefore all the compound class numbers of a faceted classification will be polylithic".

Features:

i) A faceted classification provides autonomy to classifier.
ii) A faceted classification provides co-extensive class numbers to micro-subjects.
iii) Adding the new emerging subjects is possible both in array and chain.
iv) The compound class numbers formed by faceted classification tend to be polylithic.

Types:

The following different species of faceted classification have been recognized by Ranganathan.

1) Almost-faceted classification scheme
2) Rigidly Faceted Scheme.

3) Almost Freely Faceted Scheme
4) Freely Faceted Scheme.

4.3.1 Almost faceted classification scheme:

An almost faceted scheme for classification consists of a large schedule enumerating most of the subjects of the past, present and the anticipated future and in addition a few schedules of common isolates and also some schedules of special isolates. The scope for synthesis is much greater thanthat in an almost enumerative scheme.

Eg: 1. Universal Decimal Classification: UDC is the first almost faceted scheme of classification. It consists of the following schedules.

i) The Main tables: The main tables enumerated the Universe of knowledge into 10 main classes, as in decimal classification. It consists of mostly compound subjects with some provision for synthesis.
ii) Auxiliary tables: UDC provides independent schedules of common isolates viz., Form, Time, Space, Language, Persons and Materials.
iii) UDC has also provisions of special Auxiliaries with limited applications.

The indicator: (Colon) is used as the most important synthetic device. Distinct connecting symbols are used to combine numbers from common as well as special auxiliaries. It is in the auxiliaries' notation which provides synthetic quality in UDC. The use of several connecting symbols helped the class number to become polylithic.

Eg: 2 Bibliographic Classification: Bliss introduced the concept of composite specification in his bibliographic classification. BC consists of large general schedule enumerating basic and compound subjects and two kinds of systematic schedules—i) the common systematic schedules, the class numbers of which could be used commonly with all the classes of the main schedules and ii) Specialsystematic schedules which could be applied to specific subjects using the indicator comma (,). The synthetic quality and provision of connecting symbols enables its notation to produce polylithic numbers.

4.3.2 Fully but Rigidly – Faceted Classification Scheme:

In a Rigidly-Faceted scheme for classification, the facets and their sequences are predetermined for all subjects going with a basic subject. In this type of classification scheme, each basic subject is divided into number of facets and enumerated. Each basic subject is provided with a predetermined facet formula to be followed for constructing numbers for compound subjects. In it each subject coming under a main class is filled within the same facet formula whether some facet is present in it or not. The class numbers were enumerated only for isolate ideas and not for compound subjects. The principle of analysis and synthesis was introduced for constructing the class number of a subject.

Eg: Colon classification, from edition 1 (1933) to Edition 3 (1950), is termed as Rigidly Faceted Scheme because:

i) The facets and their sequence was predetermined for all subjects going with a basic

class.

ii) Only one connecting symbol colon (:) was used to indicate different kind of facets. Due to this it was imperative to insert the connecting digit colon(:) even for the absent facet. This created cluttering of connecting digits.
Eg: Design in Electrical Engineering D66:::4

The facet formula for engineering was engineering (work): Secondary work: (Part): (Problem).

In the above example secondary work facet, and part facet are absent, but their absence has to be indicated by the repetition of (:) colon in the class numbering which results in cluttering.

iii) The pre-determined rigid facet formula prevented interpolation and extrapolation of additional facets.

4.3.3 Almost Freely Faceted Classification:

Colon classification, Editions 4 to 6 are regarded as second version, since these are based on the theory of library classification developed from 1950 to 1963 by Ranganathan. In this version the postulates of five fundamental categories, Rounds and levels, use of different connecting digits in place of one single connecting digit : (Colon) used in version 1 (CC 1st edition to 3rd edition) were introduced. Specific provisions were made for interpolation of new main subjects. All Greek letters used provisionally up to CC 6th edition were replaced in 1963. Because of all these features ColonClassification has become a freely faceted scheme. But, the rigidity was identified in its predetermined facet formula and hence CC version 2 termed as Almost-Freely Faceted Scheme.

The facet formula for engineering in CC 6th edition and class number for the title given in the previous section are follows:

D	P	P2	E com 2P
Engineering	Work	Part	Problem.

Electrical Engineering D66
[P]

Designing Electrical Engineering D66 : 4
[P] [E]

4.3.4 Freely faceted classification scheme:

A freely faceted scheme is analytico-synthetic classification guided by postulates and principles.

The main features of freely faceted classification scheme are listed below:

i) There is no rigid, predetermined facet formula for the compound subjects going with a basicsubject.

ii) Facets belong to compound subjects and not to basic subject.
iii) A subject is notationally synthesized with only those facets that are components of it.
iv) The sequence of the facets is determined on the basis of clearly stated postulates and principles.

Colon classification 7th edition (1987) incorporated all the findings of dynamic theory of library classification developed by a research team in DRTC from 1962 to 1986. The rigidity found in the predetermined facet formula was removed; thereby CC7 became a freely faceted scheme for classification. Only some pilot schedules of CC7 are published so far and CC7 is still yet to be completed.

4.4 ANALYTICO-SYNTHETIC CLASSIFICATION SCHEME

According to Ranganathan ' The term analytico-synthetic scheme is a generic term to denote any scheme in which a compound subject is first analyzed into its facets in the idea plane and latersynthesized in the verbal plane and notational plane respectively'.

Colon Classification due to its faceted feature has also been termed as Analytico-synthetic classification scheme. Bliss was the first library scientist who described CC as 'Synthetic' scheme. Later it was A.J.Wells, who replaced the term with 'analytico-synthetic'. According to Ranganathan alleditions of colon classification are fully analytico-synthetic and the UDC has slight touch of analytico- synthetic quality. He considered all faceted schemes of classification are analytico-synthetic. However, in CC7 it has been emphasized that 'any faceted classification is not analytico-synthetic unless it isfreely faceted.

The above discussions will make you understand the salient features of different schemes of classification. This knowledge will enable you to methodical and comparative study of various classification schemes.

4.5 SUMMARY

The libraries may be categorized broadly into general and special libraries depending uponthe users the serve. The general schemes of classification, although cover the whole universe of subjects may or may not meet the demands of special libraries. Ranganathan, however differ from these groupings and identified that all the schemes of classification are guided or unguided by some postulates and principles. He has grouped the unguided schemes as enumerative and guided schemes as faceted classification schemes. Among these schemes of classification Ranganathan has recognized different species of enumerative and faceted schemes, which are discussed in this unit.

4.6 SELF ASSESSMENT QUESTIONS

1. List out different schemes and species of classification and explain in detail the features of enumerative classification.
2. Write an essay to substantiate that Colon classification is a faceted scheme of classification.
3. What is an Analytico-synthetic classification scheme? Give examples.

4.7 SUGGESTED READING

Dhyani, Puspha. Library classification: theory and principles. New Delhi: Wishwa Prakashan, 1998 Krishan Kumar. Theory of classification. New Delhi: Vikas publishing House, 1979.

Mills, J. A modern outline of library classification. Bombay: Asia publishing house, 1962.

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Lesson - 5

COMMON ISOLATES

Aim and Objectives

1. To provide an over view of Common Isolates as a synthetic device
2. To present the types of Common Isolates as per CC
3. To identify the nature of Common Isolated in DDC

Structure

5.1 INTRODUCTION

In the faced classification, the universe of knowledge is mapped in the form of subjects and each subject is considered as a basic subject which is sub-divided into many isolate ideas. These isolateideas fit to form a component of a subject, but not by themselves fit to be deemed to be a subject. Such isolate ideas are grouped into different families on the basis of their characteristics. Isolate ideas which deal with the

1) Time Features are grouped as family of Time Isolates
2) Geographicalfeatures are grouped as family of space isolates
3) Language features are grouped as family of language isolates
4) Subject features are grouped as family of special isolates and
5) Common features of subjects are grouped as family of common isolates.

These families of isolates are identified in the form of different schedules in a scheme for classification. For example, DDC recognizes the family of space isolates as Areas Table – 2; the family of language isolates as language Table – 6, the subdivisions of individual languages as Table – 4, the subdivisions of individual literature as Table – 3; family of special isolates as main classes; family of isolates denoting the common features of subjectsas standard sub – divisions table -1 and so on. UDC too recognizes the families of isolate ideas as. 1. Main Tables in which are set out the main classes 1 to 2 and various services of special auxiliaries and 2 common auxiliaries consisting of common auxiliaries of language, common auxiliaries of race and nationality, common auxiliaries of view point, common auxiliaries or materials and persons etc.

5.2 CONCEPT OF COMMON ISOLATES

Common isolate, according to Dr.S.R. Ranganathan is an isolate term and represented by the same isolate number. Almost all classification schemes recognised the importance of common isolatesof other main classes.

According to Ranganathan ' A Common Isolate is an isolate idea denoted by the same isolate term and represented by the same isolate number, quite irrespective of the compound subject in which it occurs or the Basic Subject with which the compound subject goes' (Prolegomena to LibraryClassification Eds.3 p.93)

In other words, common isolates are idea isolates that designate certain frequency recurring forms of methods of treatment applicable to any subject or discipline. For example, reference materials like dictionaries, bibliographies, periodical, atlas directories, conference proceedings, biographies etc are all common isolates, as they are found in all subjects. Likewise, geographical isolates, time isolates, energy isolates, matter isolates and personality isolates are all another kind of common isolates. Ranagnathan states, "the common isolates (CI) are attachable to many classes… (but) it is notmaintained that every on of the common isolates can be attached to every possible class. All that is meant is that they may be applicable to many classes irrespective of the degree of their extention or intention or of their main classes" (Colon Classification Ed. 6p.1.43).

Classification aims at division of the universe of knowledge into isolate ideas. Among these isolates some are specially related to one or more main subjects and some are common to all main classes. Ranganathan states that common isolate as "an isolate idea denoted by the same isolateterm and represented by the same number." For example the isolate idea Encyclopaedia and Dictionary' which is a common isolate applicable to all main classes and which is denoted by the symbol "k" in CC and "03" DDC. Whenever the common isolate occurs it is denoted by the same symbol. For example

Ck - Encylopaedia of Physics
Ck - Encylopaedia of Chemistry

In the above example. "Encylopaedia" is common isolate and is denote by the symbol "k" in CCand "03" is DDC. Common isolate falls under the following three categories.

i. Common isolated dealing with the physical forms of the documents. For e.g. the idea small orover size to describe a document is a common feature. Symbols denoting this category of common isolates are shown in the collection number.
ii. Common isolates on such characteristic as language of exposition (ie) Language in which thedocuments is available form of exposition the year of publication etc. These are common features external to the content of document symbols denoting this category of common isolates are shown in the book number.
iii. Common isolates dealing with the common units in the structural patterns of knowledge such as bibliographies, biography criticism etc.

The first categories of common isolates form the subject matter in the study of the

collection number and book number. The common isolates device deals with the third category of common isolates and it brings hospitality in the array of classes.

5.3 KINDS OF COMMON ISOLATES

Srivastava, (in his book entitled 'Theory of Knowledge classification in libraries' p206) has identified the common isolates in three categories. They are-

1) Common isolates in sequence classification dealing with physical form of documents (example; oversize, undersize documents);
2) Common isolates in language and forms of exposition in documents (example: Index, list databook, picture, drama, quotation etc) and
3) Common Isolates in the structure of knowledge appearing under. Main class.

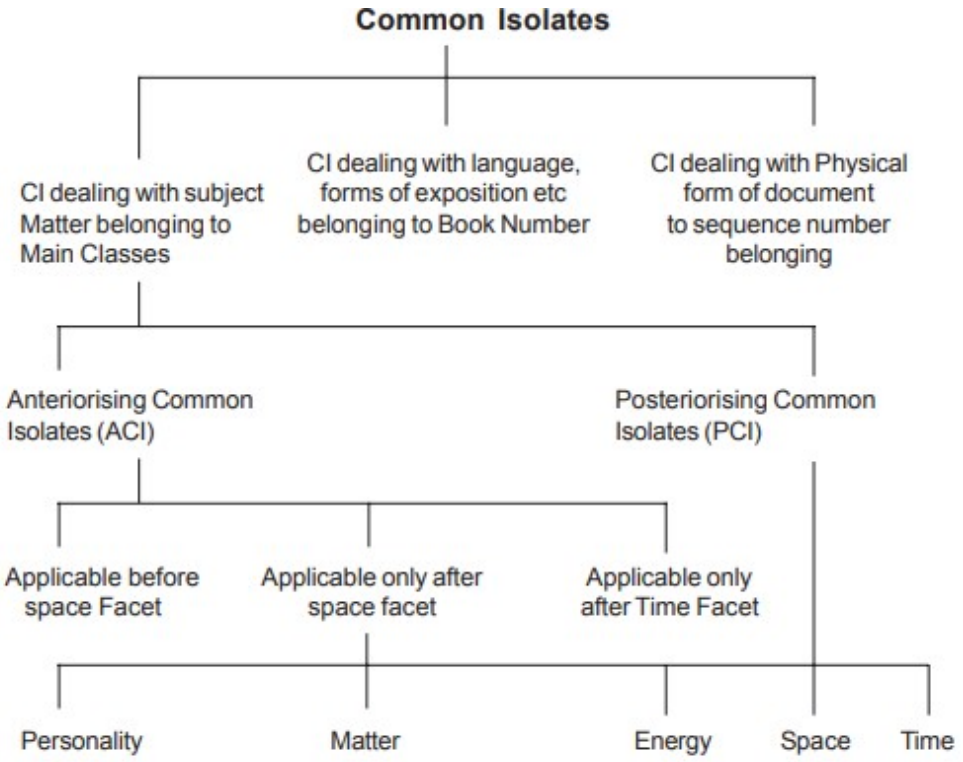
5.4 COMMON ISOLATES IN CC

However, Ranganathan recognizes two kinds of common isolates. They are:

1) Anteriorising Common Isolates (ACI) and
2) Posteriorising Common Isolates (PCI)

In the 6th CC, they are listed as schedules in page Nos.2.5 – 2.26.

The schematic representation for different types of common isolates is given below;



Generally the Common Isolates are represented by Roman lower case letter.

The Common isolates are not Main Class or Basic Class but the attachable to any host class to translate the given title exactly. They grouped into two major categories namely anteriorising commonisolate and posteriorising common isolate. The anteriorising common isolate can be further groupedas the following:

a) Applicable before Space Facet
b) Applicable only after Space Facet
c) Applicable only after Time Facet

The posteriorising common isolate also can be grouped under headings namely energy common isolate and personality common isolate. These different categories of common isolates has been illustrated diagrammatically below:

Anteriorising Common Isolate			**Posteriorising Common Isolate**	
Applicable before Space Facet	Applicable after Space Facet	Applicable after Time Facet	Energy Common Isolate	Personality Common Isolates
a Bibliography	r Administration	t commission	b1 Calculating	b Profession
c Concordance	report	report	b2 Designing	d Instituion
d Table	s Statistics	r4 Survey	b6 Measuring	e Educational
e Formula	(if Periodical)	r5 Plan	e1 Weighing	t2 Lower
i Atlas		r6 Tradition		t4 Higher
k cyclopadia				f Investigating
m Periodical				

i. ACI attachable directly without a connecting symbol to the host class number.
ii. Unless specified the Class Number of the host Class Number of the host class should be worked out to the fullest extent according to its facet formula, before attaching the Common Isolate. This rule is applicable for posteriorising common isolates also.
iii. Whenever warranted two or more ACI may be attached is succession.
iv. Every isolates of ACI which are applicable before space facet has a separate facet formula and the number should be constructed according to that foemula.

Dr. S.R.Ranganathan has also recognised another categorisation of common isolates namely interposing common isolates (ACI) and posteriorising common isolate (PCI) ACI are used for documents which require anterior position to other documents on the same subject./ Such documents are designated as ‘approach material’ as they are needed for preliminary perusal before the use of regular books required for continues reading. Examples of such ‘approach materials’ include bibliography, concordance, encyclopaedia etc.

PCI are used for documents which do not require anterior treatment. Examples of DCI include measuring, weighing designing etc. Both (ACI) and (PCI) are listed in colon classification may are grouped into different categories based on where it is applicable.

Anteriorising Common Isolate

The word 'anterior' is taken to mean before the host class. That is in the field of knowledge there are certain isolates which if associated with a class will be sought for preliminary perusal before the documents on the class are consulted. Documents in the category such as biography and bibliography are considered as approach materials to the subject. Such documents should be placed before the subject concerned. For example it is better to keep a bibliography on a subject before the subject itself.

Ranaganthan postulates, "A common isolate (CI) attachable to host class number directly without connecting symbol is an Anteriorising Common Isolate" (Colon Classification Ed.6 p.1.43).

The books belonging to a class, to which such common isolate is attached, are not normally read through at a stretch.

But they are consulted for some specific information or as a concerned subjects. Hence, in the arrangement of books, it also the subject contained. Ranganathan uses the term 'Approach material' to denote them. Such approach materials are bibliography, cyclopaedia, dictionary, periodicals, serials, conference proceedings and other kinds of reference materials.

In Colon Classification Anteriorising Common Isolates (ACI) are represented by Roman low case. Rnaganathan has also postulated that any class number followed by a lower case without connecting symbol intervening shall have precedence over the host class number. Thus among the class numbers B Mathematics Ba Bibliography Mathematics (where the Anteriorising Common Isolate 'a' stands for bibliography). Ba precedes B, Hence the sequence is:

Ba Bibliography of Mathematics
B Mathematics

Type of Anteriorising Common Isolates

There are three types of Anteriorising common isolates they are:

1. Anteriorising Common Isolates applicable before space facet;
2. Anteriorising Common Isolates applicable only after space facet
3. Anteriorising Common Isolates applicable only after Time Facet

Most of the Anteriorising Common Isolates are fitted with one or more personality facets or time facet. Geographical Device (GD) and Chronological Device (CD) respectively. When both personality facets are warranted, then the first facet to be get by

(GD) is to be put first and then the second facet to be got by (CD) and they are to be separated by a comma (Colon Classification Ed.3p. 1.44).

Anteriorising Common Isolated applicable before space facet:

The following is a table of facet for Anteriorising common isolates applicable before space facet;

Isolate No	Isolate Term	Facet Formula
a	Bibliography	A [T]
c	Concordance	
d	Table	
e	Formula	
f	Atlas	f [T]
k	Cyclopaedia (Dictionary)	k [P], [P 2]
m	Periodical	m [P], [P 2]
n	Serial	n [P], [P 2]
p	Conference Proceedings	p [P], [P 2]
v	History	v [S], [T]
w	Biography	
	General	w [S], [T]
	Individual	w [P]
	Autobiography	w [P], 1
	Ana	w [P], 2
	Letters	w [P], 3
x	Works (Collections or Selections)	
	General	x [S], [T]
	Individual	x [P]
y1	Programme of Instruction	
y2	Syllabus	
y3	Synopsis	
y4	Scope	
y7	Case Study	Same as for w
y8	Digest	

Some of the examples using Anteriorising Common Isolates Applicable Before Space Facet are as follows:

Anywhere after main class
eg. History of Physics Cv
Anywhere after the personality facet
eg. History of English Literature O111o
Anywhere after matter facet
eg History of silver currency X61:Iv
Anywhere after the energy facet
eg. History of Cataloguing 2;5 Iv

Anteriorising Common Isolates Applicable only after Space Facet

In CC Ed.6 page No. 2.6 Anteriorising common isolates that are applicable after space facet only(i.e. after the space isolate numbers) are enumerated as shown below:

Isolate No	Isolate Term	Facet Formula
r	Administration report	
s	Statistics (if periodical	s[T]

As per the Rule 22S in CC, the digit‘s’ is to be fitted with personality Facet, got by (CD) as for ‘m’.

Examples

1. Administration report on the University libraries in Tamil Nadu
   : 234,441Where 441 stands for Tamil Nadu.
2. Census of India, 1981 (it is a Statistical report brought out every 10 years
   : Y5,44sN8
3. Indian Agricultural Statistics 1970 : J,44sN7
4. Statistics of India University Education T4.44s

Anteriorising Common Isolate Applicable After Time Facet

The following (ACI) should be directly added only after [P] i.e. after the year or period number.

Isolate Number	Isolate Term
s	Statistics (if stray)
t	Commission report
t4	Survey
t5	Plan
t6	Ideal
v	Source Material
v5	Siterature
v6	Tradition
v7	Archaeological (as in V History)
v8	Archive (as 9n V History)

Examples:

1. Report of the Taxation Commission, India 1976 - X72.44'476t
2. Coal industry in India – a plan, 1980 – X8(F551).44'N8t5
3. Survey of publics of India during 1950 - X, 44'N48 N9t4
4. Economical Survey of India during 1950 - X,44'N5t4
5. History of Bibliography of Mathematics in India brought upto 1950s - Bav44'N45

Note: In this example, two (ACI) are attached successively as per the Rule 2032 in page No. 1.43 which reads as "whenever warranted, two or more (ACI) may be attached in succession".

Note: in the 7th edition of Colon Classification, since Ranganthan has thought of using Roman lower cases for the formation of isolate number by mixed notation, all the Anteriorising common isolate are attachable to a host class number with the indicator digit " " (double inverted commas)before the ACI notation.

For Example	6th Ed CC	7th Ed CC
1. Bibliography of Mathematics	Ba	B“a
2. Report of Taxation Commission, India 1976	Bav44’N5	X72.44’N76“t
3. History of bibliography of mathematics inIndia brought upto 1950s	Bav44’N5	B”a”v44’45

Posteriorising Common Isolate

The term “Posterior” means coming after. Hence posterior, using common isolate (PCI) means the common isolates when attached to the host class should come after the host class in the arrangement of documents. The Posteriorising common isolates are such divisions as may be commonly applied to many subjects they qualify. The subject with such sub-divisions may be better fitted after the host subjects. To secure posterior position to the host class, Rangananthan has adopted connecting symbols for common sub-division and postulated that “A common isolate needing a connecting symbol for attachment to host class number is a POSTERORISING COMMON ISOLATE OF (PCI) (COLON CLASSICATION ED. 3. Pl. 43).

Posteriorising Common Isolate like criticism helps to narrow down the extension increase the intension of the subject to which it is attacked. They are arranged after the documents on the class. The postriorising common isolates are linked to the host class number by means of a connecting symbol as to secure posterior place. They are two types-

Personality Posteriorising Common Isolate
e.g Library Profession 2,b

Energy Posteriorising Common Isolate
e.g As You Like It O111,2j,64

S.R. Ranganathan recognised the Common isolates in Colon Classification by following types:

1. Time isolates
2. Space isolates
3. Some of the Energy isolates
4. Some of the matter isolates
5. Some of the personality isolates

Types of Posteriorising Common Isolates

By way of applying the postulate for Posteriorising common isolates, we can identify all thefive fundamental categories as (PCI) with the following names:

1. Posteriorising Common Isolates of Time.

2. Posteriorising common isolate of space

3. Posteriorising matter common isolate and
4. Posteriorising personality common Isolate

Posteriorising Common Isolates of Time and Space

The time isolates are considered common Isolates. Those occur as (i) the usual time isolate ideas like millennium, century, decade, years and so on; (ii) The isolate ideas such as seasons, time by inner division, time by solar divisions and so on; (iii) Manifestation of fundamental category of time.

Likewise the space isolates are also common isolates. Time and space isolates are separately listed as schedules like other common isolates schedule and therefore satisfy the definition of commonisolates.

These isolates will be attached only in the case of local description or history of the host class. This finding of the Idea Plane is implemented in the notational plane by making the concerned connecting symbols precede the isolate number. But if we examine the common isolate schedule in CC ed. 6, p.2,5-2,6, the time and space common isolates, in the area of the Posteriorising common isolates, arenot found. However, they need enumeration which will be expanded and provided along with othercommon isolates in the 6th edition.

Energy and Matter Common Isolate Ideas

Among the manifestation of the fundamental categories Energy and Matter, some will he special and some other will be common isolate ideas. In the 6th edition CC. P 2.6 the energy common isolates are provided under the caption "Posteriorising Common Isolates. Energy Common Isolate as sown below.

Isolate Number	Isolate Term
b1	Calculating
b2	Designing
b6	Measuring
cl	Weighing
f	Investigation
f2	Observation
f3	Experiment
f4	Discussion
g	Criticism
p	Drafting
r	Reporting

u Surveying

The above common isolates are attachable with the host class with connecting symbol (Colon)so that the document secures posterior position to the host document.

Example

1. Practical Physics C:13
2. Observation of stars B96:f2
3. Critical evaluation of shake spear's English drams "Hamlet" (Shakespeare Was born in 1564) O111, 2J64,51:g
4. Evaluation of teaching of library science T:3(2):g

The matter common Isolate ideas consist of properties and values and not of materials. These common isolate ideas need enumeration. Upto 6th edition of CC they are not enumerated.

Posteriorising Personality common isolates

In the case of personality Common Isolate ideas only institutions have been listed. It is likely that there are other kinds of personality common isolate ideas too. In the 6th edition of CC p2.6, thefollowing personality common isolates are animated under "Posteriorising common isolates. Facet Formula (CI), [P], [P2]. [E].

Isolate Number	Isolate Term
b	Profession
d	Institution
e	Educational (in which the subject, represented by the host class in taught)
e2	Lower
e4	Higher
F	Investigation
f2	Observation
f3	Experiment
f4	Discussion
f7	Yogic (Astama)
G	Learned society
h	Industrial body
K	Commercial body
w	Administrative department of government

The above personality common isolates are attachable to any host class with the connecting symbol, (common) to secure posterior position of the host document in the arrangement. But Ranganathan has postulated that "A personality Common Isolate (PCI) should generally be added after [S] (Colon Classification Ed. 6 p. 1.48) under the Posteriorising personality common Isolate (PPCI) a facet formula has been given as shown below.

(CI), [P], [P2]: [E]

In the (CI) represent (PECI) attachable with any host class only after [S] and proceeded by a common.

[P] A (PCI) is to fitted with [P] which should be got by (AD) if a localized body or by (CD) if a non- document body (CC ed.6, p.1.48)

However, if you refer the annexure page No. 20, the correction Indicates that in case of using (CD) number, it is to be preceded by the digit 9.

[P2] A(PCI) may be fitted when warranted with [P2], [E] and [T] as the Main Class 'V history' (CCed. 6 p. 1.48)

This means all the isolates under [P], [E] of 'V' History and Time isolate schedule are applicable.

Example

1. Kodaikanal Observatory … B9,44,f2, KoD where KoD stands for Kodaikanal;
2. Report of Kodaikanal observatory… B9,44,f2 KoD (this is the case containing two (CI);
3. Madras University… T5.44,e4, Mads where mads stands for Madras University
4. Functional of Vice – Chancellor of Madras University in 1984. T4,44.e4, Mads, 12:3' N84 in which

T	Education
T4	University
T4,44	India
T4,44,e4	(PCI) e4 for higher educational
instituteT4,44,e4,Mads	Madras (being [P] obtained by (AD)
T4,44,e4,Mads, 12	Vice –Chancellor (obtained from [P] of (V History)T4,44,e4,Mads, 12:3 Function (obtained fro [E] of 'V History T4,44,e4,Mads, 12'N841984 (obtained from Time Isolate schedule)

5.5 COMMON ISOLATES IN DDC

There has been many change in DDC or different editions in respect of the common isolate. Common isolates were called by different names like common subdivision, standard subdivisions, from divisions, common subdivisions. The isolate numbers listed in Table 1 should not be used independently. They have to be attached with some isolate numbers (core number) taken from theschedule of main class.

They are, listed in table 1 volume 1of DDC, 18th edition which is given below:

Table 1: Standard Subdivisions

- 01 Philosophy and Theory
- 0 6 Indexes
- 02 Miscellany
- 022 llustrations and models
- 028 Techniques, Procedures, Apparatus, Equipment, Material
- 0285 Data Processing
- 0288 Maintenance and repair
- 03 Dictionaries, Encyclopaedias, Concordance
- 05 Serial Publications
- 06 Organisations and Management
- 07 Study and Teaching
- 08 History and description of the subject among group of persons
- 09 Historical and geographical treatment

Example

It may be noted that the standard subdivision numbers listed above should not be used alone. Inother words, these numbers will not stand alone and always be attached to some core numbers of some subject. When attached to the core number of some subject the dash "-" should be omitted. For example Encyclopaedia of Mineralogy is denoted by 54903 where, 549 is Mineralogy and 03 isEncyclopaedia: when the standard subdivision number '- 03' is attached to the core number 549 thedash is omitted.

Study and Teaching of Science' Here, 'Study and teaching is an isolate in table 1 with number'07' science is a main class with number '500'. When these attached together, one final number willbe 507.

Table 2: Areas

This is a table of notation denoting geographical areas. These notations are applied to othernotation in the schedules by means of add 'Notes". This table is the largest auxiliary table of volume 1.

Example

"Wages in Japan" in 331.952. Where 52 represented Japan which is taken from table 2 andattached with the core subjects wages 331.29.

Time isolates in DDC

In DDC, provisions for time isolates is limited when compared to other classification schemes.The time isolates are in the form of historical period given as a part of Table 1. The broad divisions ofhistorical periods are given below

-0901	to 499 A.d
0902	500-1499

-0903 modern period, 1500-

-0904 20th century, 1900-1999

-0905 21th century, 2000-2099

These broad divisions are subdivided and listed in table 1

5.6 ADVANTAGES OF COMMON ISOLATES IN CC

Common Isolates are used as a device to

1. Reduce the size of the classification schemes, as these make the scheme possible to avoidenumeration thereby satisfying the law of parsimony;
2. Provide more autonomy to a classifier in classification and aids his memory in identifying them;
3. Help the reference librarian in providing reference service;
4. Satisfy the canons of consistent sequence, helpful sequence, scheduled mnemonics andhospitality in array and chain.
5. Secure anterior position for reference materials in the arrangement of reading materials etc.

5.7 SUMMARY

It is observed in CC and DDC that CC provides an elaborate general rules and regulations for theapplication of common isolates in two ways namely without connecting symbol and with connecting symbol with the purpose of meeting the convenience of the readers in the arrangement of approach materials and supported reading materials to host documents.

In DDC, it is seen that by adding 'O' or "Os' for the application of Standard Sub-Division to the class number. The class number with standard sub-division secures posterior position to the class number without having standard sub-division. It is, therefore, obvious that the standard sub-divisions are posteriorising common sub-divisions; Hence, no technique has been so far recommended or adopted to secure anterior common sub-divisions in the DDC. However, Ranganathan has suggested that the notation 'O' may be invested with anterior value.

5.8 SELF ASSESSMENT QUESTIONS

1. What do you be common Isolates and explain types of Common Isolates in CC
2. Examine the treatment of Common Isolates in CC and DDC

5.9 SUGGESTED READING

1. Ranganathan, SR - Prolegomena to Library classification, Ed3 Chapter RR
2. Ranganathan, SR - Elements of Library classification, Ed2 Chapter P
3. Ranganathan, SR - Colon Classification,Ed.6 Chapter
4. Krishankumar - Theory of Library classification, Chapter 17
5. Srivatsava, AP - Theory of knowledge classification in libraries, New Delhi, Lakshmi Book Store, 1964

LESSON - 6

POSTULATES AND POSTULATIONAL PROCEDURE

AIM AND OBJECTIVES]

1. To explain the postulates as stated by Ranganathan
2. To illustrate the Postulational procedure as per the steps stated by Ranganathan
3. To understand the postulates and postulations procedure laid down by Ranganathan

Structure

6.1. INTRODUCTION

The term 'Postulate' means propositions or assumption or assumed principles or directives used as the basis for the development of any system of thought or for the working of any system oftechniques. Postulates do not admit of being categorized as true or false. They can only be consideredas helpful or unhelpful to the purpose for which they are used. If the postulates so propounded to meet the purpose do not stand valid in the light of experiment and experience, then they should be rejected as unhelpful. The strength of the postulates depends upon its existence against the test of time.

Since 1955, the break – through has enabled Dr. S.R. Ranganathan to base the design of classification on a set of postulates for the identification and separation of the facets of a subject. In other words, Postulational method enables to construct new tools as well as models. It also helps to keep clear of fallacies that are likely to make it cross boundary conditions. In this method, one is not even by factual experiences. Certain postulates are assumed and all the implications are worked out. By varying the postulates, we get different tools and postulates, model. So, classification too will gain efficiency if the Postulational method is adopted.

Above all, Postulational approach to classification has enabled Ranganathan to base his colonclassification on scientific principles rather than speculation.

6.2 POSTULATES

Ranaganathan says "A postulate is a statement about which we can not use either of the epithets "right" or "wrong". We can only speak of a set of postulates as "helpful" and "unhelpful".. (Elements of Library Classification, Asia, 1962: p.82). There are 17 postulates and are discussed.

6.2.1 Postulate of Fundamental Categories

These are five and only five fundamental categories, viz. Personality, Matter , Energy, Space andTime.

6.2.2 Postulate of Basic Facet

Each subject has a basic facet

Let us take at this stage, that Main class is a Basic Class of Basic Facet. There is a difference between a Main Class and a Basic Class. That need not to other, you, at this stage.

Some simple subjects only have Basic Facets and not any facets.

Examples:

1. Element of Library Science 2

2.	Introduction to Psychology	S
3.	Elementary Mathematics	B
4.	Education	T
5.	History	V

6.2.3 Postulate of Isolate Facet

A subject may have one or more isolate facets each of which can be deemed to be a manifestationof one and only one of the Five Fundamental Categories.

Some subjects have one or more ideas. The idea itself can not be a subject. If these ideas are coupled to basic class, we have a subject/subjects other than a simple subject/subjects with only Basic Subject. Each isolate which represent the idea is a manifestation of one and only one Fundamental Category. In other words each isolate should belong to one and only one fundamentalcategory. This piece of chalk I am using, the pen you are using only solids not liquids or gasses or theycannot be two of any of those three states at the same time.

Examples:

1. Classification of books in Indian University Libraries in 1985.

2	**34**	**43**	**51**	**44**	**N85**
Library Science	University [BC]	Books Liabilities [P]	Classification [M]	India [E]	1985 [S] [T]

ISOLATES	**FACET**	**FC**
University Libraries	P	P
Books	M	M
Classification	E	E
India	S	S
1985	T	T

2. X – Ray treatment for lung disease of dogs

KZ	**541**	**45:**	**4**	**:**	**6253**
Aninmal Husbandry [BC]	Dog [P]	Lung [P2]	Disease [E]		Treatment [2E] cum [2P]

ISOLATES	**FACET**	**FC**
Dog	P	P
Lung	P2	P
Disease	E	E

Treatment	2E	E
X- Ray Treatment	3[P]	P

Isolate Facets P, P2, 3P all are manifestation of one and only one of the five Fundamental Categoriesi i,e, [P]. Isolate Facets [E] and 2 [E] are manifestations of one and only one of the five fundamental categories. i.e. [E].

6.2.4 Consolidated Postulate about Subject:

A subject consists either of basic class alone or of a basic class and one or more manifestationsof or one more of the Five Fundamental Categories'

We will discuss this in two parts. There are some subjects represented by only a basic class. These we may call simple subjects.

Examples:

Library Science	-	Basic Class	2
Animal Husbandry	-	Basic Class	KZ
Botany	-	Basic Class	I
Mining	-	Basic Class	HZ
Economics	-	Basic Class	X

There are some subjects which are not simple subjects as mentioned above but may contain idea/ideas which in turn make the subject more specific. All these ideas are represented by isolate facets. These isolate facets are nothing but manifestation of one or more five fundamental categories.

Examples:

X – Ray Treatment for the Lung Diseases of Dogs Animal Husbandry is the Basic Class

Dog	-	Manifestation of Fundamental Category	Personality
Lung	-	Manifestation of Fundamental Category	Personality
X - Ray	-	- do -	Personality
Disease	-	- do -	Energy
Treatment	-	- do -	Energy

There are five foci. Out of these five, three foci belongs to the Fundamental Category

'Personality' and the other two foci are manifestations of fundamental category energy. Number of foci in addition to the basic class and the number of faci in addition to the basic class and the number of facets which are manifestations of Fundamental Categories (Total five only) depends on how specific the subjectis.

6.2.5 Postulate of Concreteness:

The five fundamental categories fall into the following sequence, when arranged according to their decreasing concreteness: P.M.E.S.T.

If the subject has more than one fundamental category the sequence will be as above after basic class, according to the concreteness of fundamental categories. (P) is more concrete, than M. which is more concrete than (E) and then (S) and (T) which are less concrete than (E) (S) is more concretethan (T).

When we arrange books on the shelf, we follow the reverse order i.e. (T), (S), (E), (M), (P) as the books are arranged from general to specific. If you go to the shelf for example, where library science books are arranged and move left to right, you notice that the arrangement is from general to specific. This reverse order id known as 'Principle of Inversion'.

In the part II of CC under the each class you will find the facet formula, as per this postulate.

Examples:

Circulation of periodicals in the College Libraries in India in 1985.

Class No : 233:46:6.44'N85

Explanation :

2	Library Science (BC)
33	College (P)
;	Semi – Colon Connecting symbol for (M)
46	Periodicals (M)
:	Colon – Connecting symbol for (E)
6	Circulation (E)
.	Dot – Connecting Symbol for (S)
44	India (S)
'	Inverted coma connecting symbol for (T)
N85	1985 (T)

6.2.6 Postulate of Sequence

The basic facet of the subject should be placed first: and the other facets should be arranged thereafter in the sequence of the decreasing concreteness of the fundamental categories of which they are respectively taken to be manifestations, provided their is not more than one basic facet andmore than one manifestation of any fundamental category.

Regarding the first part of this postulate the example given under the postulate5, will help you tounderstand. There, to the basic class, Library Science (2) other facets are added.

So it is the basic class that makes other facets meaningful. Basic class is like a railway engine, Facets are like compartments. Without the engine, compartments cannot move. Because of the engine, the compartment will become mail compartment or express compartment etc.

Coming to the last part of the postulate, the subjects with two basic classes. Regarding the more than one manifestation of nay fundamental category, the explanation given under the postulates
10. 11, 12,14 and 15 will help you to understand this.

6.2.7 Postulate of Connecting Symbols:

In Colon Classification the connecting symbols to be inserted in front of the various kinds offacets are given in the following table.

Facet	Connecting Symbols
P	, (Comma)
M	; (Semicolon)
E	: (Colon)
S	. (Dot)
T	’ (Inverted Comma)

These you must have known already. These are all known as face indicators. In the beginning Dr. S.R.Ranganathan used only : (colon) as a connecting symbols for [P] [M] and [E] and same connecting symbol [Dot] for [S] and [T]. in the 6th edition he has assigned individual connecting symbolsdot for [S] and inverted comma for [T].

If you go through the schedule, here and there in the examples you come across that, (dot) isused for [S] and [T].

6.2.8 Postulate 1 for omission of connecting symbol:

In colon Classification, the connecting symbol need not be inserted before ‘[P]’ if it immediatelyfollows (BC.)

This postulate says that the classifier need not insert the connecting symbol for ‘P’ facet if it comes immediately after basic class.

1. University Libraries	234
2	34
Library Science (BC)	University Library[P]
2. Psychology of Criminal	S65

	S	65	
	Psychology (BC)	Criminal [P]	
3.	University Education	T4	
	T	4	
	Education (BC)	University [P]	
4.	Disease of ear	L185:4	
	L	185 :	4
	Medicine (BC)	Ear [P]	Disease [E]
5.	Diseases of Leaves	1,15:4	
	1	15	4
	Botany (BC)	Leaf [P2]	Disease [E]

In the last example there is a connecting symbol between (BC) and [P2]. This is correct because it is not [P] it is P[2] only. But [P] and [P2] are the manifestations of the fundamental category 'Personality'.Postulates 14 and 15 will help you to understand this.

If [P] facet comes after a System or Specials, there should be a connection symbol (comma) separating System and [P] and Special and [P] detailed discussion with illustrations is given in the lesion 23.

6.2.9 Postulate for Space and Time Facets:

Ordinarily, [S] and [T] subject be put last in the sequency in which they are mentioned here.

Here we will discuss one title in detail. This will help you not only to understand this postulates but also other postulates such as 10 etc.

"X – Ray treatment for the Lung T.B of dogs in the delta areas of India during 1985".
KZ54 1,45:421:6253.44 'N85

If you analyse this title you will have the following isolates

ISOLATES	FACETS	NOTATION
Animal Husbandry	(BC)	KZ
Dog	[P]	541
Lung	[P2]	45
Disease	[E]	4
Tubercular Bacillus	[2P]	21
Treatment	[2E]	6

X – Ray	[3P]	253
India	[S]	44
1985	[T]	N85

The class number by following the particular is:

KZ	641,	45:	4	21:	6	253.	44	'N85
BC	P	P2	E	2P	2E	3P	S	T

From the above example, it is seen that after arranging all the facets of fundamental categories of [P] [M] & [E] then only [S] and [T] have to be added according to the decreasing concreteness. So,Facets of Fundamental Categories [S] and [T] are always come at the end.

6.2.10 Postulate of Rounds for Energy in Succession:

Energy may manifest itself in one and the same subject more than once – that is in more thanone Round.

6.2.11 Postulate of Rounds for Personality and Matter

It is possible for a manifestation of Personality and Matter to occur after [1E] again after [2E] again after [3E] and so on – that is in any Round.

The following explanation will help you to understand 10^{th} and 11^{th} postulates.

[P] [M] and [E] may manifest more than once in a subject. These may be rounds of levels. Wewill try to understand these terms though it is very difficult. At least for the purpose of practical's we will try. If an isolate is an independent, does not depend on other isolates for its survival, if it has its own structure and movements, you may call this isolate as 'Round'. If an isolate is a part, depends on other isolate for its survival you may call this isolate as level. If this is removed from another isolate it cannot function. See the example explained under the postulate – 9. Lung is a level, because it is apart of the dog. If dog dies, lung cannot function. Take isolate Tubercular Bacillus. It has its own personality. If it is not lung it can affect some other parts of the body. So, it does not depend on the 'Lung' solely. Some way X – Ray Unit. It has its own structure. It can be used for the treatment of other diseases, other persons or animals etc. sotheses are Rounds

[P] [M] and [E] may appear more than once in the same subject. The second, third manifestationsof these in the same subject known as second round and third round etc.

They are represented as follows:

[2P] Second Round Personality Facet
[3P] Third Round Personality Facet
[2M] Second Round Matter Facet
[3M] Third Round Matter Facet
[2E] Second Round Energy Facet

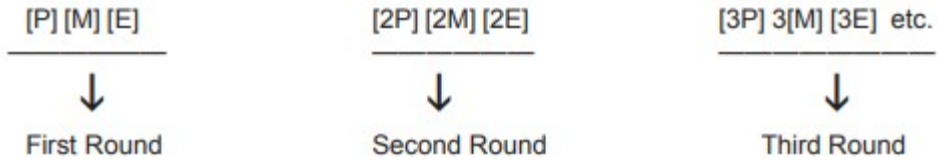
[3E] Third Round Energy Facet etc.

In the case of first round just may say [P] [M] and [E] instead of first round [1P] facet [1M] facetand [1E] facet.

6.2.12 Postulate of Sequence within a Round:

The sequence of the isolate facets within a round should be the same as given by the postulateof sequence (Postulate 6).

According to the Postulate 9 [S] and [T] should be put last. Now left out facets are [P] [M] and [E] so there should be put in the sequence of rounds of facets are as follows:



6.2.13 Postulate – 2 of Omission Connecting Symbol:

In colon classification, the connecting symbol need not be inserted before [2P], [3P] etc. it thesefollow immediately after [E], [2E] etc.

This says there need not be a connecting symbol between [E] and [2P] or [2E] and [3P] or [3E]and [4P] etc. otherwise you have to insert a comma. So through out the schedule you come across [2E] cum [3P] or [E] cum [2P] etc. Sometimes it is difficult to know which is [2P] etc.

See the illustration given under the postulate 12. In the sequence you may notice [2P] comes after [E] – [3P] comes after [2E] etc.

See the example given under the Postulate 9. There you will find the omission of connecting symbols between [E] and [2P] and [2E] and [3P]. It is given again here for your easy consultation.

"X – Ray treatment for the lung TB of dogs in India during 1985".

This basic class in Animal Husbandry – KZ 541,45:421:6253.44 'N85.

KZ	541,	45:	4	21:	6	253	.44	'N85.
Animal Husbandry [BC]	Dog [P]	Lung [P2]	Disease [E]	TB [2P]	Treatment [2E]	X – Ray [3P]	India [S]	1985 [T]

KZ	-	Animal Husbandry	[BC]
541,	-	Dog	[P]
45:	-	Lung	[P2]
4	-	Disease	[E]
21:	-	TB	[2P]
6	-	Treatment	[2E]
253	-	X – Ray	[3P]
.44	-	India	[S]
’N85	-	1985	[T]

There is no connecting symbol between 4 & 21 [E] cum [2P] and 6 & 253 [2E] cum [3P].

6.2.14 Postulate of Level:

Personality may manifest itself in one and the same round in a subject, more than once – that is,in two or more levels.

So, also in the case of matter, Space and Times.

We have discussed about level under the Postulate 11, and you must have some idea to carry outour practical. This ‘postulate says, Matter, Space and Time have levels. Personality, Matter have level and rounds. Energy has only rounds. Space and Time have only levels. Second level, third level etc.are represented as [P2] and {P3} or [S2] and [S3] or [T2] and [T3] etc.

6.2.15 Postulate of Level Cluster:

Facets of different levels of the same Fundamental Category within a round should be kept together.

The different levels of (P) (M) and (T) of a Round should be put together.

e.g. (1) Lung Diseases of Dogs:
Class No : KX 541,45:4

Example :

KX	Animal Husbandry	(BC)
541	Dog	[P]
45	Lung	[P2]

4 Diseases [E]

[P] and [P2] belong to the first round personality so they are kept together.

(2) Criticism of the Hamlet:
O111, 2J64, 51:g

This means, Hamlet is an English drama, written by William Shakespeare. Drama is one of the literary forms. William Shakespeare is one of the English dramatists. Hamlet is one of his dramas. Form this you can see that how they are connected to one another.

O	111,	2	J64,	51	:g
Literature (BC)	(English) (P)	Drama (P2)	Shakespeare (P3)	(Hamlet) (P4)	Criticism (Posterior Energy Common Isolate)

O - Literature (BC)
111 - English Language (P)
2 - Dram (Literary form) (P2)
J64, - Shakespeare (P3) (author's year of birth as CD)
51 - Hamlet (P4) (work)
:g - Criticism (PC1 Energy)

6.2.16 Postulate 3 for Omission of Connecting Symbol:

In Colon Classification, of two consecutive facets, if all the isolate numbers in the earlier facet are known to consist of the same number of digits, connecting symbol between the two facets may be omitted.

In the example discussed under the postulate 15, there is no connecting symbol between (P2) and (P3). If you see the literature schedule (p.2.:94). Foci in (P2) are single digited and Foci in (P3) you get by CD (author's date of birth has to be taken into consideration) (P2) and (P3) are consecutive facets. (P2) is earlier facet among the two. So as per this postulate connecting symbol between (P2) and (P3) is omitted.

At the number of places you have to make use of this postulate. For example see the schedule for Architecture and the facet formula given under. There you find there is no connecting symbol between (P2) and (P3). Same you will also come across in Linguistic Class (p.2.95).

Example:

1. Nouns in Modern French P122, H31

P	122	H	31
Linguistics (BC)	French Language (P)	Period (P2)	Nouns (P3)

P - Linguistics (BC)
122 - French Language (P)
H - Period (Modern) (P2) Got by CD
31 - Nouns (CD)

Whole of P2 schedule contains single Roman capitals. So there is no need to insert the connectingsymbol between [P2] and [P3].

6.2.17 Postulate for Anteriorising Quality:

In colon Classification any number followed by Roman lower case letter shall have precedenceover their original number.

This is concerned with the arrangement. You need not insert any connecting symbol betweenthe host class and Anteriorising common isolate (CC.p. 1.43).

This postulate says the class number with Anteriorising common isolate comes first and theoriginal number or host class comes next in arrangement.

2a Bibilography of Library Science
2 Library Science

The book with the class number 2a comes first and the book with class Number2 comes next when they are arranged on the shelf. Same with the arrangement of entries in the classified catalogued.

6.3 POSTULATIONAL PROCEDURE

This also known as 'Practical Classification'. Beginners should know how to classify a book, Dr. S.R. Ranahanthan has given 9 steps. The beginners should follows these steps and apply the Postulates, where ever it is necessary to get the Class Number. In the beginning you may follow thesesteps to systmatise your thinking and classification procedure.

The nine steps are as follows:

Step - 0 Raw Title
Step - 1 Full Title or Expressive Title
Step - 2 Kernel Title
Step - 3 Analysed Title
Step - 4 Transformed Title
Step - 5 Title in Standard Terms
Step - 6 Title in Focal Numbers
Step - 7 Title in Synthesised Focal Numbers (Class Numbers)

Step - 8 Verification by Reserve Translation

Step - 81 Facet Analysis

Step - 82 Digit by Digit Translations

These steps are explained below with an example.

Step 0 - Raw Title:

Title is as found in the document. If you go to the title page of the document, you will find the titleof the document. That has to be taken into consideration.

e.g. Introduction to Reference Service

Step - 1 Full Title or Expressive Title

This is derived from the raw title. This should be expressive. Ellipsis should be filled to make it full title. Here we have to supply if any implied facets are not expressed in the raw title. Many a time you may have to add basic facet. Sometimes you have break the composite term/terms into its/their constitute terms (See the example 2).

Eg. Introduction to Reference Service in Library Science.

Step - 2 Kernel Title

Here you have to omit all the auxiliary terms and retain only substantive terms. These substantiveterms should be in normative case and in the singular number.

Eg. Reference Service, Library Science
(Introduction to, and in , are removed)

Step - 3 Analysed Title

Here you have to mark against each Kernal Term, the nature of the facet.

Eg. Reference Service [E]
Library Science (BC)

Step - 4 Transformed Title

Here the Kernal Terms along with their respective facet symbols should be rearranged in accordance with the appropriate postulate/postulates.

Eg. Library Science (BC) Reference Service [E]

Step - 5 Title in Standard Terms

If the Kernal Term is different from the term used in the Classification Schedule, the Kernal Term should be replaced by the term used in the classification schedule. This is essential to maintain theuniformity, consistency in terminology.

Eg. Library Science (BC) Reference Service

(Here there no change of terminology as the same terms are used in Colon Classification)

Step - 6 Title in Focal Numbers

The facet symbols that are against the standard terms, should be retained. Ordinal numbers inplace of the standard terms should be added.

Eg. 2 (BC) 7[E]

Step - 7 Title in Synthesised Focal Numbers (Class Numbers)

In this step facet symbol will be omitted and the ordinal numbers should be connected by usingthe connecting symbol as per the Postulates.

Eg. 2:7

Step - 8 Verification by Reserve Translation

Whether the Call Number is right or wrong, we may find out from verifying through Facet Analysisand Digit by Digit Translation.

When you are were a school student, in your arithmetic class after working out a number you should checked your answer with the answer provided at the end of book. If you are wrong you mighthave tried to workout back your sum from the printed answer

Step - 81 Facet Analysis

The class number should be analysed into facets

Eg. Class Number 2:7

2	Basic Facet
7	Energy Facet

See the step 5 and 6. You have same facets. So no facet is omitted in constructing the classnumber.

Step -	82	Digit by Digit Translations
	2	Library Science
	7	Reference Service

See the step 5. You will notice same standard terms. No standard term was omitted.

Example - 2: HAMLET

Step 0 - *Raw Title* : Hamlet

Step 1 - *Full Title*: Hamlet an English Drama, Written by Shakespeare born in 1564, In Literature

Step 2 - *Kernel Title*: Hamlet, English Drama, Shakespeare, Literature

Step 3 - *Analysed Title*:

Hamlet	[P4]
English	[P1]
Drama	[P2]
Shakespeare	[P3]
Literature	(BC)

Step 4 - *Transferred Title*:

Literature	(BC)
English	[P1]
Drama	[P2]
Shakespeare	[P3]
Hamlet	[P4]

6.4 UTILITY OF POSTULATIONAL APPROACH

The utility of Postulational approach to classification is given below:

1. It avoids confusions in the making of classification and in its practice;
2. One can examine the discipline objectively. Through it each subject gets its own facet formula;
3. The postulates help in the treatment of different features of the universe of knowledge in a suitablemanner;
4. It enables to base the classification on scientific principles thereby evolving design apparatus and models;
5. The resulting scheme of classification due to the postulates is a 'Freely Faceted Classification' in every sense of the term;
6. To the classifier, the postulates guide to construct the right and micro – class number;
7. It helps to compare different scheme so as to find out the efficiency of a particular scheme forclassification;
8. It helps to present the analytico – synthetic process in constructing class number for a subject;
9. Postulates lead to secure a more or less helpful sequence among the known classes ofknowledge;
10. They enable the newly emerging classes to find a more or less helpful place among the already existing classes with little disturbances to their own established sequence; and
11. They make the scheme more or less self – perpetuating and thus increase its expectations oflife.

6.5 SUMMARY

The Postulates and Postulational approach is an indispensable condition for the success of any scientific theory or process. Therefore it is appropriate that the design and development of faceted classification scheme should be based on a sound theory of

postulates ad principles. Postulates have been successfully described by S R Ranganathan in Colon Classification. One has to follow this procedure described in the lesson so as to achieve sequential approach in classification practice.

6.6 SELF ASSESSMENT QUESTIONS

1. Explain the postulates as stated by S R Ranganathan
2. What do you mean by Postulational procedure?
3. Illustrate Postulational procedure with an example

6.7 SUGGESTED READINGS

1. Ranganathan, SR - Prolegomena to Library classification, Ed3 Chapter RR
2. Ranganathan, SR - Elements of Library classification, Ed2 Chapter P
3. Ranganathan, SR - Colon Classification,Ed.6 Chapter
4. Krishankumar - Theory of Library classification, Chapter 17
5. Srivatsava, AP - Theory of knowledge classification in libraries, New Delhi, Lakshmi Book Store, 1964

LESSON - 7
FIVE FUNDAMENTAL CATEGORIES

AIM AND OBJECTIVES

The objective of this unit is to explain the fundamental categories, the basic facet, isolate and rounds and levels of the fundamental categories and the postulational approach. After studying this lesson you must be in a position to understand the need for postulational approach, what are the fundamental categories and their need, the postulates of fundamental categories. You must also
understand the concept of basic facet, isolate, rounds and levels of the five fundamental categories.

Structure

7.1 INTRODUCTION

In the introductory units we have learnt that for library classification we need to have classification schemes. The classification schemes are of various types. The basic categories of the classification schemes are: The enumerative schemes and the faceted schemes. In the enumerative schemes we enumerate or list out the subjects in the classified order whereas in the faceted schemes instead of enumerating the subjects we enumerate the subject components/terms,that are called isolates, in classified order. Further, these subject components need to be grouped into facets. In this context there is a need to identify the facets. To facilitate facet identification categorisation of the subject components is very essential. Therefore, the foundation for a faceted scheme for classification, especially the freely faceted or analytico-synthatic schemes for classification such as Colon Classification, is the enunciation of the fundamental categories. In view of this S.R.Ranganathan identified the Five Fundamental Categories as the foundation for his Colon Classification apart from the dynamic theory of library classification contributed by him.

7.2 POSTULATIONAL APPROACH

Why should there be only five fundamental categories? Why not two? Why not three? For instance when we classify all the entities in the universe into living things and non-living things there are only two categories. Therefore, Ranganathan says "One may ask "Why should the Fundamental Ideas postulated be five? Why not 3? Why not 6?" It is possible. There is absolute freedom for everybody to try it out. A person may be fond of six. If they produce satisfactory results in arrangingthe subjects of the articles along a line, that postulate may be accepted. This is not a matter to be argued out ex cathedra without such a thorough and prolonged try-out. Working on the basis of five fundamental ides has produced satisfactory results during the last twenty years. Even while keeping to the number five, the ideas postulated may be different. This is also possible. The postulation ofsuch new ideas, in the place of those suggested [PMEST] is worth accepting, if it helps in mappingthe universe of subjects in a helpful sequence along a line." (Prolegomena, p.398). It all means that postulational approach does not subscribe to any logical argument as to whether the approach is logical and absolute, on the other hand it emphasises on the point that whether the approach is helpful or not? Whether it produces satisfactory results are not?

7.2.1 Need for Postulational Approach

Where there is infinite number of entities and all these entities can be categorised into innumerable number of categories, in other words, there is a scope for unlimited number of categories, the magnitudeof the problem will be unmanageable. Therefore, stipulating certain limitation becomes essential. Even here there may not be any agreement therefore there is a need to resort to postulational approach. The magnitude of the problem of mapping the multi-dimensional universe of subjects along one line isvery much considerable. Ranganathan states "There are myriads of immediate neighbourhood- relations possible …. Having fixed one of the subjects in the first position in the line, we have to decide which should be its immediate neighbour, which its neighbour of remove 2, and so on. We may spend sleepless nights and yet be no nearer to a firm solution. If we are not serious students of classification, we may give it up saying, "Classification is impossible". It is with a purpose to make the impossible task a possible task, there is a need to resort to postulational approach and thus enunciate that

there will be so many number of fundamental categories only. Ranganathan did the same and stated that "There are five and only five fundamental categories-viz, Time, Space, Energy, Matter, andPersonality.

7.2.2 Advantages of Postulational Approach

The first and fore most advantage of postulational approach is that we will be in a position to come to an in the process of limiting the number of categories that are required for grouping the entities. Subsequently, when the number is limited or preferably smaller then it becomes manageable.Finally it offers satisfactory results at the practical plane.

7.3 POSTULATE OF FIVE FUNDAMENTAL CATEGORIES

The postulate of five fundamental categories reads as "there are five and only five fundamental categories—viz, Time, Space, Energy, Matter, and Personality" (Prolegomena, p. 399). Further, Ranganathan states that these terms and the ideas denoted by them belong strictly to the context ofclassificatory discipline. They have nothing to do with their use in Metaphysics or Physics. In our contest, their significance can be seen only in the statements about the facets of a subject—their separation and their sequence. This set of fundamental categories is, for brevity, denoted by the initionym PMEST. Here we should understand that the idea denoted by these categories would not be that of their actual sense. For example, the fundamental category 'Energy' does not stand for the idea 'power'. In the context of classificatory discipline it stands for different things as seen only in the statements about the facets of a subject. Let us take an example and try to understand the presence of different subject components and then understand the significance of categorising them into the five fundamental categories.

E.g.: Classification of periodicals in university libraries in India during 1950s

The above is the name of the subject of a document. Let us analyse the subject. On the analysis of the above subject, we find the component of 'classification' (a process), the other component 'periodicals' (the reading material), 'University libraries' (a system of library), 'India' (a place or space) and '1950s' (a time element). Thus in every subject we find various components. In order to dealwith all these components we need to organise them into various categories. In view of this there is a need to identify the fundamental categories. Ranganathan had identified Five Fundamental Categories (FFCs). Let us see what do they stand for and how we can categorise various subject components or elements into these FFCs.

7.3.1 Time :

In the order of PMEST 'TIME' is the last category. But we discuss about time first because it is very easy to identify the time component in a subject compared to other components. Therefore, for explanation of these FFCs, the order is reverted. Ranganathan himself says, "Perhaps the fundamental category "Time" gives the least difficulty in its identification. It is in accordance with what we commonly understand by that term. The usual Time Isolate Ideas—such as mellenium, century, decade, year, and so on—are its manifestations. Time Isolates of another kind—such as, day and night, seasons such as, summer and winter, time with meteorological quality—such as, wet, dry, and stormy—are

also taken as manifestations of the fundamental category "Time".(Prolegomena. p. 399)
E.gs. : *Telugu poetry during 15th century.*

In the above title of a book 15th century is the time isolate or component of the subject.

Cultivation of rice in summer 'summer' the time component in the above title. Thus, "Time" category may occur in any subject. This shows the manifestation of "Time" category in any subject.

7.3.2 Space :

Next to "Time" it is the fundamental category "Space" that can be identified easily. The geographicalentities on the surface of the earth, the space inside it and the space outside it are the manifestations of the fundamental category "Space". The examples are: continents, countries, states, cities, oceans, seas, rivers, lakes, mountains, deserts, etc. These are categorised as Geographical isolates, Physiographical isolates and the population clusters. The Geographical isolates are: continents, countries, oceans, seas, etc. The Physiographical isolates are: rivers, mountains, etc. and the Population clusters are: the city, town, village, etc. We shall see the presence of "Space" category and the following categories in different subjects under section 6.3.6.

7.3.3 Energy

The identification of the fundamental category "Energy" is a little more difficult compared to "Space" and "Time". The dictionary meaning of the word "Energy" is strength or power. But, this is not the sense in which the fundamental category "Energy" is used. Ranganathan describes this category as one whose manifestation is action of one kind or another. The action may be among andby all kinds of entities—inanimate, animate, conceptual, intellectual, and intuitive (Prolegomena, p.400). Till the seventh edition of CC this category was also predominantly described as the "Problem" component in a subject. As a category denoting action, the manifestations of the fundamental category "Energy" are: Actions, activities, processes, work, etc. including the concept of problem till Seventh edition of CC.

7.3.4 Matter

"The identification of the fundamental category "Matter" is more difficult than even of "Energy". Its manifestations are taken to be of two kinds—Material and Property (Prolegomena, p. 400). Here Ranganathan himself presents an argument in the following fashion. "It may look strange that propertyshould be taken along with material. But let us take a table as an example. The table is made of thematerial timber or steel, as the case may be. The material is intrinsic to the table, but is not the table itself. Moreover, the same material can figure also in several other entities. So also, the table has the property of being 2-1/2 ft high and the property of having a soft top or a hard top. This property is intrinsic to the table, but is not the table itself. Moreover, the same property can figure also in several other entities. …" This argument clearly states that every material is a manifestation of "Matter" and at the same time every matter has certain property of its own. Therefore, the manifestations of the fundamental category "Matter" are Material and Property.

7.3.5 Personality

"The fundamental category "Personality" presents the greatest difficulty. It is too elusive. It isineffable." (Prolegomena, p.401). When Ranganathan himself calls it as elusive and ineffable, thenwhy to use this category and how to identify this category? It is because this category is the most concrete category and the concept behind it is superior to any other concept. Therefore, Ranganathan retained this category and he presented an easy method of identification of this category. He calledthis method as "The Method of Residues".

7.3.6 Identification Of The Five Fundamental Categories

Let us take the following example:
E.g.. 1: Breeding of sheep in Australia during 1980s
In the above title we have the following components:

Breeding, sheep, Australia, and 1980s

- The component "Breeding" is related to a process therefore it should be identified as "Energy" category.
- It is easy to identify "Australia" as "Space" category because it is a country a geographical entity.
- It is further easy to identify "Time" "1980s" is clearly a time component.
- Now comes the identification of the component "Sheep" with the five fundamental categories. Let us apply the method of residues. "Sheep" is doubtlessly not a "Time", or "Space", or "Energy", or "Matter" component. Therefore, it should be one of the manifestations of "Personality" category.

Let us take the example given under section 6.3

E.g. 2.: Classification of periodicals in the university libraries in India during 1950s In the above title we have the following components:

Classification, Periodicals, University Libraries, India, and 1950s

- The component "Classification" is related to a process in the libraries it should be identified as "Energy" category.
- "Periodicals" being reading materials in the libraries can be identified as "Matter" category.
- It is easy to identify "India" as "Space" category because it is a country a geographical entity.
- It is further easy to identify "Time" "1950s" is clearly a time component.
- Now comes the identification of the component "University libraries" with the five fundamental categories. Let us apply the method of residues. "University libraries" is doubtlessly not a "Time" component, But it could be a space because university library is a place in the university campus where the university collection is located. No, it can be a manifestation of "Matter" category because a library is a collection of books or reading materials. When we identify periodicals as "Matter" category then a collection of such reading materials (the library) should be considered as manifestation of

"Matter" category. But, it is not so. Therefore, Ranganathansaid, the method of residue cannot not be applied everywhere. Here we have to apply our intelligence and understand the concept behind the component "University library" University library is a system. As a system it is neither "Time", nor "Space", "Energy", "Matter". Therefore, it should be the manifestation of "Personality" category. Further, the Basic Class of the above given subject is "Library Science" and library science is a science of libraries. Therefore, the core element of study in library science is the library itself. Therefore, "University libraries" should be identified as the manifestation of "Personality" category.

E.g. 3 : Analysis of Gold

In the above example we have the components viz. Analysis and Gold

- Analysis being a process can be identified as "Energy" category

- Gold being a material should be identified as "Matter" category. But this is not the right way of identifying the manifestation of the five fundamental categories. They should not be identifiedblindly. Gold , doubtlessly a material or element, but it is the core element of study in Chemistry because chemistry is a science or study of elements/substances. Therefore, Gold here is the manifestation of the fundamental category "Personality".

The "Personality" category is the first category in any subject because the first "Personality" element in a subject forms the core element of the study and every subject deals with a core elementof study. Therefore, Ranganathan had prescribed the postulate of Basic Facet.

7.7 FACET ANALYSIS

In analytico-synthetic schemes for library classification, with the knowledge of the fundamental categories prescribed by the scheme, we need to do facet analysis without which we cannot classify the documents. The steps involved in facet analysis are:

1. **Raw Title:** The title present on the title page of the document is considered to be the raw title.Because it may indicate the subject of the document with all its components or it may not do so. Therefore, it is called as raw title. Take the title of the document if it is fully expressive of its subject or else
2. **Identify the Basic Facet :** On the basis of the Raw Title or after going through the contents pages and the text of the document, the Basic Facet of the subject of the document should beidentified
3. **Identify the Isolate Facets :** All the relevant isolate ideas in the subject of the document shouldbe identified. As a result of this we will be in a position to derive a Full Title.
4. **Full Title :** Title expressing each of the relevant basic and isolate ideas in the subject of the document, got by filling up all the ellipses in the Raw Title. This means, we have to rewrite thetitle with all the isolate ideas besides the basic facet that are relevant to the subject of the document.
5. **Kernel Title :** It is Full Title minus all the auxiliary or apparatus words and with each compositeterm denoting a composite idea replaced by the fundamental constituent terms denoting its fundamental constituent ideas. This means that the auxiliary or apparatus

words such as conjunctions, connecting words, etc. should be removed from the Full Title and only fundamentalterms should be retained.

6. **Facet Analysis :** Analyse the Kernel Title. In other words the facet analysis here means that each and every isolate idea apart from the BF should be identified with their respective roundsand levels of the five fundamental categories. Let us take the example given under section 6.6and analyse it to have better understanding of facet analysis.

E.g. : *"Drug therapy for viral infections to the lungs of dogs in Northern Australia during summersof 1980s".*

Step 1: Raw Title : Drug therapy for viral infections to the lungs of dogs in Northern Australia during summers of 1980s.
The above title is a Raw Title because it is without its

BFStep 2: Identify the BF : The BF of the above title is Animal Husbandry.

Step 3: Identify Isolate facets : The title has Drug, Therapy, for Viral, Infections, to the Lungs, of Dogs, in Northern,Australia, during summers, of 1980s

Step 4: Full Title : When we add the BF to all the isolates then we derive the Full Title. The Full Title is: Animal Husbandry. Drug, Therapy, for Viral, Infection, to the Lungs, of Dogs, in Northern, Australia, during summers, of 1980s.

Step 5: Kernel Title : Animal Husbandry. Drug, Therapy, Virus, Disease, Lung, Dog, Northern, Australia, summer, of 1980s. (This is the Full Title Replaced by fundamental constituent terms. Minus auxiliary terms such as 'for', 'during' etc.

Step 6: Facet Analysis : Let us analyse the title as per CC 6th edition.
Animal Husbandry (BF). Drug [P], Therapy [E],
Virus [P], Disease [E] , Lung [P], Dog [P], Northern [S],
Australia [S] , summer [T], of 1980s [T]
Above we find four Ps, two Es, two Ss and two Ts.This indicates the need for identification of the Rounds and levels of the fundamental categories.

When the BF is Animal Husbandry the core element of the study is animal therefore, after AnimalHusbandry (BF) there should be Dog [P] the next facet should be the part of the dog i.e. Lung [P]. This facet should be followed by Disease [E] because without the concept of disease the concept of therapy is in operative. The the subdivision of disease i.e. the type of disease viz. the viral infectiontherefore the Disease [E] facet is followed by Virus [P] this is followed by Therapy [E] followed by Drug[P] then Australis[S] Northern [S], 1908s [T] and finally Summer [T]. When we put only the aboveterms with their facet it will be:

Animal Husbandry (BF) Dog [P]. Lung [P]. Disease [E] Virus [P] Therapy [E] Drug [P] Australis [S] Northern [S], 1908s [T] Summer [T].

Since there should be distinction between and among the four Ps, two Es, Ss and Ts. We should identify them with their respective rounds and levels of manifestation. Then we will numberthem as follows:

Animal Husbandry (BF) Dog [P]. Lung [P2]. Disease [E] Virus [2P] Therapy [2E] Drug [3P] Australis [S] Northern [S2], 1908s [T] Summer [T2]. Thus the facet analysis will be carried out.

7.8 ARRANGEMENT OF FACETS

In the above step for facet analysis we have arbitrarily arranged the facets. As a matter of factthe facets should be arranged as per the prescribed principles for facet sequence. In the next lesson we will learn the principles for facet sequence. But we should remember that in a round when a particular fundamental category occur for the first time it will be the first level of that category underthat round, if the same category figures immediately then it should be considered as the second level of that category in the same round. On the other hand after the occurrence of a fundamental category in a round another category occurs next to it, then it implies that the round of the former category has ended. Therefore, in the above example we had [P], [P2]:[E][2P]:[2E][3P].[S].[S2]‘[T]‘[T2]

7.9 SUMMARY

The lesson describes the postulational approach in library classification. It discussed the need for postulational approach because the scheme of classification designed for the arrangement of books on the shelves in the library should be useful to the purpose of classification. Therefore, thepostulational approach emphasises on the usefulness of number of fundamental categories used ina classification scheme. The lesson discusses the advantages of postulational approach. It explainsthe postulate of five fundamental categories and describes the five fundamental categories. There is also an explanation of the method of identification of the five fundamental categories. It also presentedthe postulate of Basic Facet, Isolate Facet and manifestation of the five fundamental categories into rounds and levels. Finally, it presented the step by step procedure for facet analysis.

7.10 TECHNICAL TERMS

Basic Facet- A Basic Facet is equivalent to a Basic Subject or Basic Class.

Fundamental Categories- The postulated fundamental ideas into which every isolate of a subject will be categorised. The postulated fundamental ideas are “Personality”, “Matter”, “Enegery”, “Space”, and “Time”.

Isolate Facet- A part of a compound subject other than the Basic Facet in a freely faceted scheme for library classification.

Level- The concept of “Level” denotes recurrence of one and the sameFundamental category within a round

Postulates- The assumptions those are helpful in carrying out the process of classification of documents. These also form the normativeprinciples at the lowest order.

Rounds- The concept of “Rounds” denotes the cyclic recurrence offundamental categories in facet sequence.

7.11 SELF ASSESSMENT QUESTIONS

1. Essay questions:

1) What is "postulational approach'? Explain its need and advantages in library classification
2) What are the five fundamental categories? Describe them with suitable examples.

2. Short notes:

a) Energy category
b) Basic Facet
c) Rounds and Levels

7.12 SUGGESTED READING

1. Krishna Kumar. Theory of Classification. 4th rev ed. New Delhi: : Vikas, 1979.
2. Raju, A.A.N. Decimal, Universal Decimal and Colon Classification : A Study in Comparison.
3. Delhi : Ajanta Publications, 1984.
4. Ranganathan, S.R. Colon Classification. 6th ed. Bombay : Asia, 1960. Ranganathan, S.R. Elements of Library Classification. 3th ed. Bombay : Asia, 1962.
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LESSON – 8
PRINCIPLES OF FACET SEQUENCE

AIM AND OBJECTIVES

In a faceted scheme for library classification the class numbers will be constructed with analytico-synthetic process. In other words the subject is analysed into facets and finally the class number will be synthesised. This denotes that the analysis process results in identification of the facets of the given subject and the facets thus derived should be put in an order for final synthesis of the number. The objective of this lesson is to enable the students to understand the principles that help us derive a helpful order of the facets. After studying this lesson the students will be in a position to understand the need for the postulates and principles for facet sequence.

Structure

8.1 INTRODUCTION

In the previous lesson we have learnt that there is a need for fundamental categories to design a faceted scheme for library classification. Each manifestation of a fundamental category in a subjects forms itself a facet of that particular subject. There are various types of subjects viz. a simple subject without any isolate facets, compound subjects with one or more isolate facets, and complex subjects with one or more Basic facets or compound subjects. In any case when there are isolate facets in asubject then the isolate facets should be arranged in an order. If we do not define the order of the facets then there will be no order and as a result there will be no consistency in the sequence of the isolate facets within a subject and from subject to subject. Therefore, there is a need for defining a the order of the facets. Ranganathan had prescribed certain postulates and principles for facet sequence for the fundamental categories he had introduced.

8.2 FACET SEQUENCE

A facet sequence is the order of the isolate facets in a compound subject. A subject may have more than one isolate facets, then there arises the conflict of their place facet sequence. For example, if a subject has Personality, Matter and Time facets. Then which facet should be the first facet? Should it be Time facet or Matter facet or Personality facet? Every facet seems to be equally important, then how to resolve the problem relating to their order? It in view of this the devisor of a classification scheme should define the order of the facets. Ranganathan prescribed certain postulates and principles for facet sequence in the following sections we will learn about these postulates and principles.

8.2.1 Postulates For Facet Sequence

Ranganathan states that "After determining the various facets occurring in a Compound Subject, we should arrange them in a helpful sequence. In doing so the five postulates stated … are helpful" (Prolegomena, p.412). The five postulates are presented in the following sections.

8.2.1.1 Postulate of First Facet

The postulate reads as "In a Compound Subject, the Basic Facet should be the first facet" (Prolegomena, p.412). A Compound Subject is a Basic Subject or Basic Facet fitted with one or more isolate facets. Therefore, every Compound Subject should have a Basic Facet(BF) and the BF should be the first facet. Without a BF, no Isolate Facet(s) can form subjects on their own. Therefore, helpfulness requires that all the Compound Subjects going with a BF should be arranged together. To secure this, the BF should be given the First Position among the facets of a Compoun Subject. Let us consider the following examples:

E.g.: 1. Teaching Methods. Can this be considered as a subject of its own? If this is the case there are billions of such subjects and every subject cannot be given an independent class number. If it is so then all the related classes may be scattered. Therefore, for collocation of related classes we need to have few basic classes into which all its subdivisions are related classes can be grouped. Therefore, the need for Basic Class is imperative. In the above example, Teaching methods is a division under the Basic Class "Education". Therefore, it should have "Education" as its BF, and then teaching methods will form the subdivision of this class. Hence, as per the postulate the Facet Sequence is

Education (BF) : [Teaching Methods].

8.2.1.2 Postulate of Concreteness

This postulate reads as "The five fundamental categories fall into the following sequence, when arranged according to their decreasing concreteness: P, M, E, S, T. (Prolegomena, p.412). This postulate prescribes the order of the Five Fundamental Categories (FFCs). Further, the order of these FFCs is derived on the basis of their degrees of concreteness. It clearly indicates that Category"P" is the most concrete category, followed by "M", "E", "S", and "T". "T" is the least concrete category among the FFCs.

The above postulate implies that, in any Compound Subject if all the FFCs occur, then they mustbe arranged in PMEST order.

8.2.1.3 Postulate of Facet Sequence Within A Round

"In any Round of facets of a Compound Subjects in which each of any of the fundamental categories—Personality, Matter, and Energy—occurs only once, their sequence should be : Personality Facet, Matter Facet, and Energy Facet." (Prolegomena, p. 412). For instance, in a Compound Subject let us assume that there are [1E1], [2P1}, [1P1], [2E1], [1M1]. Then their order should be: [1P1] ; [1M1] : [1E1] [2P1] : [2E1].

8.3 PRINCIPLES F OR FACET SEQUENCE

What are these [1P1], [1P2] and so on isolates? Why they are given such numbering. How these facets get these numbers and the resultant order. In order to understand this, we need to understand the relation between the facets then we will be in a position to understand the relative location or position of a facet. In order to understand this we have to learn the "Principles for Facet Sequence." Ranganathan presented four principles for Facet Sequence, they are: 1. Wall-Picture Principle, 2. Whole-Organ Principle, 3. Cow-Calf Principle, and 4. Actand-Action-Actor-Tool Principle. These principles are explained in the following sections.

8.3.1 Wall-picture Principle

The principle reads as "If two facets A and B of a subject are such that the concept behind B will not be operative unless the concept behind A is conceded, even as a mural picture is not possible unless the wall exists to draw upon, then the facet A should precede the facet B." (Prolegomena, p.425). The principle indicates that when there are two facets and the concept of one of the facets(let us call it B) is not operative without conceding the concept of the other facet (Let us call it A). Then, the later facet should precede the former facet, that is, A should precede B.

Examples:

1. *Detection of Crime.* In this, the concept behind the term 'Detection' is not operative unless the concept behind the term 'Crime' is conceded. Therefore, when we arrange them in the order weshall have 'Crime. Detection'.

2. *Prime Minister of India.* In this, the concept behind the term 'Prime Minister' is not

operative unless the concept behind the term 'India' is conceded. Therefore, when we arrange them in theorder we shall have 'India. Prime Minister'.

8.3.2 Whole-organ Principle

This principle and the following principles are corollaries of Wall-Picture Principle, that means these principles are the direct results of the Wall-Picture Principle.

The Whole-Organ Principle reads as "If, in a subject, facet "B" is an organ of facet "A", then A should precede B."

Examples:

1. *Roots of Creepers.* In this subject, Creeper are the plants (the Whole) and Roots are their parts(the Organs). Now, how can we concede the concept behind 'Roots' without conceding the concept behind the 'Creepers'? When we arrange them we shall have 'Creepers. Roots'.

2. *Lungs of birds.* In this subject, Birds are the Whole and Lungs are their parts (the Organs). Now, how can we concede the concept behind 'Lungs' without conceding the concept behind the 'Birds'? When we arrange them we shall have 'Birds. Lungs'.

8.3.3 Cow-calf Priciple

"If a facet A and another facet B belonging to the same subject are not to be separated though they are distinct from each other and thus separable, A and B should be kept together in the same Round, even as a milch cow and its unweaned calf are not separately sold out though they are distinctentities and thus separable, but are kept together in possession of the same owner" (Prolegomena,p.427).

Ranganathan gives an example to explain this principle. He says, "Consider 'Enforcement of the Functions of the President of India". Here, the three facets 'India', 'President', and 'Functions' are not to be separated and put into different Rounds, although they are separable. They should all be put together in Round1—that is, before the Energy Facet, 'Enforcement'—or after it. We cannot put any one of them in Round 1 and the other two in Round 2. The Cow-Calf Principle determines only that allthe three facets should be put in one and the same Round. To decide which Round it should be, weshould invoke the direct aid of Wall-Picture Principle. This Principle would definitely assign them toRound 1. Therefore, when expressed in transformed skeleton form …, we shall have 'India. President. Function. Enforcement'."

8.3.4 Act and-action-actor-tool Principle

"If in a subject, facet B denotes action on facet A by facet C, with facet D as the tool, then the fourfacets should be arranged in the sequence A, B, C, D." It means in a subject when Action, Actor, Actand and Tool are present. Their sequence should be Actand-Action-Actor-Tool. For example: Useof Charkha for Cotton Spinning by boys is the title of a document. In this title we find 'Charakha' (the Tool) (Facet D), 'Cotton' (the Actand) (Facet A), 'Spinning' (the Action) (Facet B), and 'Boys' (the Actor) (Facet C). Then the order of these facets

should be: 'Cotton. Spinning. Boys. Charkha'.

8.4 APPLICATION OF THE POSTULATES AND PRINICPLES

After learning the above postulates and principles for facet sequence let us apply them to derive some facet sequences so that we will have better idea of the postulates and principles. Let us takethe example given in lesson 6 and work out the same as per CC 6th edition.

E.g.: "Drug therapy for viral infections to the lungs of dogs in Northern Australia during summers of 1980s".

Step 1: Raw Title : Drug therapy for viral infections to the lungs of dogs in Northern Australia during summers of 1980s.
The above title is a Raw Title because it is without its BFStep 2: Identify the BF: The BF of the above title is Animal Husbandry.

Step 3: Identify Isolate facets : The title has Drug, Therapy, for Viral, Infections, to the Lungs, of Dogs, in Northern, Australia, during summers, of 1980s.

Step 4: Full Title : When we add the BF to all the isolates then we derive the Full Title.

The Full Title is: Animal Husbandry. Drug, Therapy, for Viral, Infection, to the Lungs, of Dogs, in Northern,
Australia, during summers, of 1980s.

Step 5: Kernel Title : Animal Husbandry. Drug, Therapy, Virus, Disease, Lung, Dog, Northern, Australia, summer, of 1980s. (This is the Full Title Replaced by fundamental constituent terms.
Minus auxiliary terms such as 'for', 'during' etc.)

Step 6: Facet Analysis : Let us analyse the title as per CC 6th edition.
Animal Husbandry (BF). Drug [P], Therapy [E], Virus [P], Disease [E] , Lung [P], Dog [P], Northern [S],
Australia [S] , summer [T], of 1980s [T]

Above we find four Ps, two Es, two Ss and two Ts. This indicates. The need for identification of the rounds and levels of the Fundamental categories. Here we should apply the postulates and principles for facet sequence. As per Postulate of First Facet the BF should be the first facet. Therefore,Animal Husbandry will be the first facet. Then should we take Drug [P] category? No, Drug has nothing to do with Animal Husbandry. Let us apply Wall-Picture Principle here. Then we will understand that the concept of 'Drug' is in operative without the concept of 'Therapy'. Further, the same principle can be applied to concede the operation of the concept of 'Therapy' this is inoperative without the concept of 'Disease'

and the concept of 'Disease' is in operative without the concept of the animal i.e. the 'Dog'. Therefore, 'Dog' should be the first category in this particular subject. Hence, among the four 'Ps' The 'P' assigned for the term 'Dog' should be the First Isolate Facet in this particular CompoundSubject. Therefore, we number this facet as [1P1] which stands for 'Dog'.

Now we have resolved the issue of one 'P' isolate facet, we are left with three more Ps. Then,among 'Drug', 'Virus', and 'Lung' which facet should be the next facet or when these facets should occur? Should they occur in the same Round or do they occur in the next Round? Let us examine them once again 'Drug' and 'Virus' have nothing to do with 'Dog' whereas, the isolate 'Lung' is an organ of the animal. The "Whole-Organ Principle" comes into picture now. The 'Whole' should precede the 'Organ'. Hence, the immediate next isolate facet should be 'Lung'. Since it is occurring immediately next to the isolate facet [1P1] (Dog) it is in the same Round i.e. the first Round. Then the manifestation of the 'Personality' category standing for the Organ Facet is the next level 'P' in the First Round of 'P', therefore, 'Lung' should be designated as [1P2].

Let us consider the problem of the remaining two Ps viz 'Drug' and 'Virus'. In the beginning we said the concept of the term 'Drug' is not operative without the concept of 'Therapy' and this concept is not operative without the concept of 'Disease'. Here, we should decide whether 'Virus' should precede 'Disease' or vice-versa. Again Wall-Picture Principle states that the concept of 'Virus' is inoperative without the concept of 'Disease' in the context of this Compound Subject. Therefore, it is 'Disease' that should be taken next. Further, we can also apply Cow-Calf Principle here. As per thisprinciple we cannot separate 'Dog', 'Lung', and 'Disease' they should be put together in the same Round. Therefore, we assign [1E1] to 'Disease'. As per the postulates of Round and Levels of 'Energy' category, since, this category does not have Levels of manifestation, the First Round endshere and the Second Round starts again.

Now we apply the Postulate of Facet Sequence within a Round. As per this postulate "In any Round of facets of a Compound Subject in which each of any of the fundamental catergories— Personality, Matter, and Energy—occurs only once, their sequence should: Personality Facet, Matter Facet, and Energy Facet. Therefore, the Second Round starts with Personality Facet again. Then it is the term, 'Virus' that has the direct link with the term 'Disease', therefore, 'Virus' being Personality isolate reoccurring in the Second Round it should be designated as [2P1]. Now the concept of 'Therapy' and 'Drug' should be treated in the same fashion as we have treated the above isolates. Then, we designate 'Therapy' as [2E1] and 'Drug' as [3P1]. Now the Postulate of Facet Sequence within the Last Round comes into operation. In the last Round there will be Personality, Matter, Space and Time Facets. We designate Australia as [1S1] because the concept of Northern part of Australia will not be operative without the concept of 'Australia' they come under Whole-Organ Principle. Therefore, Australia [1S1] and Northern [1S2] in the similar way the Time isolates are designated as 1908s [1T1] and Summer [1T2]. The result of the whole process is the derivation of the following facet sequence:

Animal Husbandry (BF) Dog [P]. Lung [P2]. Disease [E] Virus [2P] Therapy [2E] Drug [3P] Australis [S] Northern [S2], 1908s [T] Summer [T2]. When we remove the terms the facet sequenceappears to be:

(BF)[P],[P2]:[E][2P]:[2E][3P].[S].[S2]‘[T]‘[T2]

Note: Number for First Round and First Level are omitted, as it is implied.

8.5 SUMMARY

A freely faceted scheme for library classification is based on the facets that are fitted to the Basic Classes. The process of fitting the facets to the Basic Class needs certain principles otherwise there will not be a helpful and consistent order of the facets. In this lesson we have studies about the postulates for facet sequence, the principles for facet sequence and how we apply the principles toderive a facet sequence.

8.6 TECHNICAL TERMS

Facet Sequence	:	The order of the Isolate Facets along with the Basic Facet in a Compound Subject
First Facet	:	The facet that is first in the sequence of facets in a Compound Subject. It is the Basic Facet.
Level -Cluster	:	A group of Facets of different levels of the same fundamental category within a Round offacets in a Compound Subject

8.7 SELF ASSESSMENT QUESTIONS

1. Essay Questions:

1) What is a Facet Sequence? Explain the postulates for facet sequence.
2) Discuss the role of the principles for facet sequence in deriving a helpful order of the facets.

2. Short-notes:

a) Postulate of First Facet.
b) Whole-Organ Principle

8.8 SUGGESTED READINGS

1. Krishna Kumar. Theory of Classification. 4th rev ed. New Delhi: : Vikas, 1979.
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LESSON - 9

PRINCIPLES OF HELPFUL SEQUENCE

AIM AND OBJECTIVES

The sequence of the books arranged on the shelves in a library should be helpful. Otherwise, itwill be difficult for the users to locate the books of their interest. Of course, the library catalogue helps the readers in locating books in the library. But, it will be practically inconvenient to the readers to frequently go to the library catalogue and consult the catalogue for every book they need when they do not find the books, on the shelves, of which the call numbers they have already noted from the library catalogue. Further, a sequence that is helpful to one reader may not be helpful to another. Therefore, it is desirable to derive a sequence that is helpful to majority of the readers. This is possible if the sequence is derived on the basis of some logical principles. The objective of this lesson is to makethe students understand the principles for helpful sequence. After reading this lesson you should be able to:

- understand the what is helpful sequence
- understand the need for helpful sequence
- know the principles for helpful sequence

Structure

9.1 INTRODUCTION

In the previous lesson we have studied about the principles of facet sequence in a faceted scheme for library classification. Whether it is a faceted scheme or enumerative scheme for library classification, the ultimate aim of a library classification scheme should be to enable us to derive a helpful sequence of the books on the shelves. In other words the library classification scheme should map the universe of subjects in a helpful order. In connection with this there is a Canon of Helpful Sequence. The canon reads as "The sequence of the classes in an array of classes, and of the ranked isolates in an array of ranked isolates, should be helpful to the purpose of those for whom it is intended." (*Prolegomena, p.163*). Ranganathan also discusses the point of "conflict of purpose". It is because, a sequence that is useful to one reader may not be useful to another. Therefore, he resolves the conflict by considering the majority of the users. This is possible only when we apply sound principles for deriving helpful sequence. Before going to study about the principles let us understand the need for helpful sequence.

9.2 NEED FOR HELPFUL SEQUENCE

"A library is a growing organism" as a result over a period of time a library will grow in term of its collection. In large libraries it will be very difficult to locate books if they are not properly organised. If the readers can locate books without much waste of their time by the virtue of the sequence of the books on the shelves, such sequence can be called as a helpful sequence. A helpful sequence is a user-friendly sequence. Therefore, there is a need for helpful sequence in the libraries in order to:

1. Help the readers locate the books of their interest as they pass by the shelves in other words when they are searching for the books of their interest, from "Alien subject" they should be led to the "Penumbral" and "Umbral" subjects. Hence the pattern of a helpful sequence is called as "APUPA" that stands for "Alien, Penumbral, Umbral, Penumbral, and Alien". This pattern indicatedthat whatever may be the approach of the reader, from right to left or left to right, he must be in aposition to reach the subject of his interest.

2. Save the time of the reader. As the sequence will be logical. If the user searches for the documentsin a logical manner he will be in a position to reach the books on subject of his interest. This would save the time of readers by avoiding repeated consultation of the library catalogue.

3. Improve the memory of the readers. Once the readers know the logical order in which the books are arranged they remember easily the location of the books on the subject of their interest.

9.3 PRINCIPLES FOR HELPFUL SEQUENCE

To implement the Canon of Helpful Sequence there is a need to apply some guiding principles for deriving helpful sequence. The following are the Principles for Helpful Sequence:

1	Principle of Later-in-Time
2	Principle of Later-in-Evolution
3	Principle of Spatial Contiguity
31	Principle for Entities along a Vertical Line
311	Principle of Bottom Upwards
312	Principle of Top Downwards
32	Principle for Entities along a Horizontal Line
321	Principle of Left to Right
322	Principle of Right to Left
33	Principle for Entities along a Circular Line
331	Principle of Clockwise Direction
332	Principle of Counter-Clockwise Direction
34	Principle for Entities along a Radial Line
341	Principle of Periphery to Centre
342	Principle of Centre to Periphery
35	Principle of Away-from-Position
4	Principle for Quantitative Measure

41 Principle of Increasing Quantity
42 Principle of Decreasing Quantity
5 Principle of Increasing Complexity
6 Principle of Canonical Sequnece
7 Principle of Literary Warrant
8 Principle of Alphabetical Sequence

9.3.1 Principle of Later-in-Time

The Principle of Later-in-Time reads as "If the subjects in an array of subjects or the isolates in an array of isolates have originated in different times, they should be arranged in a parallel progressive time sequence, except when any other overwhelming consideration rules it out" (*Prolegomena, p.184*). This principle clearly denotes that it is helpful to arrange entities that have originated at different times should be arranged as per their time of origin, excepting when any other order is more helpful than this order to the majority of the users. For instance, the sequence of medical systems such as, Naturopathy, Homoeopathy, Siddha, Unani, and Ayurveda, should be better if they are arranged as per the time sequence. Then their sequence will be as follows:

Sl No.	Subject	CC 6th Edition
0	Medicine	L
1	Ayurveda	LB
2	Siddha	LC
3	Unani	LD
4	Homoeopathy	LL
5	Naturopathy	LM

There are several such examples. For instance, the sequence of Religions such as Hinduism, Jainism, Buddhism, Judaism, Christianity, Islam, etc. can be derived on the basis of the Principle of Later-in-Time.

9.3.2 Principle of Later-in-Evolution

"If the subjects in an array of subjects or the isolates in an array of isolates belong to different stages of evolution, they should be arranged in a parallel to the evolutionary sequence, except when any other overwhelming consideration rules it out" (*Prolegomena, p.185*).

For example:

Sl. No.	Subject	CC Class No.

0	Botany	I
1	Thallophyta	I2
2	Bryophyta	I3
3	Pteridophyta	I4
4	Gymnosperm	I6
5	Monocotyledon	I7
6	Dicotyledon	I8

In the similar fashion we can arrange the entities such as, Embryo, Child, Adolescent, Old, etc. in medicine on the basis of the Principle of Later-in-Evolution. There are several such examples inZoology, Political Science, etc.

9.3.3 Principle of Spatial Contiguity

"If the subjects in an array of subjects or the isolates in an array of isolates occur contiguously inspace—roughly along a unidirectional line or a radial line, or a circle—they should be arranged in a parallel spatial sequence, except when any other overwhelming consideration rules it out" (*Prolegomena, p.187).* This is the principle that gives rise to pairs of sub-principles, it is because, and the entities falling on a vertical line can be arranged "Bottom Upwards" or "Top Downwards" as per our choice.But, it is cautioned to use these principles with due respect to the Canon of Consistent Sequence. So that the subjects arranged Bottom Upwards should always have the same order. Let us understand the principles related to the subjects occurring contiguously in space.

9.3.3.1 Principle for Entities along a Vertical Line

Some of the entities may occur contiguously in space on a Vertical Line. Then, we may arrange them "Bottom Upwards" or "Top Downwards" whatever sequence is helpful. Therefore, for entities along a Vertical Line, we have the antithetic pair of principles viz. Principle of Bottom Upwards andPrinciple of Top Downwards.

9.3.3.1.1 Principle of Bottom Upwards

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a vertical line, they may be arranged from Bottom Upwards, if it is helpful" (*Prolegomena, p.187).*

Let us consider the example of subjects under Botany. What should be the logical sequence ofparts of the plants such as, Flower, Fruit, Stem, Root, Leaf, Seed, etc. can this be a helpful sequence? How do readers expect that Stem will follow Fruit. Therefore, it will be helpful if we arrange them asper their Spatial Contiguity. Since they occur on a vertical line they can be arranged from Bottom Upwards as below:

Sl.No.	Subject	CC Class no.
0	Botany	I

1	Root	I,13
2	Stem	I,14
3	Leaf	I,15
4	Flower	I,16
5	Fruit	I,17
6	Seed	I,178

9.3.3.1.2 Principle of Top Downwards

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a vertical line, they may be arranged from Top Downwards, if it is helpful" (*Prolegomena,p.187).*

As in case of parts of the plant that were arranged "Bottom Upwards" it may not be desirable toarrange the parts of human body in the same fashion taking foot first and head last. Therefore, they may be arranged contiguously in space from "Top Downwards".

9.3.3.2 Principle for Entities along a Horizontal Line

Some of the entities may occur contiguously in space on a Horizontal Line. Then, we may arrange them "Left to Right" or "Right to Left" whatever sequence is helpful. Therefore, for entities along a Horizontal Line, we have the antithetic pair of principles viz. Principle of Left to Right and Principle of Right to Left.

9.3.3.2.1 Principle of Left to Right

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a horizontal line, they may be arranged from Left to Right, if it is helpful" (*Prolegomena,p.188).*

9.3.3.2.2 Principle of Right to Left

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a horizontal line, they may be arranged from Right to Left, if it is helpful" (*Prolegomena,p.189).*

For the above principles lets us consider the following example:

Any one of the above principles, as per convenience and ensuring consistency, can be applied toarrange the lanes and other items on a high way.

1 Crown;
2 Motorcars;
3 Heavy Motor vehicles;
4 Bicycle way;
5 Cart way;
6 Pedestrian way;
7 Kerb; and
8 Loop line for rest.

9.3.3.3 Principle for Entities along a Circular Line

When entities occur contiguously in space on a Circular Line. Then, we may arrange them "Clockwise" or "Counter-Clockwise" whatever sequence is helpful. Therefore, for

entities along a Circular Line, we have the antithetic pair of principles viz. Principle of Clockwise Direction and Principleof Counter-Clockwise Direction.

9.3.3.3.1 Principle of Clockwise Direction

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently taken to occur along a circular line, they may be arranged in the clockwise direction, if it is helpful" (*Prolegomena, p.189).*

9.3.3.3.2 Principle of Counter-Clockwise Direction

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently taken to occur along a circular line, they may be arranged in the counter-clockwise direction, if it is helpful"(*Prolegomena, p.189).*

The example could be the sequence of the twelve Zodiacal signs that may be arranged in thefollowing sequence:

1 Aries	4 Cancer	7 Libra	92 Capricornus
2 Taurus	5 Leo	8 Scorpio	93 Aquarius
3 Gemini	6 Virgo	91 Sagittarius	94 Pisces

9.3.3.4 Principle for Entities along a Radial Line

When entities occur contiguously in space on a Radial Line. Then, we may arrange them "Periphery to Centre" or "Centre to Periphery" whatever sequence is helpful. Therefore, for entities along a Radial Line, we have the antithetic pair of principles viz. Principle of Periphery to Centre and Centre to Periphery

9.3.3.4.1 Principle of Periphery to Centre

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a radial line of a circle or a cylinder, they may be arranged Periphery to Centre, if it ishelpful" (*Prolegomena, p.189).*

9.3.3.4.2 Principle of Centre to Periphery

"If the subjects in an array of subjects or isolates in an array of isolates can be conveniently takento occur along a radial line, they may be arranged from centre to periphery, if it is helpful" (*Prolegomena,p.189).*

The parts of an organ, like leg, can be arranged, as per one of the above two principles, accordingto the choice of the users.

Sl. No.	Organ/part	CC No.
1	Bone	L82
2	Muscle	L83

3	Connective Tissue	L86
4	Skin	L87
5	Hair	L88

9.3.3.5 Principle of Away-from-Position

If the subjects in an array of subjects or the isolates in an array of isolates can be conveniently taken to start from a certain point and diverge away from it roughly along a line, they may be arranged from the starting point along the diverging line, if it is helpful.

This is because, in certain cases we cannot find all the entities on a unidirectional way. For example, the places in a country cannot be found on any one line or direction. In such case we have to start from a certain point and later diverge away from it roughly along another line.

9.3.4 Principle for Quantitative Measure

It may be helpful to arrange certain subjects that have the quantitative features. For them we have the pair of antithetic principles viz. Principle of Increasing Quantity and Principle of Decreasing Quantity.

9.3.4.1 Principle of Increasing Quantity

"If the subjects in an array of subjects or the isolates in an array of isolates admit of quantitative distinction, they may be arranged according to their increasing quantity, if it is helpful" (*Prolegomena, p. 192*).

When we classify the universe "Geometry" on the basis of the characteristic "Number of dimensions", we may arrange them in the order of increasing quantity as follows: 1 Line, 2 Plane, 3 Three dimensions, 4 Four dimensions, 5 Five dimensions, and 6 n dimensions. This is in conformity with the Principle of Increasing Quantity. Similarly, in Political Science, the organs of the State may be arranged on the same principle. When we arrange them we get the sequence - Head, Executive, Legislature, Party, and Public.

9.3.4.2 Principle of Decreasing Quantity

"If the subjects in an array of subjects or the isolates in an array of isolates admit of quantitative distinction, they may be arranged according to their decreasing quantity, if it is helpful" (*Prolegomena,p. 192*).

Example: World Library, National Library, Regional Library, Constituent State Library, District Library, and City Library. Here the quantity is the area or the size of the population served or the sizeof the collection.

9.3.5 Principle of Increasing Complexity

"If the subjects in an array of subjects or the isolates in an array of isolates show different degrees of complexity, they should be arranged parallel to the sequence of increasing complexity except when any other overwhelming consideration rules it out"

(*Prolegomena, p.193*).

We can take the example of classifying the universe "Ling;uistics" on the basis of the characteristic "Element" applying this principle they we derive the following sequence- Isolated Sound, Syllable, Word, Phrase, Clause, Sentence, Piece of composition, and Reader as practising material. This is in conformity with the Principle of Increasing Complexity.

9.3.6 Principle of Canonical Sequence

"If the subjects in an array of subjects or the isolates in an array of isolates are traditionally referred to in a specific sequence, although no underlying principle is discoverable, it will be convenient to conform to this traditional sequence" (*Prolegomena, p.194*).

The subjects such as Arithmetic, Algebra, Trigonometry, Geometry, etc. are the traditional divisions of the basic subject Mathematics. Then it is better to arrange them in their traditional sequence. Similarly, the divisions of Physics, such as Properties of Matter, Sound, Heat, Light, Electricity, Magnetism, etc. and the divisions of Fine Arts such as Architecture, Sculpture, Painting, Music, etc. may be arranged as per their traditional sequence.

9.3.7 Principle of Literary Warrant

"The subjects in an array of subjects or the isolates in an array of isolates may be arranged in the sequence of the decreasing quantity of the documents published or anticipated to be published on them, except when any other overwhelming consideration rules it out" (*Prolegomena, p.196*). This principle means that depending on the number of documents published on the subjects, in their decreasing order of the quantity of documents published, they may be arranged. In other words it means when there is high rate of production of documents on a subject it indicates that the particular subject is a prominent and much sought after subject therefore, it should be placed first in the sequence, thus the sequence should be derived on the basis of the quantity of production of documents on the subjects. Wyndham Hulme introduced the term "Literary Warrant" , to signify this aspect of recognising the significance of the subjects. But application of this principle should be done without any bias in international scheme for classification. Let us consider an example: In agriculture when we draw the sequence of subjects on different crops, Rice may be considered as the first crop in India or at least in South India followed by Wheat and other crops. Therefore, in CC Ranganathan gave the following sequence for the crops:

Sl.No.	Subject	CC Class No.
0	Seed as Food	J38
1	Rice	J381
2	Wheat	J382
3	Oat	J383
4	Rye	J384
5	Corn	J385
6	Barley	J386
7	Millet	J387

9.3.8 Principle of Alphabetical Sequence

"When no other sequence of the subjects in an array of subjects or of the isolates in an array ofisolates is more helpful, they may be arranged alphabetically by their names current in internationalusage" *(Prolegomena, p.197*).

Alphabetical sequence is, in general, not helpful because it scatters the related subjects. Therefore, it should be avoided. In case there is no other sequence that is more helpful than the alphabetical sequence, then we may prefer the alphabetical sequence. However, alphabetical sequences are temporary ones. Because, the names may change from time to time and there maybe many a limitation.

9.4 SUMMARY

Deriving helpful sequence of books on the shelves in the library is the goal of library classification.In order to derive the helpful sequence there is a need for principles for helpful sequence. This lessonexplained the principles for helpful sequence with examples. In order to arrange various entities in a helpful sequence depending on the way they occur there were principle of Later-in-Time, Later-in- Evolution, Spatial Contiguity, Quantitative Measure, Increasing Complexity, Canonical Sequence, Literary Warrant, and Alphabetical Sequence. There are also pairs of principles for entities that can be arrangedeither way. A

9.5 TECHNICAL TERMS

Helpful Sequence : The sequence or order of subjects that is easily under-Stand able and convenient to the reader in locating the Books in the library. A user-friendly sequence.

Canonical Sequence : Traditional sequence. The order that has been used Conventionally.

Literary Warrant : The demand of the literature, indicated by the increasing Quantity ofdocuments published or anticipated to be pub-Lished on the given subjects.

9.6 SELF ASSESSMENT QUESTIONS

(a) Essay:

1. What is a helpful sequence? Explain how do you derive helpful sequence of books in a library?
2. Explain the principles for helpful sequence with examples

(b) Short notes:

1. Principle of Later-in-Time
2. Principle of Literary Warrant
3. Principle of Bottom Upwards

9.7. SUGGESTED READINGS

1. Krishna Kumar. *Theory of Classification.* 4th rev ed. New Delhi: : Vikas, 1979.
2. Ranganathan, S.R. *Elements of Library Classification.* 3th ed. Bombay : Asia, 1962.
3. Ranganathan, S.R. *Prolegomena to Library Classification.* 3th ed. Bombay : Asia, 1967.

LESSON - 10
PHASE RELATIONS

AIM AND OBJECTIVES

The objectives of this lesson is to make the students understand the concept of phase relation, the need for phase analysis, the levels of phase relation and the nature of phase relation. After studying this lesson you will be in a position to:

- understand what is phase relation, the levels and nature of relation
- identify the subjects that involve phase relation
- conduct phase analysis of the complex classes

Structure

10.1 INTRODUCTION

A scheme of classification must have all the tools to meet the development of knowledge Universe of knowledge is multidimensional and to meet its challenge both at the Idea Plane and the NationalPlane, a scheme of classification must provide proper gadgets. In Unit 1 of Library Classification Theory you have learnt the mode of the formation of different subjects. One of which is loose assemblage. Subjects which are formed by loose assemblage are accommodated Phase Relation. Phase relation combines two different aspects of subjects, they may be from two different Main Classes, or two different aspects of a facet in a Main Class or two different Isolates in an array.

We have learnt in the first lesson that knowledge is dynamic continuum, multi-faceted, manifold, and multidimensional. These characteristics of knowledge indicate its complex nature. Another aspect is the interdisciplinary nature of knowledge that gives rise to complex subjects. However, complex may be the growth of subjects, the classifiers have to derive a linear sequence of all the subjects they deal with. For this purpose the classification schemes should give a helpful treatment for the complex subjects. Therefore, we deal with the concept of phase relation and do phase analysis while classifying complex subjects. Let us understand the concept of phase relation and need for phase analysis in the following sections.

10.2 THE CONCEPT OF PHASE RELATION

No subject survives and grows in isolation. Almost all the subjects are inter-related and inter- dependent. For example, technology and economy are inter-related and inter-dependent. Televisionhas impact on culture in the society. Thus, the subjects can be studied in their mutual relation. It is in view of this there is considerable rate of growth of interdisciplinary research. As a result of it new subjects emerge, we have already studies that the modes of formation of such subjects are 'loose assemblage' and 'fusion'. The subjects those emerge through Loose Assemblage mode of formation of subjects is considered to be the one that gives rise to complex subjects. The Loose Assemblagemode of formation of subjects indicates the relation between two or more subjects. The relation between two or more subjects is called the phase relation. "A subject is One-Phased if it consists of only a single Main Class (MC) or any of its subclasses, i.e. if it is a Basic Class (BC) or a Compound Class (CdC). A subject is Two-Phased if it brings into relation two (BC) or two (CdC) or a (BC) and a (CdC). The Class formed by a Two-Phased subject is called a Complex Class (CxC). The constituent of a Two-Phased subject, which is the primary subject of exposition or is otherwise deemed to be primary, is called its First Phase. The constituent of a Two-Phased specific subject, which is merelyaffecting the exposition of the First Phase, is called its Second Phase. The Class Number of a Two- Phased specific subject is got by inserting, between the Class Numbers of the First and the Second Phases, the Connecting Symbol 0 [zero] and an appropriate digit to represent the phase-relation" (*Colon Classification, 6th ed., p.1.55*). The above clearly indicates that when the issue of phase relation arises there will be relation between two are more subjects. And each subject in such complex class is considered to be a phase. The analysis of such Complex Classes is called phase analysis.

10.3 NEED FOR PHASE ANALYSIS

We need to do phase analysis to identify the complex classes, so that we will be in a position to give a suitable location for these classes along with other classes by giving a suitable class number and this class number will also indicate the nature and type of the classes so that the readers will bein a position to identify the complex classes by looking at the structure of the class number. The phase analysis involves the process of identifying the phases i.e. the constituent classes/subjects in the given complex subject and the level and type of relation between the phases. There are varioustypes of phase relations. According to Mills, there are three chief phases viz., Influence phase, Bias phase and Tool phase. Palmer and Wells enumerated five types of phases viz., Form phase, Bias phase, Influence phase, Comparison phase and Tool phase. Ranganathan, in his Colon Classification sixth and seventh editions presented a different dimension of phase relation let us discuss the same in the following sections.

10.4 LEVELS OF PHASE RELATION

We have understood that there will be relationship between subjects. But subjects have their own order of hierarchy. In view of this depending on the relationship between the classes of different orders we may have to identify the levels of phase relation between the subjects. In relation to thisRanganathan identified three levels of phase relation. It is because there can be relationship betweentwo BCs or one BC and one CdC. At another level there may be relation between two subject divisionsbelonging to the same BC. Therefore, he identified three levels of phase relation viz., Inter-subjectphase relation, Intra-facet phase relation and Intra-array phase relation.

10.4.1 Inter-subject Phase Relation

In Inter-subject Phase Relation, we notice relationship between two or more subjects which may be two BCs or one BC and one CdC. For example.*Law for Doctors.* We find relation between two BCs viz., Law and Medicine. Wherein, Law is the first phase and Medicine is the second phase. It isbecause the primary subject of exposition or is otherwise deemed to be primary, is called its First Phase. The constituent of a Two-Phased specific subject, which is merely affecting the exposition of the First Phase, is called its Second Phase. Let us consider another example. Higher edication andthe Society. Here we find the relation between two classes viz., Higher education, a compound class (CdC) and Sociology a BC. Thus, we may notice Inter-subject Phase Relation between BCs or CdCs or between BC and CdC.

10.4.2 Intra-facet Phase Relation

In Intra-facet Phase Relation, we find relation between two isolate ideas falling in the same facet to form a complex subject emerging out of formation of complex isolates. For example, Difference between physical and analytical chemistry. Here the two-phases or isolates viz., Physical chemistry and Analytical chemistry belong to the same facet (i.e. the Energy Facet as per CC 6th edition) in the Main Class (MC) Chemistry.

10.4.3 Intra-array Phase Relation

In Intra-array Phase Relation, we find the relation between the isolates belonging to the same array of isolates. For example, Comparative study of Hinayana and Mahayana Buddhism. Both thephases, Hinayana and Mahayana belong to the array of isolates of various sects of Buddhism with thePersonality facet of the MC Religion.

10.5 TYPES OF PHASE RELATIONS

In the above section we have learnt about the levels of phase relation. It is not only that the subjects will have various levels of relation. The nature of relation also is a matter of consideration. A subject may have a general relation with another subject or a subject may have bias towards another subject, a subject may act as a tool for another subject. In view of this the following types of phase relations are identified to represent the nature of the phase relation in CC.

Nature of relation	Inter-subject	Intra-facet	Intra-array
General	a	j	t
Bias	b	k	u
Comparison	c	m	v
Difference	d	n	w
Tool	e	p	x
Influence	g	r	y

The Class Number of a Two-Phased specific subject is got by inserting, between the Class Numbers of the First and the Second Phases, the Connecting Symbol '0' [zero] and an appropriate digit (Roman small letters) to represent the phase-relation. The Symbol '0' (zero) is replaced by '&'(Ampersand) and Tool relation is included in CC 7th edition. The above mentioned nature of phaserelation is briefly explained in the following sections.

10.5.1 General Phase Relation

General Relation denotes a more or less all comprehensive relation—that is, not merely any oneof the other relations listed in the Schedule. Therefore, it is one that is neither Bias relation or Comparison relation nor Difference, Tool and Influence relation. Further, we can qualify it as one that does not depict a specific relation, hence, it is called 'General Relation'. The sequence of phases hardly matters in general phase relation, as it does not semantically matter much. However, for the sake of consistency, the sequence of classes given in the schedules of the classification scheme is followed for deriving the sequence of the phases in the given CxC.

General phase relation may figure on all levels of phase relation. The examples given below willgive an idea of the same.

Inter-subject : Relation between Politics and Religion … R0aW
Intra-facet : Relation between Academic Libraries and Public Libraries… 220j3

Intra-array : Relation between College and UniversityLibraries … 2330t4

10.5.2 Bias Phase Relation

Bias relation denotes that the exposition of the First Phase is biased towards the Second Phase. The exposition is specially meant to meet the needs of the specialists in the subject. Therefore, Phase 1 is known as Biased Phase and Phase 2 is known as the Bias phase or the favoured phase. The sequence of these two phases is obviously the subject of exposition (Phase 1) is followed by thespecialists or the class for whom the work has been written or the class is biased. Let us understand this relation with the following examples:

Inter-subject : Psychology for Doctos… S0bL
Intra-facet : Public Libraries support for Academic Libraries… 220k3Intra-array : University Libraries support for College Libraries…2340u3

Note: Of course, there appears to be no literary warrant to give examples of Intra-facet and Intra-array relations. But it is quite possible that examples such as give above might figure at least in micro-literature.

10.5.3 Comparison Phase Relation

There can be studies involving comparison between subjects. For such CxCs we use the Comparison Phase Relation. The order of the phases can be that of the sequence of the classes in the given scheme for classification. The following examples give an idea of comparison phase relation.

Inter-subject : A comparative study of plants and animals… I0cK
Intra-facet : Jainism and Buddhism : A comparative study… Q30m4Intra-array : Joy and Anger : A comparative study … S:5230v4

10.5.4 Difference Phase Relation

If a document involves study of the difference between two subjects, it can be considered as the Difference Phase Relation. The one whose class number is the earlier ordinal number is to be treated as the First Phase and the Second Phase is called the Difference Phase. Let us consider thefollowing examples.

Inter-subject : Difference between Science and Technology… A0dT Intra-facet : Difference between Public and Academic Libraries… 220n3
Intra-array : Difference between Male and Female Psychology… S510w5

10.5.5 Tool Phase

This phase relation denotes that a subject figures as a tool for another subject. In such

a caseit is considered to be Tool Phase relation. This phase relation is added in the 7th edition of Colon Classification.

Inter-subject	:	Use of Computers in Libraries… 2&eD65,8(B) Intra-
facet	:	European Music through Asian Music… NR5&p4
Intra-array	:	Carnatic Music through Hindustani Music… NR441&x5

10.5.6 Influencing Phase

There can be CxCs that involve the influence of one subject over another subject. In other wordsone subject may have an impact on another subject. When the influence of one subject on another subject is expounded the later should be treated as the First Phase. The Second Phase is called Influencing Phase in this case. Therefore, here the sequence of the phases should be determined by identifying the Influenced Phase and the Influencing Phase.

The Influenced Phase is the First Phase and the Influencing Phase is the Second Phase. Let usunderstand this phase relation with the following examples.

Inter-subject	:	Influence of Religion on Politics… W0gQ
Intra-array	:	Influence of Respiratory System on Circulatory System …. L30r4
Intra-array	:	Influence of Urban Society on Rural Society… Y310y3

Note: The sequence of the phases in the above examples is as follows

Politics – Religion
Circulatory System – Respiratory System Rural Society – Urban Society

In fact, there could be many more types of phase relation. But so far only six types have been identified and provided in CC. Every classification scheme should have provisions to deal with the ever increasing Complex Subjects (CxSs) or Complex Classes (CxCs). But all most all of the schemesdo not give such elaborate treatment. It is CC alone that gives an elaborate treatment. Let us seewhat kind of treatment is given by DDC and UDC the most popular and widely used schemes in the following section.

10.5 PHASE RELATION IN OTHER CLASSIFICATION SCHEMES

The classification schemes that are regularly revised or updated and wide used are conscious of the growth of CxCs. Hence, they also have some provisions for the CxCs. But they do not have an elaborate treatment for the same. We can understand this fact with following.

10.6.1 Phase Relation In Ddc

As we know, Dewey Decimal Classification, is an enumerative scheme of library classification. Therefore, it has limited provision for the explicit use of phase analysis and synthesis. Its treatment for CxCs can be noted in the provision given for classifying such

subjects, these provisions are:

i) By Enumeration:

In certain cases the CxCs are enumerated and therefore we find a ready made class number.For example: Christianity and Technology.. 261.56

Arithmetic and algebra … 513.12

ii) Use of Standard Subdivision:

The standard subdivision – 024 Works for specific types of user from Table—1 can be used forBias Relation.

Example : Mathematics for Engineers …
510.2462510 for Mathematics
024 for Works for Specific Users (from Table-1)

(Note: when – 024 is added to 510 as per the rule 0 from 510 is deleted)

62 Persons occupied with engineering and allied operations and Manufacturing(from Table-7) is added as per rule.

iii) As per the rules in the schedules:

The "Add to" rule gives provision for synthesis of some classes. This can be used for treatingphase relation classes or CxCs.

Example: Foreign relations between India
andUnited States… 327.54073
327 Foreign relations
54 India (From Table-2)
0 Connecting digit
73 United States (From Table-2)

The above example can be regarded as one for intra-facet relation. We should understand thatthese provisions in DDC are not adequate for classifying the CxCs.

10.6.2 Phase Relation in Udc

The Universal Decimal Classification has a general treatment for the CxCs. The Relation Sign Colon (:) is used to connect two class numbers to indicate all types and levels of phase relation. Inother words the same symbol is used for Inter-subject, intra-facet, and Intra-array relation and also for general, bias, comparison, difference, tool, influence, etc. relations without any distinction. The following examples will give us an idea of the same.

2 : 32	Religion and Politics (Inter-subject relation)
2 : 32	Influence of Politics on Religion (Inter-subject relation)
51 : 02	Mathematics for Librarians (Inter-subject relation)

294.3 : 294.35	Comparison between Buddhism and Jainism (Intra-facet relation)
371.134 : 371. 133	Influence of Practical training on specialised training (Intra-array relation)

In the above examples we notice that there is no difference between the class numbers of different subjects. By and large there is no fixed order for the phases. The fixing up of the order is left to the discretion of the classifiers and the approach of the users. And there is repetition of common digits in the class numbers of both the phases. Further, the colon is used as a connecting symbol to synthesise two class numbers not necessarily for the CxCs. The below given examples illustrate the same.

025.4 : 026	Classification in special libraries
338.53 : 339.5	Pricing policy in foreign trade
624.21 : 625.1	Railway Bridges
669.14 : 621.791	Welding on Steel

The classes are not complex classes, even for such classes the relation sign is used in UDC. The length of the class numbers will be longer as there is no elaborate treatment for phase relation. Further, the structure of the class numbers do not indicate phase relation or CxCs in DDC in UDC they indicate some relation. Whereas the structure of CC class numbers indicates CxCs and also the difference in level and nature of relation.

10.7 SUMMARY

The universe of subjects consists of different types of subjects. An efficient and effective scheme for library classification should provide meaningful and consistent class numbers. Complex classesare the subjects those emerge our of Loose Assemblage Mode of Formation of Subjects. Necessary provisions for Phase Relation in the classification schemes deal with the CxCs. This lesson explainedthe concept of phase relation, need for phase analysis. It also dealt with different levels and nature of phase relation as presented in Colon Classification. There was also a brief account on the phase relation. As dealt by DDC and UDC.

10.8 TECHNICAL TERMS

Array	:	A sequence of coordinate or equal rank classes.
Facet	:	A group of isolates belonging to a class in a faceted
schemeIntra	:	Within
Phase	:	A subject forming part of a Complex SubjectPhase Relation
	:	Relation between two or more subjects

10.9 SELF ASSESSMENT QUESTIONS

(A) Essay Questions:

1. What is phase relation? Explain the need for phase analysis and how do you do it?

2. Explain different levels and types of phase relation with examples.

(B) Short notes:

1. Intra-facet phase relation
2. Influence relation
3. phase relation in UDC

10.10 FURTHER READINGS

1. Krishna Kumar. *Theory of Classification.* 4th rev ed. New Delhi: : Vikas, 1988.
2. Raju, A.A.N. *Decimal, Universal Decimal and Colon Classification : A Study in Comparison.* Delhi :Ajanta Publications, 1984.
3. Ranganathan, S.R. *Colon Classification.* 6th ed. Bombay : Asia, 1960.
4. Ranganathan, S.R. *Colon Classification.* 7th ed. Sarada Ranganathan Endowment for Library Science,1981.
5. Ranganathan, S.R. *Elements of Library Classification.* 3th ed. Bombay : Asia, 1962. Ranganathan, S.R. *Prolegomena to Library Classification.* 3th ed. Bombay : Asia, 1967.

LESSON – 11
CANONS OF CLASSIFICATION

AIM AND OBJECTIVES

The objective of this lesson is to explain the canons of library classification. After reading thislesson the students will be in a position to:

- understand what are canons;
- understand the implications of the canons; and
- interpret the canons

Structure

11.1 INTRODUCTION

The dictionary meaning of a canon is "a rule, principle or law, especially in the Christian Church." It was W.C. Berwick Sayers who used the word canons to denote the rules of library classification. Therefore, canons of library classification are the "rules for library classification." The canons are very important because without these rules we cannot systematise the process of library classification. The canons are essential for resolving conflicts and solving problems related to library classification. Following these canons we can ensure systematic, standard, consistent and uniform method(s) of library classification. It is in view of these the canons for classifications are very important. Realisingthe importance of canons/rules for library classification almost all classificationists like J D Brown, H E Bliss, E C Richardson, Hulme, Sayers, and Ranganathan have formulated certain principles with different terminology. In this lesson we shall learn about the canons formulated by Ranganathan as he has given elaborate treatment to this area. Ranganathan presented a

hierarchy of principles calling them the normative principles. Let us have a brief account of normative principle in the nextsection.

11.2 NORMATIVE PRINCIPLES

The very name of these principles indicates that these principles for the basis for the classification activity. These are the benchmarks, Therefore, they resolve the conflicts and solve the problems onpractical plane. These principles help the classificationists in designing the classification schemes and the classifiers while classifying the documents. The normative principles are named differentlydepending on their stage in the hierarchy. There is a need for formulating normative principles at various levels in the field of study and practice. Therefore, Ranganathan presents the hierarchy ofprinciples in the following fashion:

Level	Name of the Normative Principle
1. Basic Process of thinking	Basic Laws
2. Library Science	Fundamental Laws
3. Classification	Canons
4. Helpful sequence in array	Principles
Work of Classifying	Postulates and Principles forfacet sequence

The above illustrates that every subjects involves at the most basic or fundamental level certainbasic process of thinking therefore it should have the Basic Laws to help the thinkers at this level and these laws by and large govern all fields of knowledge. Then to deal with the whole field of a subject such as Library Science, Chemistry, Physics, etc. we need to have the Fundamental Laws. The next level divisions of such subjects for example, Classification, Cataloguing, etc. need the Canons. The normative principles at further lower levels are called Principles and postulates, etc. respectively as shown in the above table.

11.3 BASIC LAWS

The Basic Laws govern all fields of knowledge. However, we should adopt those that are relevantto our field of knowledge. Ranganathan identifiedte following basic laws:

Laws of Interpretation
Law of Impartiality
Law of Symmetry Law of Parsimony
Law of Local Variation
Law of Osmosis

The above laws are relevant to any field. For example, in court of justice the judge should be impartial. Similarly, the librarians and classificationists and classifiers should be impartial in discharging their duties. For instance, when we derive the sequence of religions, if we follow the principle of time sequence there will be no partiality shown towards any religion. The law of parsimony implies that thelength of the schedules of the classification scheme and the length of the class numbers should, to the extent possible, be lesser. “The Basic Laws governing the process of thinking are normally invoked only when two or more Laws of Library Science or Canons of Classification lead to conflicting or different equally valid decisions.” (*Prolegomena*, p.113).

11.4 FUNDAMENTAL LAWS

Rules or principles that govern a discipline, according to Ranganathan, may be called "Fundamental Laws". Hence, the Five Laws propounded by Ranganathan form the fundamental laws of Library Science. The Five Laws viz., 1. Books are for use; 2 Every Reader his or her Book; 3. Every Book its Reader; 4. Save the Time of the Reader; and 5. Libraray is a growing organism. As these laws governthe whole field of Library Sciences they have their implications on the Library Classification too. For instance, the fourth law "Save the Time of the Reader" implies that there should be helpful sequence of the books on the shelves, otherwise, a considerable amount of the time of the users will be wastedin search of the books on the shelves in the library. In the similar manner all the five laws have theirown implications. "The Laws of Library Science, governing the various disciplines falling within the field of Library Science, are normally invoked only when two or more Canons of Classification lead to conflicting or different equally valid decisions." (*Prolegomena*, p.113).

11.5 CANONS OF CLASSIFICATION

The Canons of Classification are those rules that are in conformity with the Laws of Library Science. They are usually applied for designing a scheme for classification. Ranganathan says, "The design work may be that of first design or that of extension by the classificationist or even by the classifier playing the role of classificationist within a limited context." (*Prolegomena*, p.114). Ranganathan had presented canons for every aspect related to the process of designing a classification scheme. But it is Sayers who had formulated canons for library classification. Therefore, let us have a brief account of Sayers' canons before learning the canons that are presented by Ranganathan.

11.5.1 Sayers' Canons :

Sayers brought out a theory of library classification on the basis of a comparative study of the then existing schemes of classification. .Sayers is called the first grammarian of library classification. He enumerated 29 canons, grouping them into six categories—namely, definitions, division, terms,book classification, notation and book classification scheme.

The canons under the Definitions category provide: definitions of classification, subject of classification, general classification, class, scheme of classification, and the order. The canons under Division category read as "The dividing process must be gradual, each term modulating into the term following it …. Division proceeds from terms of great extension and small intension to terms of great intension and small extension. The use of characteristics must be consistent at each stage of division,etc. Relating to the category of Terms the canons state that the terms must be unambiguous. They may be technical or popular. The canons under Book classification imply that the Book Classification must be general, inclusive of all matters that are, have been, or may be the matter of books. It mustbe capable of expansion, in order that without dislocation it may admit new subjects or new subdivisionsor new aspects of old ones. It must be equipped with: A Generalia class to accommodate books toogeneral for inclusion in any single class; It must have form classes such as fiction, drama, etc. It must have systematic schedules, a notation, and an index. The canons under Notation category imply that the notation used should be brief, simple, flexible, and mnemonic. Finally, the canon for Book classification scheme states that a classification scheme is printed in columnar schedules in the order of the precedence of subjects….

11.5.2 Ranganathan's Canons

Ranganathan's approach was totally different. He stated that the rules (canons) should deal with all planes of work. Therefore, he identified three planes of work for library classification viz. The Idea Plane, the Verbal Plane and the Notational Plane. His approach was so systematic. That when we deal with library classification we are dealing with the universe of subjects. The universe of subjects is nothing but the totality of the divisions of the universe of knowledge. The Universe of knowledge is in turn is the universe of ideas. Hence, at the first stage we deal with ideas and this stage is called the Idea Plane. At the second stage, we deal the Terms to give a verbal form to the ideas, therefore, the next plane of work is Verbal Plane. Finally, the ultimate result of library classification work is to assign class numbers to the classes or subjects with the help of a notational system. Thus we work at the Notational Plane and there should be rules relating to all planes of work. All the canons discussed under the following sections are Ranganathan's canons taken from his work entitled *Prolegomena to Library Classification.*

11.6 CANONS FOR IDEA PLANE

A scheme for classification implies the prior concept of a Scheme of Classes and a Scheme of Classes involves the following five inherent aspects on Idea Plane: 1. Characteristics; 2 Succession of characteristics; 3 Array of classes; 4 Chain of classes; and 5 Filiatory sequence. Consequently, the canons for Idea Plane are: 1. Canons for Characteristics; 2 Canons for Succession of characteristics; 3 Canons for Array; 4 Canons for Chain; and 5 Canons for Filiatory sequence.

Canons for Characteristics:

There are four canons for characteristics: 1. Canon of Differentiation; 2 Canon of Relevance; 3Canon of Ascertainability; and 4 Canon of Permanence.

1. Canon of Differentiation

"A characteristic used as the basis for the classification of a universe should differentiate someof its entities—that is, it should give rise at least to two classes ro ranked isolates." It clearly means that the characteristic that we use for grouping of a universe of entities should differentiate the entitiesand give rise to at least two groups. For example, when we classify the universe of Men, the characteristic "colour" differentiates; but the characteristic "possession of face' does not because everybody possesses face.

2. Canon of Relevance

"A characteristic used as the basis for the classification of a universe should be relevant to the purpose of the classification." When we are classifying a universe of boys in a classroom for their selection for participation in sports, especially, for basketball. Their colour will not be a relevant characteristic. On the other hand, their "height" is more relevant for the purpose. Similarly, when weclassify books in a university library, the weight of books may not be a relevant characteristic.

3. Canon of Ascertainability

"A characteristic used as the basis for the classification of a universe should be definite and ascertainable." For example, when we classify authors in the field of literature, if a

chronological sequence is desirable. Then the date of birth of the author is ascertainable, whereas, date of death is not ascertainable especially in case of a living author.

4. Canon of Permanence

"A characteristic used as the basis for the classification of a universe should continue to be unchanged so long as there is no change in the purpose of classification." For example, the size ofthe books would not be permanent because when a book is sent for binding the binder may cut thesides thus the size will be reduced. The successive editions of a book may be in different sizes. Hence, it is not a permanent characteristic. Whereas, a subject of a book is permanent characteristic.

Canons for Succession of characteristics

The succession of characteristics in the associated scheme of characteristics should satisfy the following three canons: 1. Canon of Concomitance; 2 Canon of Relevant Succession; and 3 Canon of Consistent Succession.

1. Canon of Concomitance

"No two characteristics in the associated scheme of characteristics should be concomitant— that is, they should not give rise to the same array of subjects or of isolate ideas." Ranganathan himself gives the examples. In the universe of men, age and year of birth should not be used as characteristics in succession, as the basis for classification: for they will both give rise to almost same array. But the characteristics, height and age, can be used in succession, since they will giverise to two different sets of arrays.

2. Canon of Relevant Succession

"The succession of the characteristics in the associated scheme of characteristics should be relevant to the purpose of the classification." For example, height and weight would be relevant characteristics in succession for selection or classification of boys for basketball than height and mother tongue of the boys. Similarly, the books relating to the field of literature can be classified withthe succession of characteristics such as Language, Form and Period.

3. Canon of Consistent Succession

"The succession of the characteristics in the associated scheme of characteristics should be consistently adhered to, so long as there is no change in the purpose of the classification." This canon is similar to the canon of permanence, but it deals with the succession of characteristics. That means the sequence of the characteristics used for classification of a universe of entities should notchange from time to time without any purpose.

Canons for Array

"Each array of classes in a scheme for classification should satisfy the following four canons: 1 Canon of Exhaustiveness; 2 Canon of Exclusiveness; 3 Canon of Helpful Sequence; and 4 Canon ofConsistent Sequence.

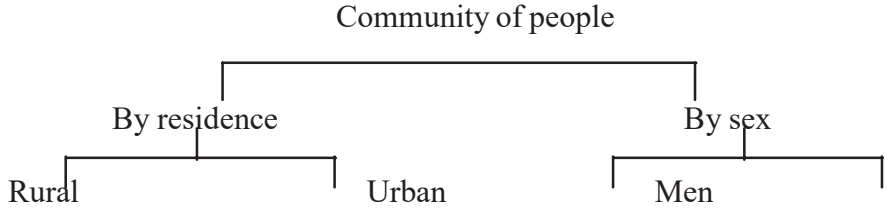
1. Canon of Exhaustiveness

"The classes in an array of classes, and the ranked isolates in an array of ranked isolates should be totally exhaustive of their respective common immediate universe." It means that an

array should consist of all the classes or ranked isolates, it should not be incomplete, even newly formed classesshould be added.

2. Canon of Exclusiveness

"The classes in an array of classes, and the ranked isolates in an array of ranked isolates should be mutually exclusive." This means, that no two classes of the array can overlap or have an entity incommon. For example, we should not enumerate the groups of persons in sociology as:



The enumeration (in a coalesced array) should be exclusive in the following fashion:

Men
Women
Rural
Rural men
Rural womenUrban
Urban men
Urban women

3. Canon of Helpful Sequence

"The sequence of the classes in an array of classes, and of the ranked isolates in an array of ranked isolates, should be helpful to the purpose of those for whom it is intended." There will be conflict of purposes. It is because what is helpful to one purpose may not be helpful to another. Inother words, helpfulness of sequence will vary with the users of the classification scheme. Therefore, helpfulness should be determined by objectivity, universality and based on impartial/objective principles. It is because of this Ranganathan presented the principles for helpful sequence that have been discussed in the lesson on Principles for helpful sequence.

4. Canon of Consistent Sequence

"When similar classes or ranked isolates occur in different arrays, their sequence should be parallel in all such arrays, wherever insistence on such parallelism does not run counter to other more important requirements." The canon means that the sequence of classes or isolates should be same wherever they occur. For example, 2 for morphology, 3 for physiology, 4 for disease in Medicine, the same order for these isolates should be followed if they occur in the basic class Animal Husbandryor Zoology. The consistent sequence can be ensured if we follow scheduled mnemonics and principles for helpful sequence.

Canons for Chain

Each chain of classes or of ranked isolates in a scheme for classification should satisfy the following two canons: 1 Canon of Decreasing Extension; and 2 Canon of Modulation.

1. Canon of Decreasing Extension

"While moving down a chain from its first link to its last, the extension of the classes or of the ranked isolates, as the case may be, should decrease and the intension should increase at each step." The chain is a sequence of subordinate classes, therefore, in a chain from first link to its lastlink, the scope of subjects at every level should decrease and their narrowness or depth should increase. For example, in a chain of space isolates the sequence should be: Asia, India, South India, Andhra Pradesh, and Hyderabad. But not, Hyderabad, Andhra Pradesh, South India, India, and Asia.

2. Canon of Modulation

"A chain of classes or of ranked isolates should comprise one class or one ranked isolate, as the case may be, of each and every order that lies between the orders of the first link and the last link ofthe Chain." This canon states that there should not be any missing links in a chain. For example, inDDC the classes enumerated in the chain of classes in Religion are: Religion, Bible, Old Testaments, etc. The class "Christianity" is missing in the chain. This amounts to violation of Canon of Modulation.

Canons for Filiatory sequence

A filiatory sequence calls for the following two canons: 1 Canon for Subordinate Classes; and 2Canon for Coordinate Classes.

1. Canon for Subordinate Classes

"In a coalesced array [see under canon of exclusiveness], if A1, A2, A3, etc are sub-classes ofany order whatever of class A, originated in one or another of the chains originating from the class A,the classes A1, A2, A3, etc should immediately follow the class A in succession, without being separated from it or among themselves by any other class." This canon means that in a chain of classes all therelated links or the order of subordiantion classes should not be separated or disturbed as the case may be. This can be clearly understood by the following canon.

2 Canon for Coordinate Classes.

"In a coalesced array, if class A and class B had originated in one and the same array and had been consecutive in it, they should not be separated from each other by any class other than the classes A1, A2, A3, etc having A as their common immediate universe."

This further clarifies the implications of both the canons. For example, A and B are equal rankclasses occurring consecutively in an array. Then B should follow A and they should not be separatedby any other class, excepting A1, A2, A3, etc classes that are the divisions or subordinate classes of A and A is their immediate universe. The sequence of all the above classes in the coalesced arraywould be A, A1, A2, A3, B.

11.7 CANONS FOR VERBAL PLANE

The canons for work in the Verbal Plane are: 1 Canon of Context; 2 Canon of Enumeration; 3Canon of Currency; and 4 Canon of Reticence.

1. Canon of Context

"The denotation of a term in a scheme for classification should be determined in

the light of thedifferent classes or ranked isolates of lower order (upper links) belonging to the same primary chain as the class or the ranked isolate denoted by the term in question." For example, the term "Morphology" occurs in Biology, Botany, Zoology, Medicine, etc. But it denotes different things as per the context.When this term is used in Botany it means plant morphology. In the context of Zoology the same terms stands for Animal morphology, in Medicine it means Human morphology or Human Anatomy. This the implication of Canon of Context.

2. Canon of Enumeration

"The denotation of a term in a scheme for classification should be determined and should be leftto be determined in the light of or through the sub-classes or ranked isolates (lower links) enumeratedin the various chains having the class or ranked isolate, as the case may be, denoted by the term in question as their common link." In CC in the main class Y sociology, the term "problem" for "Social Problems" is not enumerated, whereas, Social Pathology is enumerated. Those who are not awareof the terminology that the Concept "Social Pathology" denotes "Social Problems" can be understood by the lower links such as destitution, social evil, crime, etc. We can understand that their upper link "Social Pathology" is the broader class dealing with Social Problems.

3. Canon of Currency

"The term used to denote a class or a ranked isolate in a scheme for classification should be the one current among those specialising in the subject-field covered by the scheme." This canon doesnot require any explanation. However, the implication of this canon is that the terms that we use to represent classes or isolate ideas in a classification scheme should be current. For example, Bhagyanagar is not currently in use, it should be Hyderabad.

4. Canon of Reticence

"The terms used to denote a class or a ranked isolate in a scheme for classification should notbe critical—that is, express any opinion of the classificationist." This canon states that the classificationists should not use terms that are ambiguous or critical. For example, the use of the term(s) Minor Authors in literature violates Canon of Reticence. It is because does minor author means the author who did not attain majority or an author whose contribution is not significant.

11.8 CANONS FOR NOTATIONAL PLANE

There are two categories or lists of canons for work in the notation plane. They are as follows:

List of Canons 1

The notational system of a scheme for the classification of any universe should satisfy the following two canons:
1 Canon of Synonym: and2 Canon of Homonym.

List of Canons 2

There are ten other canons to be satisfied by the notational system of any scheme

for classification. These fall into five pairs such that each pair consists of one canon and of its negation. So that, the choice of the canon is left to the discretion of the classificationist. The following are thefive such pairs of canons:

1. Canon of Relativity and Canon of Uniformity;
2. Canon of Hierarchy and Canon of Non-Hierarchy;
3. Canon of Mixed Notation and Canon of Pure Notation;
4. Canon of Faceted Notation and Canon of Non-Faceted Notation; and
5. Canon of Co-extensiveness and Canon of Under-extensiveness.

1. Canon of Synonym

"The class number of a subject in a system of class numbers and the isolate number of an isolate idea in a system of isolate numbers should be unique."

The above Canon implies that each subject should be represented by one and only one Class Number. No subject should be represented by two or more Class Numbers. This is applicable to the isolates also. There are exceptions to this canon, especially, when an alternate location is prescribed or preferred. However, when the question of use of class numbers arises, then the classifiers have to use only one of the alternate class numbers. But not two numbers to the same subject. For example, Indo-US Cultural Relations. The numbers could be V44:1973,(Y:1) or V73:1944,(Y:1) both the numbersare meaningful and convey the same sense. But a library cannon use both the numbers. In other words, the classificationists can provide alternate numbers for a subject. But the classifier should use only one number. In the above case the libraries in India may use V44:1973,(Y:1) and the libraries in US may use the class number V73:1944,(Y:1) for the same subject.

2. Canon of Homonym

"The subject represented by a class number in a system of class numbers and the isolate idearepresented by an isolate number in a system of isolate numbers, should be unique." The above Canon implies that no class number should represent two or more subjects. Eachclass number should represent one and only one subject.

1 Canon of Relativity and Canon of UniformityCanon of Relativity

"The number of digits (including digit-groups treated as a single digit) in a class number or in an isolate number should be the same as the order of the subject or the isolate idea, as the case may be, represented by it."

Canon of Uniformity

"The number of digits in a class number or in an isolate number should be constant whatever bethe order of the subject or the isolate, as the case may be, represented by it."

Observe the following class numbers:

Sl No.	Subject	CC No.	RIC No.
1	Physics	C	QJA
2	Light	C5	QLH
3	Diffraction	C5:3	QLL
4	Spectrum Technique	C5:31	QLP

The above example clearly denotes that the length of CC numbers is relative, as the number ofdigits are same as the order of the subjects, whereas the length of the RIC numbers is Uniform irrespective of the order of the subjects.

2 Canon of Hierarchy and Canon of Non-HierarchyCanon of Hierarchy

"In a class number or in an isolate number, there should be a digit to represent each or thecharacteristics used in constructing the class number or the isolate number, as the case may be."

Canon of Non-Hierarchy

"In a class number or in an isolate number, there need not be a digit to represent each of thecharacteristics used in constructing the class number or isolate number, as the case may be."

The above canons look like corollary of the Canon of Relativity and Canon of Uniformity respectively. However, there is an exception to the Canon of Hierarchy i.e. when the array is Telescoped there will be representation of the subordinates subjects as coordinate to the class(es) forming the immediate universe or upper link to the telescoped classes. For example, when we give an isolate number 1 for World, the divisions of world such as Asia, Europe, Africa, America, etc. Should be given 14, 15, 16, 17, etc., respectively denoting their hierarchy. But, when they are telescoped into a telescoped array they are numbered as 1, 4, 5, 6, 7, etc. respectively, though they are not coordinate to the space isolate "world', they are treated as coordinate at the notational plane as an exception to the Canon of Hierarchy.

3 Canon of Mixed Notation and Canon of Pure NotationCanon of Mixed Notation / Canon of Mixed Base "The Base of the Notational System of a scheme for classification should use two or more species of digits." This means the notational system should use more than one set of symbols. Forexample, a mixed base may use 0-9 (Indo-Arabic numerals), A-Z (Roman Caps), a-z (Roman smalls),etc.

Canon of Pure Notation

The Base of the Notational System of a scheme for classification should use one and only onespecies of digits." This means the Notational System of a classification

scheme should use only one set of symbols, either 0-9 (Indo-Arabic numerals) or A-Z (Roman caps) or any other set of symbols.

The point is, if it is mixed base we will be in a position to give numbers to more classes than with pure base. However, we will learn about the merits and demerits of these Notations in the lesson that deals with notation.

4 Canon of Faceted Notation and Canon of Non-Faceted Notation Canon of Faceted Notation

"A Faceted Notational System should be used when the

1. Length of the base of the notation is about 10 and the universe is likely to contain more than amillion or more entities or subjects; and
2. Length of the base is about 56 and the universe is likely to contain 1,000 million or more entitiesor subjects."

Canon of Non-Faceted Notation

"A Non-Faceted Notational System may be adequate when the

1. Length of the base of the notation is about 10 and the universe is likely to contain not more thana million entities; and
2. Length of the base is about 56 and the universe is likely to contain not more than 1,000 millionentities."

The above canons are self-explanatory and Ranganathan had worked out under which situationwe need what type of notational system.

5 Canon of Co-extensiveness and Canon of Under-extensiveness.

Canon of Co-extensiveness

"In a class number, digits should be added successively so as to represent the measure of incidence of even the very last characteristic in the succession of characteristics, admitted by the universe classified and relevant to the purpose of the classification." This canon implies that the length of the class number will be proportionate to the number of characteristics admitted by the universe classified.

Canon of Under-extensiveness

"In a class number, it is not essential that the digits should be continued so as to represent the measure of incidence of the later characteristics in the succession of characteristics, admitted by the universe classified and relevant to the purpose of the classification."

The above two canons are also corollary to the Canon of Relativity and Canon of Uniformity.

The above pairs of canons prescribe use of different types of notation. The choice is left to the discretion of the classificationists who design the classification scheme(s).

11.9 SUMMARY

Canons are Rules that govern a branch of a main division of universe of knowledge or universeof subjects. The Canons for Library Classification, a branch of Library Science, are related to the three planes of work viz. Idea Plane, Verbal Plane, and Notational Plane. The lesson presented a brief account on rules/canons that are prescribed by the theoreticians in Library Classification. It presented, in detail, the Canons that are prescribed by Ranganathan for the Idea Plane, the Verbal Plane and the Notational Plane.

11.10 TECHNICAL TERMS

Canons : Rules. The guiding principles derived from the normative Principles of a subject.

Classificationist : One who devises a classification schemeConcomitance : Of equal nature or quality

Currency : That which is in vogue

Idea Plane : The level of work where conceptualisation takes place Notational Plane : That stage of work related to library classification where The classes or subjects are represented with the preferred Symbols

Reticence : Being disposed to be silent

Verbal Plane : That stage of work related to library classification where The concepts of classes or subjects are represented with Terms.

11.11 SELF ASSESSMENT QUESTIONS

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(a) Essay Questions:

1. What are Canons? Explain the Canons for Idea Plane.
2. Present a detailed account of Canons for Notational Plane that are prescribed by Ranganathan.

(b) Short Notes:

1. Canon of Ascertainability
2. Canon of Permanence
3. Canon of Co-extensiveness

11.12 SUGGESTED READINGS

1. Krishna Kumar. *Theory of Classification.* 4th rev ed. New Delhi: : Vikas, 1979. Ranganathan, S.R. *Elements of Library Classification.* 3th ed. Bombay : Asia, 1962. Ranganathan, S.R. *Prolegomena to Library Classification.* 3th ed. Bombay : Asia, 1967.
2. Sayers, W. C. B. *Manual of Classification for Librarians and Bibliographers.* 3rd ed. London : AndreDeutsch, 1962.

LESSON – 12

NOTATION - NEED, TYPES AND FUNCTIONS

AIM AND OBJECTIVES

1. To explain the importance and functions of Notation in Library Classification.
2. To understand the scope, types and qualities of Notation
3. To study different canons for notation.

Structure

12.1 INTRODUCTION

We are familiar with the practice of using symbols or signs in the place of terms or phrases. Thesymbols are preferred for various reasons – for convenience, economy and for avoiding confusion.Several disciplines use symbols on a large scale. In language, punctuation marks replaced different terms. In sports or games players are assigned numbers for easy identification. Morse code used in sending telegraphic messages and shorthand are also examples of code language. The army has its own code mainly for the purpose of maintaining secrecy. Automobile vehicles are given numbers. The numbers replace a multitude of particulars relating to the owner of the vehicle. In the event of an accident the number could be easily read and the vehicle easily identified, which would not be possibleif a vehicle has all the particulars on a displayed board hung to the vehicle; there are many such instances.

We have seen elsewhere how the division of subjects and their arrangement take place. In both we are guided by certain principles. We have talked at length about how important it is to have our subject arranged in a very helpful order. Not only do we wish to produce a sequence of main classes in a helpful order, but also we want the same to the followed in the case of the arrangementof subdivisions of the subjects. Such a practice will be unhelpful unless we use a set of symbols to indicate the subjects. For example, we denote Mathematics by B, Physics by C, Engineering by D(CC) and so on; such artificial symbols

are known as notation.

Alphabetical arrangement (of documents) is unhelpful as a means of mechanizing the arrangement of subjects in a preferred helpful sequence, as the names of the subjects are not unique in any natural language. In Library classification, ordinal numbers are used for mechanizing the arrangement of subjects in a helpful sequence. Melvil Dewey was the first to popularize the application of this practice to the arrangement of subjects. Later other symbols were adopted to denote the subjects in Library Classification. Such symbols or digits are known as Notation.

12.2 DEFINITIONS OF NOTATION

1. S.R. Ranganathan: Notation is a system of ordinal numbers used to represent the classes in ascheme of Classification.
2. Berwick Sayers: He explains sthe notation as a series of symbols or shorthand signs standing for the names of terms forming a convenient means of reference to the arrangement in a Classification.
3. Bliss: He defines notation as a system of marks or symbols in some order denoting terms of members of a series or systems of things.
4. Richardson : He states, 'Notation is really a condensed word for each class and conveys representations not merely the divisions but also of the sequence and not only the artificial sequence, but the logical sequence so far as can be expressed.'
5. Mann : Notation is a symbol which stands for the class and their sub-divisions.
6. B.I. Palmer and A.J. Wells : Define notation as a device for mechanizing the arrangement and must be composed of written symbols whose order is defined. As notation is used in Library classification, Library Classification is the translation of the name of subject of a book in to a preferred artificial language of ordinal numbers.
7. Shara and Egan : In the 'Classified Catalogue' define notation as a convenient and economicalarray of symbols, possessing a unique and necessary order. This order when applied to the terms of the classification results in the ordering of the elements of the schematism.
8. In the Glossary of DDC 19th Ed: The notation is defined as Numerals, Letters, and/or other symbols used to represent the main and subordinate division of a Classification scheme.

12.3 NEED AND PURPOSE OF NOTATION IN CLASSIFICATION

Ranganathan gives the following reasons for choosing the notational system in the place of subjects occurring in artificial language.

1. Unhelpfulness of Alphabetical sequence : The Alphabetical arrangement of subjects accordingto their names is ruled out as such a sequence is not helpful.

Agriculture	Medicine
Biology	Philosophy
Geology	Physics
History	Religion

In the example given above we can see that the related subjects are scattered.

2. Effect of change in the name of a subject: Alphabetical arrangement of subjects is ruled out onanother ground that the names of the subjects change from time to time. To quote a few examples, "Political Economy" has changed to "Economics" and Natural Philosophy has changedto Physics. In the first example, the subject moves from P to E and in the second example fromN to P.
3. Effect of synonyms of Alphabetical Sequence : Alphabetical arrangement of subjects is ruled outon yet another ground that the same subject is known by more than one name. For example,"Acoustics" and 'Sound' mean one and the same subject. The first one goes to the 'A' group andthe second one to 'S' group through they are one and the same.
4. Effect of multiplicity of languages: The subjects are known by different names in different languages. That is to say the subject begins with a different letter. Accordingly, they go to different alphabet 'groups. For example, in English 'Dry Cell' would go to 'D' and Tuning Fork' to the 'T' group. But in French the first one is known as Pile Seche' and goes to 'P' group and thesecond one is known as 'Diapason' and goes to 'D' Group.
5. Effect of Homonyms of Alphabetical Sequence: Lastly, alphabetical arrangement is ruled out for another reason that the subject denoted by a term can mean more than one thing. To make anexample the term 'Cotton' may either mean cotton plant or the cotton fibre, or the woven cottoncloth.

The Purpose of a notation in classification are many Berwick Sayers has given the mostimportant purpose of it in the following:

1. To give to a schedule of classification a symbol for each of its terms which shall be constand; so that whenever a term is to be represented, it shall be marked by: one class mark only.
2. The class mark thus fixes the place of the term in the hierarchy of the schedule.
3. To be a short sign to be written on the back of the books as well as in catalogue entries, so thatthe books on a subject are held together by their subject number.
4. To show the sequence and sub-ordination of subjects. A successful notation is one whereby at aglance the order of the scheme can be seen and from an individual number the importance of asubject in relation to its main class can be inferred.
5. To achieve the qualifying of subjects by the combination of symbols (a) to show related subjects (b) to analyse books of several subjects (c) to record aspects etc.
6. To make practical insertion of new subject or further sub-divisions of elder once, at any point ofthe scheme, without any dislocation of its order.

12.4 ADVANTAGES OF NOTATION

Palmer has mentioned some important advantages of Notation in the following:

1. Once the outline of the scheme or of one of its main is known, this acquires a mnemonic valueand helps user to grasp and understand the field knowledge.
2. The 'analysis of readers' enquiries and the subsequent search strategy in satisfying them is more explicit because the notation itself reflects the steps to be taken and so prompts the rightaction.
3. The Appearance of a digit in the notation indicates to the cataloguer that a term needs

indexingand so aids in the process of making the subject catalogue.

12.5 FUNCTIONS OF NOTATION

J. Mills states the Functions of notation as follows:

1. The vital function is to mechanically maintain the sequence of the subjects, by giving each term a symbol possessing an agreed ordinal value. Notation is primarily an ordering device.
2. It makes the alphabetical subject index possible. Reference from a term in the index would notin itself convey to a user the exact location of a subject. But a class number cited alongside theterm (e.g Economics 330) locates automatical
3. By the use of synthesis or number building it makes possible enormous economics in the construction and physical size of the schedule.
4. By the use of synthesis, notation greatly increases the range of specification possible.
5. It may provide mnemonic qualities which assist the librarian to remember the sequence of divisionswithin a class
6. It assists the guiding of a library
7. In lending libraries, it may be used as a charging symbol which keeps the issue in a helpful order and one from which figures of class issues are essentially obtained.

B.C Vickery also gives more or less the same functions of notations in the following;

1. Notation must mechanize arrangement.
2. Notation must be hospitable that is must be possible to insert terms, arrays, chains hierarchiesor facets into the schedule in their preferred position.
3. Notation may reflect and demonstrate structural features of the subjects classified.

12.6 TYPES OF NOTATION

There are two types of notations. They are

1. Pure Notation
2. Mixed Notation

Pure notation has one and only one species of digits, e.g DDC. It uses only Indo-Arabic numeralswith dot which is intended only to ease the eyes and for pronunciation.

CC uses mixed notation i.e., it uses more than one species of digits

CC uses (1) Indo-Arabic Numerals (2) Roman Capital letters (3) Lower Case of Roman Alphabets

(4) Greek Letters (5) Punctuation Marks, Hyphens, equal, arrows () etc. (6) In the 7th edition CC isgoing to have (double inverted commas) for common isolates; & (ampersand) as indicator digit for phase relation inverted V (i.e., V not yet finalized see p. 242 of Prolegomena Ed.3)

A notation may be made up to Indo-Arabic numerals and/or Roman alphabets, various arbitrarysigns or of a mixture of several or all of these symbols. A notation which consists of only one type of symbols is said to be pure, and a notation consisting of two or more types of symbols is known as ‘mixed notation’. The outstanding example of ‘pure notation is the ‘Indo-Arabic numerals 0-9. The advantages of this notation are: (1) it is internationally acceptable (2) creates no difficulty in conveying order to use clearly and (3) is relatively

simple. It has also drawbacks. For example, by using Indo-Arabic numerals (as it does in the DC) no, more than 9 to 10 divisions can be accommodated at any time. Fremont Rider is another staunch advocate of pure notation. He uses 26 alphapet in his International Classification. He believes that pure notation has made an enormous contribution to thesuccess of classification throughout the world. But the tendency is to use mixed notation in the modern schemes of classification. The CC is a case of mixed notation. Among others, a major advantage of mixed notation is its flexibility.

12.7 QUALITIES OF NOTATION

Bliss states that 'Notation' does not make a classification through it may mark it. It means that classification of knowledge is a main thing whereas notation is only a means serving as a system of symbols denoting the classes and their order without naming and defining them. In fact notation concretises the abstract knowledge classification from bibliographic classification

However, a good notation does not make a bad classification good. Since notation is merely adevice to reflect what the scheme of classification represents in the idea plane. But a bad notation may destroy the usefulness of a good classification since imperfect notation does not faithfully implement the requirement of the classification scheme. So, to carry out the requirements of a good classification scheme, the notation should have the following qualities.

1. Brevity 2. Simplicity 3. Sped of Writing 4. Pronunciability 5. Easy to remember 6. Flexibility 7. Mnumonics 8. Hospitable to accommodate new classes in array and chain 9. Synthesis should be possible. 10. Expressive 11. Length of Notation should be relative to the depth of the class it represents 12. Notation should be unique and each class number represent only one subject.

1. Brevity: Brevity is a desirable quality of a class number as it is to be written on the spine of book.More over, it is easy to carry in our mind.
2. Simplicity: The brevity of notation has something to do with simplicity. Simplicity depend upon the kind of symbol used. However the notation to be adopted for classification should be brief and simple.
3. Speed of Writing: Speed of writing is important, since the class number of each book must beentered in several place in the book namely on the spine, the data label, back of title page, insidethe book and the book card, and in the main and numerous entries in catalogues.
4. Pronunciability: One quality of the notation is that it is easily pronounced. But this is not essentialas a class number is not going to be read out more often then being written down, seen and temporarily in memory.
5. Easy to remember: If the notation is brief and simple, it is then easy to remember.
6. Flexibility: This means a notation adopted in a scheme of classification should be flexible to allow any new subject in to any place without dislocating sequence of the already existing classes.
7. Mnemonics: By mnemonics notation we mean that whenever a subject or form appears, it hasalways the same notation throughout the classification. In DDC standard sub-division securesthis. In CC common isolates, space, schedule S.D etc, secure this.
8. Hospitable to accommodate new subjects in array and Chain: By this, it means that the

notation should be flexible to accommodate a new class in array and chain of classes without disturbingthe already existing sequence of classes.

9. Synthesis should be possible: By the use of synthesis or numbers buildings it makes possible enormous economics in the construction and physical size of the schedule. However, this is possible if the scheme is a faceted one.
10. Expressive: This is the degree to which notation reflects in its allocation the sub-ordination andco-ordination of subjects. That is it expresses the hierarchy of making number expressive for co-ordinate and sub-ordinate topics.
11. Length of Notation should be relative to Depth of Subjects: E.g. 800 Literature; 820 English; 822 Drama; 822.3 Elizabethan Period; 822.33 Shakespeare; 822.33SI-5 Antony and Cleopatra; L- Medicine; L45-Lung; L45:4-Disease of Lung; L45:4:6-Treatement of Lung disease.
12. Notation should be unique and each class number should represent only one subject.

E.g	CC	DDC
Q	Religion	200
Q 6	Christianity	220-289

Note: In DDC 'Christianity' is represented by more than one class number and so uniquencessis loss.

Canons for Notation:

The following canons are for Notations.

1. Canon of Synonyms
2. Canon of Homonym
3. Canon of Relativity
4. Canon of Uniformity
5. Canon of Hierarchy
6. Canon of Non-Hierarchy
7. Canon of Mixed – Base
8. Canon of Pure Base
9. Canon of Faceted Notation
10. Canon of Non-Faceted Notation
11. Canon of Co-extensiveness
12. Canon of Under – Extensiveness
13. Canon of Extra-Polation in Array
14. Canon of Inter-Polation in Array
15. Canon of Extra-Polation in Chain
16. Canon of Inter-Polation in Cahin.

1. Canon of Synonyms:

The class number of a subject in system in a system of class number and the isolate numberof an isolate idea in a system of isolate numbers should be unique.

It implies that each subject should be represented by one and only one class number. In otherwords, no subject should be represented by two or more class numbers.

E.g. CC DDC

B9a Bibliographies of Astronomy 016.52 or 520-16 (see page no.13 of vol.2DDC)

DDC violates this canon. No doubt CC also gives such number building. For example India is represented either by the number 44 or by the number 2 as favoured country. In the same way English language may be represented either by 111 or by '-' (hyphen) for favoured language. However DDC and CC rules prevent the use of both. It has to exercise the option once and for all

2. Canon of Homonym:

The subject represented by a class number in a system of class numbers and the isolate idea represented by an isolate number in a system of isolate should be unique. It implies that each classnumber should represent one and only one subject. No class number should represent two or moresubject

E.g.

CC	DDC
Q Religion	200
Q6 Christianity	220-289 (Homonym)

3. Canon of Relativity:

The number of digits in a class number / isolate number should be the same as the subject orthe isolate idea, as the case may be, represented by it. That is to say that length of the class numbershould be proportionate to the order of the subject.

E.g.	CC	DDC
Physics	C	530
Light	C 5	535
Diffraction	C 5 : 55	535.4
Spectrum	C 5 : 31	535.84
Ultra-Violet	C 52 : 31	535.844 In this case the number ofdigits is constant
Raman Effect	C 52 : 38 N 28	535 846
Literature	O	800
English	0111	820
Drama	0111.2	822
Shakespeare	0111, 2J64	822.33
Antomy & Cleopatra	0111, 2J645	822.33S1-2

The Canon of Relativity is fully observed by CC and DDC

4. Canon of Uniformity:

The number of digits in a class number should be constant whatever be the subject represented by it.

It means that though each digit of the class number represents the subject, the number of digitsshould be constant even for the subject of increasing intension.

In the above example 1, both the subject Ultra-Violet and Raman Effect, the number of digits is 7 in the case of DDC

The advantage of this canon is that in Mechanical Retrieval it is easy to feed into the machineryclass numbers with the same number of digits.

5. Canon of Hierarchy:

In a class number there should be a digit to represent each of the characteristics used inconstructing the class number.

According to Canon of Relativity, every characteristic used in deriving the class from the original universe will be represented by a digit in the class number. In other words, all the characteristics of the class number should be represented by the successive digits, in the class number. Viewed fromthis angle, the canon of Hierarchy looks as a corollary of canon of relativity. But in some cases, it is not possible to follow this canon simply because of Telescoped Array.

e.g. Telescoped array of Geographical Division

Class of Array of Order	**CCC**	**Isolate Terms**
In the idea plane there are the sub-division of 1 i.e Classes of Array	1 (Telescoped)4	World
		Asia
Order 2	5	Europe
	6	Africa
	7	America
	8	Australia

Explanation:

As viewed from the Idea Plane, 'World' belongs to a …….(One line Print Missing) that order and thus after the digit 1, the other follow digit namely 2,3 to 8 are not available in the schedule. These numbers, may be utilized to accommodate the subdivision of order 1 i.e OrderNo. 2 so that one digit in the class number can be economically saved. Such an organization of an array in the schedule of classification is called "Telescoped Array"

Reason for Telescoping in Array:

When the classificaionist is dead sure that the number of classes in an array is definitely knownto be considerably smaller than the numbers of places normally available in the array, then the follow digits can be utilized for the immediate succeeding order as to have one digit in the class numbers. Thus the 'Law of Parsimoney' is adopted in notation with the help of Telescoping Device.

CC Number	Subject
Foci in [P]	
1.	Cryptogram
(Telescoped Array 1)	
2.	Thallophyta
3.	Bryophyta
4.	Pteridophyta
5.	Phamerogam
(Telescoped Array 2)	
6.	Gymnosperm
7.	Monocotyledon
8.	Dicotyledon

CC Number	Subject	Zoology Isolate Term
Foci [P]		
1		Invertebrate
(Telescoped Array I)		
2		Protozoa
3		Prolefera
4		Coelenterata
5		Echinodermata
6		
7		
8		
9		Vertebrata
(Telescoped)		
91		Prochordata
92		Fish
93		Amphibia etc. upto 97

It is because of the Telescoping in array in the schedule of classification one more canon isadded.

6. Canon of Non-Hierarchy :

In a Class number or in an isolate number, there need not be a digit to represent each of thecharacteristics used in constructing the class number or isolate number as the case may be.

This canon violates the canon of Hierarchy. This is done deliberately to satisfy

the Law ofParsimony.

7. Canon of Mixed Base:

The Base of the Notational System of a scheme for classification should used two or morespecies of digits.
E.G. Ba' N7 Bibliography of mathematics brought upto 1970.

8. Canon of Pure Notation:

The Base of Notational System of a Scheme for Classification should use one and only onespecies of Digits.

A Pure notation is practicable, only if the universe Classified in a finite one and if all its entities are known before the notation is designed. Such a case in trivial. The notation, therefore, should have a mixed base. In Richardson's statement, an ideal notation is one using mixed symbol but with a predominantly decimal base. This is desirable simply becauseof the entities of a universe are likely to be known only in successive installment in the future and particularly if the universe is infinite, pure notation proves to be a failure.

9. Canon of Faceted Notation:

A Faceted Notational System should be used when the length of the base of the notation is about 10 and the universe is likely to contain more than a million subjects or entries, and the length of thebase is about 56 and the universe is likely to contain 1000 millions or more subjects.

10. Canon of Non-Faceted Notation:

A Non-Faceted Notational System may be adequate when the length of the base of the notationis about 10 is likely to contain not more than a million subjects or entries, and the length of the base isabout 56 and the universe is likely to contain not more than 1000 million entities.

11. Canon of Co-Extensiveness:

"In a class number, digits should be added successively so as to represent each and every characteristics adopted in succession to build the class number". This canon urges for close classification or minute classification.

12. Canon of under Extensiveness:

In a class number, it is not essential that the digits should be continued so as to represent themeasure of characteristic used in success in to build the class number '.' This canon leads Broad Classification.

Meaning of close or Minute Classification: According to the Glossary of DDC 19th ed, page plxxviii, "Close Classifications" means (1) a classification providing for minute sub divisions of topics. It is also called bibliographic (2) Arrangement of works

in conformity with the provisions of such a scheme. In other words close classification means minute classification.

Example:

L		Medicine
L 42		Lung
L 42	: 2	Disease of Lung
L 42	: 4: 6	Treatment of Lung Disease

Meaning of Broad Classification: According to the DDC Glossary page plxxvii Broad Classification means (1) use of only the more inclusive classes of a classification scheme, emitting detailed sub divisions. Also called reduction of number (2) a classification scheme which does not provide for minute sub divisions of topics.

Example:

In DDC:

Gastric stomach	616.333
Gastiric Indigestion	616.333
Disorders of Secretion	616.333

This kind of broad classification leads to homonym in classification. That is the canon of homonymcannot be satisfied unless the canon of Co-extensiveness is satisfied. Such Classification has no potentiality for Depth Classification.

12.9 SUMMARY

In this lesson you have learnt the concept of notation which is the base for library classification. Notation must mechanize arrangement. Notation must be hospitable that is must be possible to insert terms, arrays, chains hierarchies or facets into the schedule in their preferred position. Notation may reflect and demonstrate structural features of the subjects classified. However, a good notationdoes not make a bad classification good. Since notation is merely a device to reflect what the schemeof classification represents in the idea plane. But a bad notation may destroy the usefulness of a good classification since imperfect notation does not faithfully implement the requirement of the classification scheme.

12.10 SELF ASSESSMENT QUESTIONS

1. Define the term “Notation” Mention the need of notation and explain the qualities of a good notation.
2. Define the term “Notation”. Mention the purpose and functions of notation in library classification.

3. Mention different types of notation used in Library Classification. Explain the qualities of a goodnotation.
4. Enumerate Ranganathan's canons of notation and discuss any three canons with suitableexamples from CC and DDC
5. Write short notes:
    a. Canon of Relativity
    b. Telecoped Array

12.11 FURTHER READINGS

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3. Mills, J.A., Modern Outline of Library Classification, London: Chapman, 1960 Chap.5.
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5. Krishna Kumar: Theory of Classification, New Delhi, Vikas, 1979. Chap. 9.

LESSON – 13
MENEMONICS

AIM AND OBJECTIVES

To explain the concept and kinds of Mnemonics and their use in library classification, to introduce the meaning and importance of Mnemonics, Advantages of Mnemonics and examine the kinds of Mnemonics – Alphabetical, Scheduled, Systematic and Seminal.

Structure

13.1 MEANING OF MNEMONICS

'Mnemonics' comes from the Greek word meaning 'to remember'. In its usual sense it is understood as an aid to memory. Many of us use some kind of Mnemonics in order to help us to remember or recall something which we are likely to forget. We try to remember the first letter or word of the name of a person for this purpose. Even today some of the primates use knots to remember something. It is not unusual for many of us to remember (for example) the Apple by 'A',Orange by 'O' and Grapes by 'G'. The success of the magic and literary feats depends on the use of Mnemonic devices. The students try to develop particular types of Mnemonics. They remember theheadings of topics in a lesson by the letters occurring first. At the time of recalling at the examination, the first letter helps him to recall what follows.

Mnemonics is one of the methods for transferring to the classifier some of the functions of the classificationist. This helps the classification schemes to grow with changes. In the words of Palmer and Wells, "such devices, because they use symbols in such a way that their meaning is constant and thus tends easily to be committed to memory are known as Mnemonics".

1. The use of Mnemonics leads to economy and reduces the bulk of the schedules.
2. It gives autonomy to the classifier.

Canon of General Mnemonics

"The digit or digit-group to represent a specific concept in a class number (or any of its constituents) should be the same in all class numbers having that concept represented

in them, provided that insistence on such consistent representation does not violate the more importantrequirements" (*Prolegomena*, P. 293).

13.2 KINDS OF MNEMONICS

Ranganathan has recognized the following four kinds of Mnemonics.

1. Alphabetical Mnemonics
2. Scheduled Mnemonics
3. Systematic Mnemonics
4. Seminal Mnemonics

1. Alphabetics Mnemonics

Alphabetical Mnemonics is quite common in life. Alphabetical Device is the application of the Alphabetical Mnemonics. Alphabetical Mnemonics is also known as 'Literal Mnemonics'.

Canon of Alphabetical Mnemonics

"Alphabetical Mnemonics should be rejected without any hesitation, if a sequence more helpful to readers or more filiatory than alphabetical sequence exists. Alphabetical Mnemonics should be preferred if the alphabetical sequence is as helpful as any other sequence and if an international nomenclature exists in the field of which it is applied' (*Prolegomena*, P. 295).

This consists in representing an idea by the first letter or the first few letters in its name. B forBook. P for Physics. M for Music are some of the examples. If the names of two or more ideas, coming in the same array, begin with the same letter, then one of them is represented by that letter, and the others by the first two letters in their respective names. If the names of two or more ideas being with the same two letters then one. If them is represented by these two letters, and the others by the first three letters in their respective names, and so on. The constituents of class numbers withthe help of alphabetical mnemonics is easy. The alphabetical device is not referred to here as a matter of first choice. But sometimes the use of alphabetical device becomes necessary, because the arrangement of subjects on the basis of any characteristic is not helpful. This is used in the arrangement of "Brands" of bicycles or motor cars and of different strains of agricultural crops. It should be noticed that the arrangement of different brands of bicycles is in accordance with literature relating to the bicycles. The classification is concerned with the arrangement of literature relating to the cultivation of different varieties of paddy. There are several varieties of paddy. All are not specified in the schedules. Usually, one number is available for paddy. All the other varieties can be individualized with the help of alphabetical Mnemonics.

For Example

Atlas Bicycle	A
Hero Bicycle	H
Hind	HI

Humber	HU
Philips	P

The Alphabetical Device has many limitations. As we know, the classificatory language is meant for international users. The artificial numbers should be easily understood. For this reason vernacular languages cannot be used unless they are internationally recognized, and Alphabetical device is usually prescribed by most of the schemes. L.C. prescribes it more often than others. UDC is moresparing. D.C. and CC use this device more sparingly.

2. Scheduled Mnemonics

"A scheme of classification should use and one of the same digit or digit group, as the casemay be, to represent an isolate idea or an array isolate idea, in whatever subject it may occur" (*Prolegomena*, P. 298).

Colon Classification : C.C. makes use of the parallel schedules through instructions such as thefollowing :

Basic Class	**Facet**	**Parallel Schedule**
W	[1P2]	As in P2 of V History
Y	[1P1]	6 Abnormal and defective to be subdivided as in 6 of 1P1 of Psychology
Z	[1P2]	4 Torts – To be subdivided as in 5 Crime in the same facet.

Decimal Classification: In the D.C. the use of Parallel Schedules to satisfy the canon of Scheduled Mnemonics is secured by the instructions 'Divide Like', found throughout the schedule:

Eg : (1) 181.04 - .09 Philosophy based on specific religions "Add to 181.0 the numbers following29 in 294-299.

Eg., Confucian Philosophy 181.09512".

(2) 547.34 Qualitative Analysis.
"Add to 547.34 the numbers following 544 in 544.01 – 544.94.

Eg : Microscopical analysis 547.3482"

Systematic Mnemonics

The Canon of Systematic Mnemonics states that "In a scheme for classification, the digits used to represents the array isolate ideas in an array should run parallel to the sequence in which the principles of Helpful sequence would arrange the array isolate ideas" (*Prolegomena*, P. 301).

The following principles are used in C.C. for such a systematic arrangement:

1. Later in timer
2. Later-in-evolution
3. Spatial contiguity
4. Quantitative measure
5. Increasing complexity
6. Canonical sequence
7. Literary warrant
8. Alphabetical sequence

Only a few examples of the use of principles in securing the systematic Mnemonics are givenbelow :

Quantitative Measure : B 23

Foci in P	**CC**
Simple	1
Quadratic	2
Cubic	3
Biquadratic	4
Simultaneous	5
nth degree	7

TOWN PLANNING

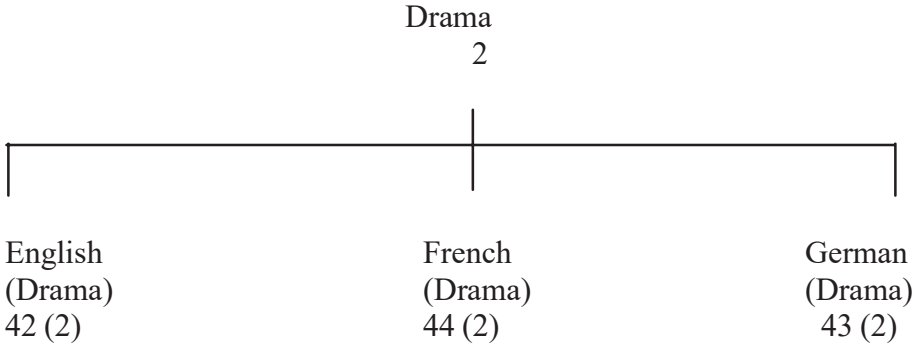
Foci in P3	**CC**
Villages	1
Town	2
City	5
Metropolis	7

In the example given above the isolates are arranged in the increasing sequence of the seize ofthe population cluster.

Seminal Mnemonics

Canon of Seminal Mnemonics : "A scheme of classification should use one and the same digit to denote seminally equivalent concepts in whatever subject they may occur". (*Prolegomena*, P. 304).

Let us consider the differences between Scheduled and Seminal Mnemonics. In Scheduled Mnemonics the same them is represented by the same number in whatever subject it occurs. Forexample, 2 in 422 (D.C.) stands for (English) Drama. The same digit 2 represents drama even when it is used with regard to German literature-432. This can be diagrammatically represented :



On other hand in Seminal Mnemonics the same digit is used. But this digit gains a new term indifferent subjects. If we examine them closely they will all be found to be equal in meaning. In C.C.for, example 4, under Energy facet of Sociology stands for Social Pathology for disease in Medicine, Trots in Law. To put in words Pathology is the diseases of society, disease is that which deals withphysical suffering of individuals. The phenomenon in both the cases is almost equal in nature. Oneproblem with regard to the Seminal Mnemonics is that it is beyond the comprehension of an intellect.It equiries intuition.

Earlier, Ranganathan called this kind of Mnemonics as unscheduled mnemonics. Later, onthe advise of Palmer and Wells the name was changed to Seminal Mnemonics.

Example in C.C.

The digit 1 is used as a mnemonic for Unity, God. World, the first in evolution of time, one dimension or line, solid state and all other entities, existential or conceptual, which may be viewed as correlates to the above mentioned.

The digit 3 is used as a mnemonic for three dimensions, space cubics, analysis function, physiology, syntax, method, social anthropology, and all other correlates to the above mentioned.

The digit 4 is used as mnemonic for heat, pathology, disease, transport interlinking synthesis, hybrid, salt and all other entities, existential or conceptual, which we viewed as correlates to the above mentioned.

The digit 5 is used as mnemonic for energy, light, radiation organic liquid, water, ocean, foreign land, alien, external environment, ecology, public controlled plan, emotion, folige, aesthetics, women, sex crime and all other correlates to the above mentioned.

The digit 6 is used as mnemonic for dimensions, subtle mysticism, finance, money abnormal, phylogeny, evaluation and all other entities, existential or conceptual, which may be viewed as correlated to the above mentioned.

The digit 7 is used as mnemonic for personality, ontogeny integrated, holism, value, public financeand all other correlates to the mentioned.

The digit 8 is used as mnemonic for travel, organization, fitness.

Mnemonic Device:

Ranganathan states, " The Mnemonic Device consists in choosing the digit for the further division of a class, i.e the formatting or the sharpening of a focus, in accordance with a convention in regard to the different possible significance of the digits available for use". (Colon Classification Ed. 3 P.1.32)

In colon classification in several schedules, the following secure mnemonics features:

1. Stands for God, unity word, one dimension, solid state and all other entities existential or conceptualwhich may be conceived as correlates to the above.
2. Stands for two dimensions, plane, conics, form, structure, analogy, morphology, sources ofknowledge, physiographic, constitution, physical anthropological etc.,
3. Stands for three dimensions, space, cubice, analysis, functions physiology, syntax, methods, social anthropology etc.,
4. Stands for heat, pathology, disease, transport, interlinking, synthesis, hybrid, salt etc.,

This is a powerful device which secures a high degree of anatomy for individual classifier to construct class number without referring the code.

In DDC 19th edition, mnemonic device is used. For example, the number 2 or 21 is used forEnglish language.

420 stands for English Language
———
820 stands for English Literature
———
032 stands for English language encyclopedia etc.

430 stands for German Language
———
830 stands for German Literature
……

033 stands for German Language encyclopedias
……
440 stands for French Language
…..
840 stands for French
…..
034 stands for French language encyclopedias etc.,

The use of scheduled mnemonics leads to a scheduled mnemonic device. The scheduled mnemonics are used a great deal in CC. DDC also uses it.

For Example:

The Foci in [P2] of W political Science are same as in V History

The Foci in [E] cum [2P] of 1 Botany are same as in G Biology with the addition of paleobotanyThe Foci for 2 family in [P] of Y Sociology are to be obtained as in R4 Ethics

In other words both CC and DDC use the "parallel schedules" for the formation of isolatenumbers.

CC uses the term "To be sub divided as in (vide P.2, 115) DDC also uses the instruction "Addto base number ….. the numbers following in …"

(except "Add 001-999…" and 'Add areas notation)

13.3 ADVANTAGES OF MNEMONICS

Berwick Sayers calls mnemonics an "ingenious" technique which is "of great value to the classifier". The advantage of mnemonic quality of notation are summarized below:

Mnemonic notation:

i. reduces the bulk of the scheme of classification
ii. minimises the load on the memory of the classifier
iii. saves the time of classifiers by reducing the frequency of reference to the schedules and indexesassists the classificationist by reducing the pressure on the notational system, and
iv. helps the implementation of canon of consistent sequence.

However, the value of the mnemonics has been doubted by A.C. Foskett. According to him, "thenon-librarian users will not come across them sufficiently often to become aware that they are helping his memory, while the classifier using a particular scheme will have difficulty in remembering large amounts of its notation, whether they are mnemonic or not."

Whatever view one might have about mnemonics, its importance for classification, classifier and classificationist cannot be overestimated. In the same context, Prof. Kishan

Kumar writes, " Mnemonics may be of a limited value to a user, but it matters to a classifier, a reference librarian and a classificationist. It does provide a systematic approach to the designing of a classification scheme".

Even A.C. Foskett almost approves of mnemonics when he says, "provided that the striving formnemonic value does not distort the schedules of the classification, there would to be no harm in them.

13.4 SUMMARY

Mneminics are generally a linguistic quality. They are to be casual and should not be forced intothe system. Otherwise they may distort classification and will cost more than they are worth. The mnemonic quality of notation is of great quality and importance for all the schemes of classification. The common isolates in CC and the Standard Subdivisions in DDC bestow the mnemonic quality totheir respectie notations.

13.5 SELF ASSESSMENT QUESTIONS

1. Define Mnemonics and discuss different kinds of Mnemonics.

2. Discuss the value of mnemonics in library classification.

3. Make comparative study of scheduled mnemonics as used in DC and CC.

13.6 SUGGESTED READINGS

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3. Krishan Kumar *Theory of Classification*, New Delhi, Vikas, 1969, Chap. 11.
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LESSON – 14

DEVICES IN CLASSIFICATION

AIM AND OBJECTIVES

1. To Explain the role of devices in a scheme for library Classification: and
2. To explain the devices for the sharpening or forming of the foci in an array of class number.

Structure

14.1 MEANING OF THE TERM 'DEVICE'

According to the Dictionary meaning or the term 'Device' it is understood as 'something inventedand constructed for a special purpose'; a design or pattern; a dramatic plot to meet the challenge of problem situation; a tool or apparatus by means of which new things are formed or sharpened according to the purpose and needs.

Regarding 'Devices", Ranganathan observes "When new subjects come in to existence and call for the formation of new isolates or the sharpening of existing once and the foregoing of number co-extensive with them, the devices will enable the Classifier to meet the situation without waiting for guidance from the classificationists. Correct Employment of the devices will generally lead to the same Isolate Idea (II and the same Isolate Number (IN) whoever is the classifier. This is a measure of the addition to the autonomy to the classifier, going with analytic synthetic nature of colon classification (Colon Classification Ed.6. 129)

The important rule of devices adopted in library classification schemes is to form:

1. Foci in an array of a facet in an analytic-synthetic classification or

2. A class number in an enumerative classification (Prolegomena Ed3 P.343)

14.2 TYPES OF DEVICES ADOPTED IN LIBRARY CLASSIFICATION

The following devices are adopted in different schemes for library Classification;

(a) Chronological Device (CD)

(b) Geographical Device (GD)

(c) Subject Device (SD)

(d) Alphabetical Device (AD)

(e) Enumerative Device

(f) Superimposition Device (SID)

Let us discuss the application of the above devices in colon classification and Decimal Classification.

14.2.1 Chronological Device (CD):

Ranganathan observes, 'Chronological Device is for forming the focal ideas in an array for (1) forming or sharpening a facet in an anaiytico-synthetic classification or (2) sharpening a subject in an enumerative classification; on the basis of the chronological characteristic. When their individualization admits of being made to depend conveniently

and helpfully ont heir epoch of origin or birth or first investigation or discovery or initiation or occurrence or any thoer epoch that may be definitely associated with it in any manner or for any other reason (Prolegomena Ed,3 P.344)

In the notational plane, the device implements it by using a chronological number as the focal number in an array, to (1) form or sharpen a facet number in an analyticosynthetic classification or (2) sharpen a class number in an enumerative classification (Prolegomena Ed,3 P.344)

Provision of the Device in CC and DDC:

There is a schedule of chronological divisions in CC under 'Time Isolate' (vide page No. 2.7). Some of the cases where this device may be employed are generally indicated either in the schedules or in the rules. Similar cases, where it may be employed will suggest themselves in the courses ofactual classification.

Colon classification alone uses the chronological device quite often. In DDC we know that there is no special auxiliary schedule of chronological division. In table -1, Standard sub-divisions, under 0.01 – 0905 historical periods are enumerated. But they cannot be used as chronological device, since they are meant for local historical and geographical treatment of subjects and discipline. Hence DDC scheme is not able make use of chronological device as profusely as possible for sharpening the class numbers. Instead, periods are enumerated wherever they are considered to be essential. For example in the Main Classes Literature and History period tables are provided by enumeration(See Vol.2 p.1401-4 and p. 1455 -60)

In colon classification, chronological device is used several times in most of the subjects. The schedules contain may examples in which this device is usefully employed. This device is illustrated (1) in the individualization of special forms and functions, in mathematics special effects and functions in radiation etc. (2) in fixing the author numbers in literature; (3) in the classification of artificial languages in the schedule of language classes (4) in the classification of different systems of Physics, Medicine. Psychology, Education and Economics; (5) in religious sects; (6) styles in FineArts; (7) in several of the anteriorising and personality common isolates and (8) in may places in the detailed schedule.

14.2.2 Geographical Device (GD)

According to Ranganathan, Geographical Divice (GD) consists in using the appropriate geographical characteristics (that is continent, countru, state, district, etc., as the case may be)for the formation or the sub division of an isolate which is capable of such formation or sub-division, orwhen the individualization of the isolates or sub-isolates, may be made to depend conveniently on the place of origin or prevalence or habitation or one that may be definitely associated with the respective focal in any other manner or for any other reason. The cases where this device may be applied aregenerally indicated in the schedules or in the rules (Colon Classification, Ed. 6, P. 30).

The Geographical Device is used for forming the Focal ideas in an array for

1. Forming or Sharpening a facet in an analytic synthetic classification: or

2. Sharpening a subject in an enumerative Classification on the basic of the geographical charatcteristic, when their individualization admits of being made to depend conveniently and helpfully on their place or origin or prevalence of habitation or any other place that may be definitelyassociated with them in any manner or for any other reason (Prolegomena Ed. 3, P. 345.,)

In the national plane, the geographical device uses geographical number as the focal number inan array to

1. From or sharpen a Facet in analytic-synthetic Classification, or
2. Sharpen a Class number in an enumerative Classification (Prolegeomena, Ed. 3, P. 345).

Provision of Geographical Device in CC and DDC :

In Colon Classification in the Schedule part, chapter -4 is 'Space Isolate" schedule covering page Nos. 2.8 to 2.17. It has a special geographical index where in all political areas are arranged alphabetically by the names of the territories and against each area term each isolate number is provided for easy and quick reference.

The space schedule admits of four blocks which can be put in the form of a single telescoped schedule as given below:

(a) Physiographical features
(b) Political divisions
(c) Population cluster
(d) Orientation divisions

The Physiographical Divisions are based on physical features of space, the divisions such as desert, deltaisland, forest, valley, mountain, river, lake, ocean, etc.. are represented by Roman Lower cases and treated as (S 2).

In DDC 19th ed., Geographical divisions are provided in Table-2. It is a table of notations designating geographical areas. The following summary of geographical divisions are observed in Vol-1 page No.14:

1. Areas, regions, places in general
2. Persons regardless of area, region place
3. The ancient world
4. Europe Western Europe
5. Asia Orient for East
6. Africa
7. North America
8. South America
9. Other parts of world extra terrestrial worlds, Pacific Ocean Island (oceania)

The sub-divisions of Geographical Number 1 indicate all physiographical features like, Forest,River, Islands, Mountains, etc., not limited my continent, country and locality.

Person regardless of area, region, place, biographies, diavies reminiscences, correspondence of persons associated with subjects are considered under the class number -2. The digits-3 to 9 indicate the political divisions of specific continents, countries, localities, extra terrestrial worlds etc.

These areas notation can be added to any specific number for sharpening or formation of classnumber as per the specific instructions provided in the appropriate schedules.

Usually, the specific instructions for the addition of areas notation are provided in the scheduleas given below

(a) Instruction displaying the whole range of areas notation for addition of appropriate notation to agiven base number:

Add 'Areas notation' 1-9 from Table 2 to the base number

Such instructions are profusely provided in the schedules and Tables. The intention is to sharpen or form the class number by adding appropriate physiographical divisions/political divisions.

(b) Instruction displaying a specific range of areas notation for addition of appropriate notation to agiven base number:

(i) Add areas notation 3-9 from table 2 to the Base number

(ii) Add areas notation 4-9 from table 2 to the Base number Add Areas notation 74 – 79 from table 2 to the Base number

Such instructions are found thought the schedules under the appropriate class numbers. The intention of giving a specific range of areas notation of sharpening a class number is that the specifiedrange of areas is alone warranted in the formation of specific class number.

If no such instruction is provided under a class number which is to be sharpened by Geographical device, usually we make use of standard sub-divisions. Number 09 for local Historical and Geographical treatment and to that the area notation is added. In such cases, we add geographical number not as space and hence this is not a case of geographical device.

14.2.3 Subject Device (SD):

Ranganathan observes, 'Subject Device (SD) consists in using the appropriate class characteristic, for the formation or the sub-division of an isolate which is capable of such formation or sub-divisions, or when the individualization of the isolates, or sub-isolates may be made to depend conveniently on a class that may be definitely associated with the respective forcing in any manner or for nay reason. The cases where this Device may be applied are generally indicated either in the schedules or in the Rules (Colon

Classification, Ed6 Page No. 1.31)

In the idea place subject Device is for forming the focal ideas in an array for:

1. Forming or sharpening a facet in an analytical synthetic classification or

2. Sharpening a subject in an enumerative classification, on the basis of subject characteristic, when their individualization admits of being made to depend conveniently and helpfully on a subject in any manner or for any reason (Prolegomena, Ed.3, page no.346)

In the notational place, it means a device of implementing the subject device of the idea plan byusing a class number as the focal number in an array, to

1. Form or sharpen a facet in an analytico-synthetic classification or

2. Sharpen a class number in an enumerative classification. The class number used in implementing the subject. Device should be taken as fused and treated as if it were a single digit. For this purpose Colon classification encloses (such digits) in circular brackets. (Prolegomena, Ed.3, Page No.346)

The subject Device secures automatic conformity to the canons of (I) consistent sequence (2) Helpful sequence (3) Hospitality in Arry (4) Hospitality in chain and (5) Mnemonics.

In a word, sometimes an isolate number especially enumerated under a main class, may be needed to form or sharpen another isolate number belonging to the other Main Class. In such case the isolate number is picked up together with main class as a class number and enclosed within circular brackets ( ). Then the whole brackets with class number are attached to other number requiring it for sharpening as per the rule or instruction under it. This method of sharpening an isolate number with the help of a class number is known as subject device.

Provision of Subject Device in CC and DDC

Colon classification uses subject device (SD) quite often in various schedules. It is employed to sharpen or subdivided isolate number or class number warranted. Its application is indicated under the appropriate isolate number by instructions as others by (SD); divisions by (SD); sub-divisions by (SD); to be got by (SD); etc. To highlight how subject device is to be applied, illustrations are provided in many places in the schedules.

For Example:

(a) In the Main Class ‘2 Library Science’ under [P] the isolate number 4 can be sub-divided for other types of libraries by (SD)

In the DDC, we can observe the provision of sharpening or formatting of class number by subject device but is adopted in a restricted way in certain subjects in which we find instructions like,

a. "Add 001.009 to base number…"

b. "Add to the base number… the numbers following … in (a) The instruction 'Add 00.009 to base number means that nay class number in the vol.2 (schedule) may be added to the base number as per the instruction. This type of instruction is found profusely in the schedule part.

14.2.4 Alphabetical Device (AD)

The alphabetical device consists in representing a category by the first letter or the first few letters in the name. If the names of two or more categories coming in the same array begin with the same letter then one or them is represented by that letter and the others are represented by the firsttwo letters in their respective names. If the names of two or more categories begin with the same two letters, then one of them is represented by these two letters, and the others are represented by thefirst three letters In their respective names and so on.

Ranganathan observes, "The Alphabetical Device (AD) consists in using the first or the first two, or the first three, etc., initial letters (all in capital) of the same name of an entity, existential or conceptual for the formation or the sub-division of an isolate (Colon Classification Page No. 1.33)

Alphabetical Device in the idea plane is adopted for forming the focal ideas in an array for

1. Forming or sharpening a facet in an analytic-synthetic classification; or

2. Sharpening a subject in an enumerative classification; on the basis of the name characteristic, provided they have internationally accepted names and their alphabetical arrangement is helpfulas any other (Prolegomena Ed.3, page no.347)

The alphabetical Device of the National Plane is a Device of Implementing the alphabetical Device of the idea plane by using the first, or the first two or the first three etc., initial letters of the internationalname as the focal number in any array to

1. Form or sharpen a facet in an analytic-synthetic classification or

2. Sharpen a class number in an enumerative classification.

Alphabetical Device is not considered as a very effective Device as it creates homonym and may not be understood well. However when arrangement on the basis of characteristics is not more helpful than alphabetical arrangement in any subject or in any array derived from it. Alphabetical Device maybe finally preferred. Even in that case, this device is to be applied only in respect of proper names, trade names, and certain technical nomenclature which are internationally current (Colon Classification Page. No. 1.33)

There are some unsolved difficulties in the application of this device. Certain

combinations of letters occur frequently at the beginning of names. Then several letters have to be brought in to useto individualization. The schedules and rules indicate the places where this device has to be used.

Provision of Alphabetical Device in CC and DDC:

Colon Classification uses alphabetical device quite often. For example, the arrangement of makes of bicycles or motor cars of different and variant forms of an instrument having distinctive names, and of te different grains of an agricultural crop or cultivar, are instances justifying the preference of numbers by (AD) to the use of specially constructed ordinal numbers.

Examples:

D512 5 stands for Bicycle
Different brands of bicycle can be individualized by (AD) asD5125 A Standing for Atlas bicycle
D5125 Her Standing for Hercules bicycles
D5125 Hero Standing for Hero Bicycles D5125 R Standing for Raleigh Bicycle

In DDC 19th Edition, the alphabetical device is used sparingly. As an alternative to systematic arrangement or as means for home made expansion, alphabetical arrangement using the Cutter- Sanborn or Library of Congress author tables may serve specific local purposes. It is most useful when there are large number of specific co-ordinate sub-division with accepted names and when the full DDC numbers would be very

(a) Examples of numbers with many sub-topics that the classifier may wish to consider for alphabetical arrangement are families of dicotyledonous plants in 583.

Examples:

1. 583.163 Stands for Gultiferales
   583.163 H Stands for Hypher (Saint Johns-Wort family)

14.2.5 Enumeration Device (ED)

The term ‘ Enumeration’ means to count or number. In other words it means to list items. In thescheme for classification isolate ideas or terms or numbers or class numbers are usually listed in apreferred sequence.

According to Ranganathan, “Enumeration Device (ED) of the idea plane is for,

1. Forming the focal ideas in an array of order 1 of the universe subjects or

2. Forming or sharpening focal ideas in a facet in an analytic synthetic classification, or

3. Sharpening a subject in an enumerative classification, in a sequence preference on the

basis ofsome principle for Helpful Sequence (Prolegomena Ed. 3, p. 348)

In the notational plane, it is a device of implementing the enumerative device of idea plane by using numbers o f the base of the notational system of the preferred scheme for classification, eithercontinuously or with gaps, as the focal numbers for

1. Forming the focal number of the array of order 1 of the universe of subjects; or
2. Forming or sharpening the focal numbers in a facet in analytic synthetic classification or
3. Sharpening a class number in an enumerative classification (Prolegomena Ed.3 p. 348)

In order words, the classes or isolates are simply listed. In the same way, isolate terms or numbers under different facets are listed by the classificationists. The isolate terms and numbers aslisted in different schedules of CC and the class numbers together with group of terms listed in DDC are obtained by this device. This means that a ready made class numbers for more subjects are provided in the classification scheme. Such classification schemes adopting enumeration device are by several times langer than that of faceted scheme of classification.

Adoption of Enumerated Device in CC and DDC:

The enumerative device is the most widely used device in all the schemes for classification – beit an enumerative classification or an analytic synthetic classification. In an enumerative classification scheme, like Library of Congress, this device is solely employed. As a result, each subject is provided with a ready made class number thus enabling the classifier to assign the class number for a subject easily. Even in the case of colon classification, through many devices like chronological device, Geographical device. Subject device are use; each of them presupposed the enumerative devices having been used earlier. DDC 19th edition has profusely adopted enumeration device in schedules and tables.

14.2.6 Super Imposition Device (SID)

The term Super Imposition means the act of placing a thing above something else; or the act ofimposing a thing on something else;

According to Ranganathan, when an isolate is not scheduled in a facet but can be regarded asthe mutual denudation of two of the scheduled isolates. It is called super imposition (Colon Classification Ed. P. 133)

In other words, the super imposition device consists of dividing an isolate by restriction of its extension to the portion of it falling within another isolate of the same category.

Need for this will arise when an entity is eligible to be an isolate idea on the basis of two or more quasi isolate ideas. The isolate idea resulting from super imposition is called Super imposition isolateidea (SII)or compound isolate idea.

Normally in the faceted scheme of classification like CC this device is required to be used for specific idea which is not found scheduled in a facet, but which can be represented

by two isolates in the same facet, if they are joined together by a connecting symbol used. In colon classification, for this purpose a Hyphen (-) is used. DDC does accept the super imposition device

Example from CC:

Let us take a specific subject – "Co-Education". If the Foci in [P] of the Main Class: Class "T Education" is referred, it is not enumerated in the schedule. However, there are two isolates – female and male in [P]. Since "Co-Education" means the education of men and women studying together in the same class, these ideas can be represented by adopting super imposition device, i.e Co-edcuation
= Male – Female belonging to the same facet: facet [P]. Therefore T51-52 stands for Co-education.

In DDC 19th edition, superimposition devices has not been made use of.

14.3 AUXILIARY DEVICES

Apart from the above six main devices which have been well explained in colon classification and prolegomena to library classification, the device used for sharpening or expanding and formation of new isolates are for convenient sake named as auxiliary device. Let us discuss about then in thislesson.

14.3.1 Group Notation Device:

Ranganathan defines group notation as a decimal fraction notational system in which each number consists of two or only two rich digits; or three and only three rich digit and so on and does not include an empty digit. The number of group system are deemed to form a single array (ProlegomenaEd. 3 Page No. 249).

Example:

Indo Arabic numerals Two Digited Group Systems:
11 12 13 14 15 16 17 18 21 22 …..28….81 88 …
These 64 numbers are taken as co ordinate numbers forming a single array

Adoption of Group Notation Device in CC and DDC:

The Colon Classification the group notation device has been accepted especially for the construction of work isolate number in literature.

Ranganathan has adopted the group notation for the work facet in the following way:

1. If the number of works of the author does not exceed eight the works should be arranged in chronological sequence or if it is impossible in an arbitrary sequence, and the numbers, 1,2,3
…8 respectively should be assigned to the works.

2. If the number of works of an author is greater than right, but does not exceed sixty four,

the works should be arranged in the chronological sequence or if it is impossible, in some convenient sequence and they should be divided successively 3, …. 8 respectively should be assigned to the number. The work number will consist of two digits i.e 64-82 the first digit indicating group in to which the book falls and the second indicating the work in the group (Colon Classification Rule041 Page No. 1101)

DDC also adopts the group notation device for individualization of dramas of Shakespeare. For individualizing several works of Shakespeare's dramas, mixed notation consisting of Roman Capitalsand Indo – Arabic numbers, is used (vide DDC 19th Ed. Vol.2 Page No. 1405)

14.3.2 Agglomeration Device:

The dictionary meaning of the term 'Agglomeration' is to collect in to make or heap. Hence Agglomeration Device is a technique of gathering related subjects occupying consecutively in the schemes for classification like CC, DDC etc., in other words, Agglomeration Device is a technique of collecting together of entities into larger means without cohesion among the components.

Adoption of Agglomeration Device in CC and DDC:

Colon Classification has introduced agglomeration (or partial comprehension) Device so as to group like subjects under a broad subjects name like humanities, physical sciences biological sciences, social sciences, applied sciences etc. To achieve agglomeration of consecutive subjects Ranganathan

as used the digit Z as emptying digit generally with the class number denoting the subject immediately preceding the first subject. In the CC 6th edition we can find such agglomerated subjects as.

AZ Mathematical Sciences
BZ Physical Sciences
MZ Humanities and Social Sciences, etc.,

In the case of DDC 19th edition, the agglomeration device is not used. However by enumeration, Melvil Dewey grouped subjects under 10 broad heading being represented by three digits in which the last two zeros, are non significant digits. The following are such subjects:

300 Social Sciences
500 Pure Sciences
600 Technology (Applied Sciences) etc

14.3.3 Common Isolate Device:

Common isolate are isolate ideas which can be used with any subjects and are usually grouped to form schedules. Ranganathan defines a common isolate as an isolate idea denoted by the same isolate term and represented by the same isolate number, quite irrespective of the compound subject in which it occurs, or the basic subject with which the

compound subjects goes (Prolegomena Ed. 3 p. 93)

The families of isolate – namely the family of geographical isolate, the family of time isolates, the family of space isolates, the family of language isolates etc., can form components of several compound subjects going with such of all or almost all of the basic subjects. Each isolate in each family is called a common isolate. Schedules for each of the families of common isolates are given as a set by themselves in practically every scheme for classification especially faceted scheme.

The DDC 19th ed., has seven tables. Among them, the Table – 1 standard sub-divisions are commonly attached if warranted, with the basic number as per the instruction.

The common isolate device provides for extrapolation in Colon Classification. It also reduces the size of the schemes as the length of the schedules is got reduced due to the formation of common isolate schedules.

14.3.4 Sector Device:

According to Ranganathan, 'Sector Device' is al device used for increasing the capacity of an array with the aid of 'empty digit' (Prolegomena Ed.3 p. 238). An empty digit is a digit which has ordinal value, but without semantic value. That means that the empty digits do not indicate any ideas but areuseful in increasing the capacity of the array.

Usually, the last digit of a species of digit is made an empty digit. In DDC the last digit in Indo Arabic numerals 9 is often used as an empty digit. In colon classification the digits z. 9 and Z are usedas empty digits, except in few cases.

For examples, in the use of Indo Arabic numerals, CC uses the first eight numbers as significant numbers and the 9th number is more non significant number so that it can be used only for sequencing number and can be further combined as significant numbers by attaching the first eight numbers as
91. 92 and then 991, 992… 998 and so on. Thus the digits 1, 8, 91 …. 98, 991 …. 998 etc. from asingle array. Hence by using empty digit 9 it maybe said that the array 1 to 8 has been lengthened by Sector Device.

CC has been using the sector device from the beginning which DDC uses this device to satisfy the canon of exhaustiveness. This device is an extension of 'other device' of DDC

Example:

In CC the space isolate schedule makes use of the Sector Device as shown below.

1. World
2. Mother Country
3. Favourite Country
4. Asia
5. Europe
6. Africa
7. America
8. Australia

93. Land with Pacific Ocean
95. Indian Ocean

96. Atlantic
97. Pacific
983. Antarctica
987. Arctic

In DDC the following class numbers of Main Class 378 High Education, illustrates the adoptionof Sector Device

378	Higher Education
378.1	Organization and administration of Institutions of higher education.
378.11	Personal administration
378.12	Faculty
378.14	College Year
378.15	Types and levels of institutions
378.16	Educational measurement and student placement
378.17	Methods of instruction and study
378.18	School discipline
378.19	Other aspects (use of other device indicating no subjects)
378.194	Guidance and counseling (by adding significant digit 4 with 378.19, a meaning is attached to the class number)

14.3.5 Gap Device:

According to Ranganathan, 'Gap Device' is a device of leaving some digits unused at the beginning as well as at the end of the species of digits used. This is called 'gap device' (Prolegomena Ed3 p. 311)

In other words, it is device by leaving a definite gap between the numbers representing two array isolate ideas appearing to be consecutive at the time of enumeration, in order to accommodate new isolates, as and when they arise, claiming their filiatory places within that gap.

This device, allows for the interpolation of new classes between already existing classes in the concerned array. In case if the gap is left at the beginning and at the end of an array this will also allow for extrapolation in an array. Similarly gaps can be left in the numbers belonging to a chain at bothends as well as in te middle of chain.

From the above, we know that gap device allows to accommodate the new classes between the already existing classes without disturbing their sequences. Usually, the gap device is adopted, if the classificationist is dead sure that there would be new classes demanding their places in the gaps.

Example:

In colon classification, under [P] of C7 Magnetism gaps are provided in the notation as shownbelow:

C7	Magnetism
0……	(Gap in notation is provided)
2	Dia
3	Para
4	Ferro
5	Terrestrial
	(Gaps in notation are provided after the digit 5)
Foci in [E]	
	…. (Gaps in notation are provided)
2	Intensity

In DDC gap device is used in the following case:

….	Gaps is provided
Brokerage firms	
Form of investment	
Exchange of securities and commodities	
International exchange of securities	
Investment bank; and banking	
	Specific field of investment
…….	
…….	(Gaps are provided from 332.68 to 332.69)
……...	
332.7	Credit

The defect of the gap device is that in course of time the gaps are filled up and there is no scope for further interpolation. However DDC adopts a technique of vacating (discontinuing) some class numbers standing for absolute subject for some period, thereby creating gaps in notation and as andwhen new subjects demand their places in the gaps, the same numbers are reused. In the editors instruction regarding the reuse of numbers, we observe. The new rule permits a number previouslyused to be freely re-used if it has been vacated for at least two consecutive additions instead of for 25 years.

14.3.6 Decimal Fraction Device:

According to Ranganthan, the Decimal fraction Device consists of treating each class numberas a pure decimal fraction (Prolegomena Ed.3 .p.320)

In using the Device, every class number, without exception is treated as a pure decimal fraction. No class number is treated as an integer or a mixture of integer and fraction. There is therefore no need at all to use decimal point. This method, satisfies the Law of Parsimony. A new class is created in a chain by sub-dividing the class forming its last link on the basis of a new additional characteristics. By the canons of relativity and expressiveness this should result in the addition of a digit to the class number of the class sub-division. The

method of sub division may have to be continued at infinitum. The Decimal fraction Device will give a distinet helpful class number to each new class, because it provides for the ordinal value of any existing class number. Thus the Decimal fraction Device provides infinite hospitality in chain

The Decimal fraction Device was brought into popular use by the Decimal Classification. It hasbeen adopted by most of the later scheme. This device is an important contribution by Melvil Dewey.CC and DDC use decimal fraction notation.

14.3.7 Facet Device:

Facet Device consist of adding after a facet a class number of any number of links, a digit of ordinal value less than that of the lease of all the substantive digits and adding thereafter, a set of digits constructed as the basis of a train of characteristics related to one another but unrelated to those previously used. The first digit added is called a connecting symbol. The set of digits added thereafteris called a facet.

The facet device secures a manifold hospitality in chain, for it can be applied repeated; and this we can illustrate as given below;

a	2	Library Science
	234	University Library
	234;46	News Paper in University Library
	234;46:81	Selection of Newspapers in University
	Libraries 234;46:81.44	Selection of Newspapers in University
	Libraries in India	
	234;46:81.44'N72	Selection of Newspaper in University Libraries in India in
	1972.	

By adopting various isolate numbers in [IP], [M], [E]; [S] and [T] it is possible to construct class numbers for may subjects in the field of library science. Thus the Decimal fraction Device secures infinite hospitality in chain.

In the case of DDC the facet device is not made use of due to the Enumerative nature of theclass numbers.

14.3.8 Phase Device

In colon classification the phase device has been adopted. The phase device consists of attachingone class number to another, by means of a connecting symbol of ordinal value less than of any connecting symbol used for a faced.

This Device secure an additional infinity for hospitality in chain. It is generally used to represent a subject resulting from or appearing in the form of the exposition of a relation between two subjects. The resulting subject is a phased subject, the two latter subjects are its phases. (For detailed studyon "Phase Relation" refer Lesson 9)

DDC has nor provided the phase relation device to relate two different main classes.

14.3.9 Mnemonic Device:

Ranganathan states, " The Mnemonic Device consists in choosing the digit for the further division of a class, i.e the formatting or the sharpening of a focus, in accordance with a convention in regard to the different possible significance of the digits available for use". (Colon Classification Ed. 3 P.1.32)

In colon classification in several schedules, the following secure mnemonics features:

1. Stands for God, unity word, one dimension, solid state and all other entities existential or conceptualwhich may be conceived as correlates to the above.
2. Stands for two dimensions, plane, conics, form, structure, analogy, morphology, sources ofknowledge, physiographic, constitution, physical anthropological etc.,

3. Stands for three dimensions, space, cubice, analysis, functions physiology, syntax, methods,social anthropology etc.,

4. Stands for heat, pathology, disease, transport, interlinking, synthesis, hybrid, salt etc.,

This is a powerful device which secures a high degree of anatomy for individual classifier to construct class number without referring the code.

In DDC 19th edition, mnemonic device is used. For example, the number 2 or 21 is used forEnglish language.

420 stands for English Language
——
820 stands for English Literature
——
32 stands for English language encyclopedia etc.

430 stands for German Language
——
830 stands for German Literature
……
33 stands for German Language encyclopedias
……
440 stands for French Language
…..
840 stands for French
…..
34 stands for French language encyclopedias etc.,

The use of scheduled mnemonics leads to a scheduled mnemonic device. The scheduledmnemonics are used a great deal in CC. DDC also uses it.

(Note: For detailed study on Mnemonics , refer Lesson 13)

14.3.10 Classic Device:

The term "classic" normally means standard work in the fields of religion, philosophy, literatureetc. Ranganathan explains classic as work (other than the sacred work or the work of literature) expounding some specialized subject, usually having embodiments in several versions, adaptations and transitions', inspiring other works on itself, and getting copied out and / or brought out in print even long after its origin. A classic is largely of intensive origin and it is changed with the personalityof its author (Prolegomena Ed. 3 P. 486)

A Classic often treated as if it were a subject by itself.

For example, Aristotle's Politicos, Newton's Principia; Marx's Capital etc.,

Classic device enables to give special treatment to books and other documents clusteringround a classic. In other words, this device is able to secure the following:

1. It brings together different editions of a classic in a subject;
2. It brings together different editions of each of its commentaries;
3. It brings together different editions of each of the sub commentaries of each of its commentaries and so on;
4. It secures to form group of sub commentaries of a commentary placing in juxtaposition to thecommentary
5. It enables group of commentaries of a classic to be placed in juxtaposition to the classic and
6. It enables group formed of each classic and its cluster of commentaries to be placed in juxtaposition to the group of the other classics in the same subject (Prolegomena Ed.3 P.488)

Adoption of Classic device in CC and DDC:

The classic device has been adopted in CC to group classical works and their commented works along with their different editions. DDC does not adopt such device.

14.3.11 Digit Device

14.3.12 New Digit Device etc.

Emptying Digit Device:

Emptying Digit means a digit which has ordinal value as well as semantic value having power todeprive the preceding right digit.

Ranganathan defines 'Emptying Digit as a digit with its usual ordinal value and also semantic value, and further having the power to deprive the preceding rich digit of its power of representing an idea' (Prolegomena Ed. 3 P.315)

The emptying digit device is helpful for interpolation in array. Interpolation in an array with the help of new number between any time exiting class number or isolate number secures hospitality in array.

Adoption of Emptying Digit Device in CC and DDC:

The DDC does not adopt the emptying digit device. In CC each of the digits T, U,V,W,X,Y and Z is postulated to have the power of emptying in certain contexts, the semantic value of the precedingdigit but allowing it to retain its ordinal value.

For example, in CC main classes, this device has been adopted to interpolate the existing mainclasses as shown below;

H	Geology
HZ	Mining
K	Zoology
KZ	Animal Husbandry
L	Medicine
LX	Pharmocognosy
Y	Sociology
YX	Social Works

14. 4. ADVANTAGES OF DEVICES

The advantages of using devices are that they

1 Avoid enumeration and thereby shorten the schedule;
2 Give autonomy to the classifier
3 Secure automatic conformity to the canons of consistent sequence, Helpful

sequence, scheduled mnemonics, Hospitality in Array and Hospitality in chain (Prolegomena Ed.3 P.343)

Due to the increasing adoption of devices to meet the challenge of universe of ideas in the notational plane faceted schemes for library classification like UDC, CC etc, are gaining momentum. Ranganathan has taken the maximum advantages of the devices in his colon classification. This ledhim to break the rigidity of the notational system and based it on a general dynamic theory of notation. The notational system of CC thus possesses a tremendous degree of hospitality due to the adoptionof proper devices.

14.5 SUMMARY

It has been observed that colon classification adopts many devices to secure hospitality in array and chain by sharpening the existing isolate numbers and by forming new isolate numbers. These devices enable to reduce the size of the scheme for library classification. Above all, the introduction of many devices demands the scheme for library classification to be based on faceted classification thus paying way for analytic synthetic process in the construction of class numbers for subjects.

14.6 SELF ASSESSMENT QUESTIONS

1. Explain the importance of device in a scheme for library classification.
2. What are the devices available for formatting or sharpening of isolates in array of isolates?Explain any three devices with suitable examples from CC and DDC
3. Explain the scope and significance of group notation device in the scheme for library classification.Describe how this device is sued in CC and DDC
4. Explain how the decimal fraction device, facet device and phased relation device increase thehospitality one notation in chain of classes in CC and DDC
5. Write short notes on:
   a. Geographical Device
   b. Subject Device
   c. Superimposition Device
   d. Mnemonic Device
   e. Sector Device
   f. Emptying Digit Device.

14.7 SUGGESTED READINGS

1. Dewey Decimal Classification and Relative Index Ed.19 Vol.1 and Vol.2
2. Ranganathan (SR): Colon Classification Ed.6 -Part I Chapt. 2-7
3. Ranganathan (SR): Prolegomena to library classification Ed.3. Chapters NA-NF, Chap. RR& TB
4. Parkhi (RS): Decimal Classification and Colon Classification in perspective, Chap.R 1-7
5. Krishan Kumar: Theory of Library Classification- Chapter – 14

LESSON - 15

CALL NUMBER, BOOK NUMBER AND COLLECTION NUMBER

Aim and Objectives

To understand the concept of Call Number and its parts such as Class Number, Book Numberand Collection Number;
To know methods or process and structure of the Call Number

Structure

15.1 INTRODUCTION

One of the routine of library activities is the acquisition of book and other reading materials. These reading materials are to be arranged in a convenient way that will increase optimum utility. Library classification aims to achieve this objective. If the collection of documents in a library is small, running into a few hundred only, then to identify or call a particular book of demand, the size or colour or form of documents may be adopted. On the other hand, when the collection grows beyond a few hundreds, difficulty arises in spotting

out a particular document or searching it in the ocean of documents and from other records like issue register, departmental collection register, binding register, library catalog, shelf list etc. To facilitate searching, it is desirable that a shortenedform giving all details like subject, form of document and other physical feature of it and also the location of it in a particular collection is more desirable. This enables to call a document from the library collection. For this purpose Libraries adopt an artificial language of numbers of ordinal valuesdenoting all the characteristics of a document. Such number is known as Call Number. The call number consists of three parts namely, Class number, Book number and Collection number. In this Lesson you will understand the basic aspects of these parts of Call Number.

15.2 CALL NUMBER

15.2.1 Definition of Call Number

According to Ranganathan (1) Call Number of a Book unit is the symbol Used to fix it position relative to other books (Colon Classification Ed. 6, 0.1.3). (2) The Class number, the book number,and the collection number together form the call number (Prolegomena Ed. 3, P.520) (3) In the context of defining library classification call number is defined as 'the translation of the name of thesubject into preferred artificial language of ordinal numbers and the individualization of several books dealing with the same specific subject by means of a further set of ordinal numbers which represent some features of the books other than their thought Content' (Element of Library Classification Ed. 3, Chapter A&B).

DDC (19th Edn) Glossary provides definition for call number as 'A set of letters, numerical, and/ other symbols providing complete identification of an individual work and its relative location, consisting of class and book number and sometimes of such other date as data, volume number, copy number,location symbol'. (DDC Glossary P. 1xxviii)

15.2.2 Need for Call Number:

The Utility of call number may be summed up as given below:

i. Call Number enables to call a book a midst ocean of books and restores it in an automatic wayand thus mechanises the arrangement. In catalogue entries, it plays a vital role as index number in identifying a particular document. A reader may consult the catalogue with the approach terms like name of author, title, series/subject etc. But ultimately all the above entries lead him to search a book in the stack with the call number.
ii. It enables the library staff to develop special collection to meet the requirement of different sectorsof reading population:
iii. In stock verification, it ensures a thorough and efficient and speedy stock taking:
iv. Even in reference service, the reference librarian is helped by it to identify the exact requirements of readers and thus enables him to trace any relevant materials:
v. With the help of call number, it is possible to compile classified catalogye and know how many documents are available in a particular subject:
vi. It is a mechanical and time saving device for the discovery of knowledge in books and so on.

15.2.3 Structure of Call Number :

From the definition of Call number, it is obvious that call number consists of class number, book number and collection number. With regard to the structure of call number, Ranganathan applies the metaphysical analogy to the universe of documents as explained below:

Document =Soul + Subtle body + Gross bodyIn the Context of idea plane :

Soul	=	Thought Content
Subtle	=	Medium of exposition embodying the thought
Gross body	=	Physique embodying the expressed thought

In the Context of Verbal Plane:

Soul	=	Subjects
Subtle	=	Language or other medium and form of exposition
Gross body	=	Material in which the work is embodied

In the Context of Notational Plane:

Soul	=	Class number
Subtle body	=	Book number
Gross body	=	Sequence number or collection number
Thus call numbe	=	Class number + Book Number + Collection number

15.2.4 Writing Call Number:

If all the components are integrated into a single number, the length of the call number will exceed the psychological and physiological limit set by the capacity of the mind to hold a number and by the requirements of single breadth and of a single comfortable sweep of the eye. Hence Ranganathan separated them from one another and for that enunciated 'Canon of Distinctiveness' which reads thus;

In a scheme for classification, the class number, the book number and the collection number together forming the call number should be written quite distinct from one another (Prolegomena Ed. 3, P. 520)
Method of writing call number:

There are two methods of writing call number:

1. When written in a horizontal straight line; sufficient but uniform space, say double space, is leftbetween class number, Book number and collection number and
2. When written in a vertical line, the three components are written one below the other in threedifferent lines.

In practice, when the call number is to be written horizontally, the collection number is writtenabove the book number as shown below;

Example :
(1) 2: 51 N3 31)

(2) X8(J) XI)

If the call number is to be written in vertical line then the collection number should be placed at the to follow by class number and book number as shown below:

Example:
2D Collection Number

2:51N Class Number

qK4 Book Number

15.3 BOOK NUMBER

Ranganathan defines 'Ultimate class of a book' as 'the class of the smallest extension, in the preferred scheme for classification, in which the book can be placed' (Prolegomena Ed.3 p. 503)

Hence, the documents belonging to the same ultimate class can be sub-divided on the basis ofappropriate characteristics, other than subject matter, such as the name of the author year of publication, language, form of exposition or medium of exposition, number of volumes etc.,

Meaning of the Book Number:

The meaning of book number is understood from the following: (1) the book number of a book isa symbol used to fix its position relatively to the other books having the same ultimate class (2). It individualizes it among the books sharing the same class number and (3) the book number is the translation of the names of certain of its specified features into the artificial language of ordinal number specified and elaborated in the rules of the book numbers given in CC

Canon of Book Number:
Considering the above Ranganathan has formulated canon of book number which reads thus:
"A scheme of book classification should include a scheme for book number in order to individualize
the documents having the same subject as their ultimate class and to mechanise their preferred
arrangement among themselves."

"The book number takes up the individualization of books at the point where the class numberhas to leave it as beyond its power". According to J.D.Brown. " The most sensible

and straight forward way to distinguish books from each other is to rely entirely upon the class number or symbol,plus the lettering on the books themselves. For whatever purpose required, it seems much simpler to arrange books on shelves in charging system, in catalogues or anywhere else in a plan and easy sequence of author's names in alphabetical order, under each division or sub-division of a class orsubject" (subject classification Ed.3 Sec. 32 P. 27)
(More detailed study on Book Number is provided in Lesson 16)

15.4 COLLECTION NUMBER

15.4.1 Meaning of Collection Number:

According to Ranganathan, Collection number is defined as " The mark added to class number-cum book number of a book to indicate the collection containing it". "The collection number of a book denotes the collection to which it belongs. It is a suitable symbol to be improvised by each library according to its needs" (Colon Classification Ed. 6 Chapter-4)

15.4.2 Canon of Collection Number:

Ranganathan enunciated a canon for collection number in the Prolegomena to library classificationed. 3, page No. 518 thus:

" A Scheme of book classification may be provided with a schedule of collection number to individualise the various collections of special documents to be framed on the basis of the peculiarities of their gross bodies or their raity or service exigency to facilitate use by reading".

15.4.3 Need for Collection Number:

1. Library classification is concerned with the book classification for securing a systematic arrangement by subjects. But in the practical arrangement of books, problems arise owing to the nature of documents, like rarity, size, format, weight, etc.,
2. Structure of the library like reading room, reference section, periodical section, main section, departmental libraries etc.,
3. Special requirement of users of library like children, handicapped, research scholars, etc., Letus discuss the above problems.

15.4.4 Nature of Documents:

If we examine the documents of any library – whether academic or public; small or large; special or research – we can identity different size of documents like miniature or undersized books, abnormal sized books, voluminous books, pamphlets, giant folis, etc. Such books cannot be kept along with ordinary books. However, they may be collected and kept separately. Such collection can be named as "Under size book collection; over size book collection; pamphlet collection" etc.

In the same way, modern libraries have different types of documents, such as micro films, micro cards, video texts, magnetic tapes, micro fiche, brailing books, ceiling books,

gramophone records, linguaphone, manuscripts and so on. They cannot be arranged uniformly on the shelves and require special treatment. Hence they should be collected on the basis of gross body (i.e physical form) and maintained as distinct collection like film strip collection, micro card collection video text collection, manuscript collection and so on.

15.4.5 Structure of Library:

A large library may have several section like reading room. Reference section, periodical section, and so on. Sometimes, there may be central or main library with server departmental libraries as observed in the universities and colleges.

Depending upon the convenience of the users and the library the reading materials in the concerned sections may kept as distinct collection such as main collection, textbook collection, periodical collection, reference book collection, departmental collection and so on.

15.4.8 Special Requirements of Users of Libraries :

For the special categories of users. Libraries may develop different collections of reading materialssuch as children's book collection: woman book collection: Braille Book collection and ceiling book collection for the handicaps: theses and dissertations collection for the researchers and so on. Somethimes on some special occasions, libraries may develop temporary and special collection under different topics such as Gandhi Jayanthi Collection, Seminars Collection and so on.

15.4.7 Categorisation of Collections:

Dr. Ranganathan, being a practical librarian and classificationist realized the need for different collection of reading materials in servicing libraries and identified three kinds of collections Viz:

(1) Permanent Collection:
(2) Quasipermanent Collection: and
(3) Temporary Collection.

Reading room collections, departmental collections of public libraries references collection etc., would be a permanent collection. Text book collection of academic libraries and social collections in the special libraries are examples of quasi-permanent collections. A text book collection changes withthe changes in curriculum. The periodical special collections like festival collection, topical collection etc. are of temporary collection. For these kinds of collections, Ranganathan prescribed different collection numbers. In the case of permanent and quasi-permanent collections a separate collectionnumber along with call number has been assigned to facilitate their where about. Regarding temporary collection, collection marks should be put on the due date labels of such books specifying the date upon which the collection is to be built. Hence such collection number is not provided along with call number of books. Let us examine the Provision of collection number in CC.

15.4.8 How of Collection Number in CC:

Colon classification is the only scheme which has provided canon and the method of constructing collection number of books. In CC 6th edition in Chapter 4, the method of constructing collection number with examples is provided as given below:

(1) For Books of different sizes

Collection Collection Number Example: Presentation of Collection Number with Call No.

Undersized	Underline Book Number	Call Number	L:4 N55	Class Number Book Number
Oversized	Over line Book Number	Call Number	L:4 —— N55	Class Number Book Number over lined
Abnormal	Underline and Overline Book Number	Call Number	L:4 — N55 ——	Class Number Book Number Between Lines
Worn-out	Encircle BookNumber	Call Number	L:4 N55	Class Number Book Number encircled

For Books under different collection:

Sl.No	Collection	Collection Number	
1	Reading Room	RR	First Digit
2	Secondary Collection	SC	Represents alphabet ofconcern
3	Tertiary Collection	TC	Collection
4	Periodicals	PC	
5	Physics Departmental Collection	CD	(in which digit 'C' is the Main Class 'Physics')
6	Law Department Collection	ZD	(In which the digit 'Z' is the Main Class 'Law')

Thus CC Provides a schedule of collection number to individualise the various collections of special documents to be formed to facilitate their use by the readers. It may be stated that the collection number scheme is formulated and implemented by the maintenance section. This section maintains control through the self register. Whenever a document is transferred from one collection to another, its shelf register card should be moved in a corresponding way. This will also involve change of collection number in some cases. That is

why the collection number is left to the care of maintenance section. This method of securing mobility for the documents to go from one collection to another with the least possible amount of work, has been related to the "Principle of parallel movement". DDC does not provide any scheme or schedule for collection number. However, in UDC there is provision of collection number under the schedule of common auxiliaries of form. The following are some examples of collection number.

(024) Books for particular kind of user irrespective of Scope:

(04) Brochure, addresses, theses, Letters, articles reports, abstracts notices:

(084) Grapic, Pictorial representations, illustrative materials:

(084) Special kinds of Documents. Objects as documents.

15.5 SUMMARY

Normally the Collection number is not included in the call number, if the call number, is treated asan index number in the Book Index Entries. Likewise, in a general documentation list or in a Nationalbibliography, collection number may not be necessary. Simple Class number and book number in such case constitute call number. In certain cases like documents listed in one and the same language and in one and the same form of exposition. Even book number maybe unnecessary. Simply class number is enough. That is why we assign class number for periodical publication in the main entry as per CCC.

15.6 SELF ASSESSMENT QUESTIONS

1. Describe different practices, prevailing in the construction of book number with suitable examples.
2. Describe with examples, how colon Classification deals with the problems of individualizing thedocuments having ultimate class number.
3. Explain the need for collection number in the construction of call number. Describe how CCdeals with the construction of Collection number.
4. Write short notes on:
    a. Class Number
    b. Call Number

15.7 SUGGESTED READINGS

1. Ranganathan (SR): Prolegomena to Library Classification Ed. 2 Chapter 66-68, P. 371-386.
2. Ranganathan (SR): Prolegomena to Library Classification Ed. 3. Part-U.
3. Ranganathan(SR): Colon Classification, Ed.5 Chapter: 1-4 P. 13-1.19.
4. Krishnan Kumar: Theory of Classification Chapter: 22.
5. Parkhi (RS) : Decimal Classification and Colon Classification in perspective, Chapter T5-T8 p.507-23.

LESSON - 16

METHODS OF BOOK NUMBER

AIM AND OBJECTIVES

1. To highlight the Book number and its significance
2. To describe the different practices in the construction of Book Number;
3. To explain the Colon Book Number in detail

Structure

16.1 INTRODUCTION

Library classification is concerned with the arrangement of knowledge, (embodied in documents) on the shelves. Arrangements of knowledge on the basis of subject does not give much difficulty than arrangement of books which are the embodiment of the subjects. For example, the subject 'Physics' has been sub divided and arranged in CC as fundamentals, properties of matter, sound, heat, high radiation, electricity, magnetism and cosmic hypothesis. If the sub division 'sound' is embodied in the documents like books, periodicals, micro film, video tape, magnetic tape etc., allthese documents get the same class number G3. Problem arises as how these different forms of documents are to be conveniently arranged among themselves for storage and retrieval purposes asin all cases, the class number C3 is the same. This class Ranganathan names as 'Ultimate Class'

16.2 METHODS OF CONSTRUCTING BOOK NUMBER OF BOOK NUMBER

There are varying practices which have been adopted by classificationists in this matter. The following are some such book number developed from time to time on the basis of demand of the period:

1. Author Marks
2. Author Number
3. Cutter Book Number
4. Cutter Sanborn Author Table
5. Merrill Book Number
6. Jast and Brown Book Number
7. Biscoe Book Number
8. Rider Book Number and
9. Colon Book Number

15.2.1 Author Marks:

When the number of authors who wrote books of the same subject ware little book number was constructed by choosing the characteristic of the names of the authors and denoted by first two or three letters of the author's name. This method was favoured a sit was easy to construct book number and also for the user to understand in case of author approach.

Sayers has commented, "When the whole question of author marks has been considered, wethink something may be said for using the first three letters of the author's name, without any further requirements; at least where books are not charged by combined class marks and author numbers" (WCB Sayers: Introduction to library classification. 1935 p. 65)

Example:
Colon Classification by S. R. Ranganathan
gets theCall Number: 2:51 N3 RAN
(Class Number) (Book number author mark)

In the case of more books written in the same subject by the same author, then they are got individualized by the book number consisting of author mark and the alphabetic letter of the title or year of publication of different books

Example:
Book Number

1. S.R Ranganathan:
   RAN 1933Colon Classification, 1933 or

2.	S. R Ranganathan: Descriptive Account Colon Classificaiton, 1964	RAN 1964 or RAN, D

However, individualization of books consisting of ultimate class by author marks is noteffective due to the fact.

1. There can be more titles beginning with the same letter written by the same author;
2. There can be more than one title published by them in the same year;
3. Different copies of the same book cannot be individualized.
4. Different volumes of a multi volume books can not be individualized and
5. Different editions of the same book cannot be individualized;
6. Books by different authors whose first three letters are identical cannot be individualized.

16.2.2 Author Number:

The second method of using the author's name to construct the book number as described byDewey is consisting of the invention of translation system by which a name is translated into numbers.

Example: Freeman F,85

In Edition 13 of the DC an appendix containing a special series of author mark which arecalled "Olin Book Number" is formulated.

Examples form 'Olin Book Numbers' are given below

A	A11	Ga	A 35
Ba	A12	I	A 45
Day	A25	Na	A 64
Ea	A28	S	A 84
		Z	A 99

However, it is observed that alphabets serve a useful purpose in individualizing the book number. But introduction of numerals seems to be difficult to understand. Dewey

also described three othermethods of constructing book numbers, such as special author tables, true numbers and accessionorder. In spite of all these, DDC does not develop the number as an integral part of the scheme forlibrary classification.

16.2.3 Cutter Book Number:

Charles Amni Cutter too devised a scheme for book numbers in his "Expensive Classification" in first six systems. The system is similar to Dewey's system. It is an a;phabetical table consisting of first few letters of the names of authors followed by numbers. The table is in three sequence viz., (1) Consonants (2) Vowels and (3) Alphabets. The following examples highlight the structure of book numbers:

1. Consonants:

Beard	B34
Holmes	H73
Huxley	H78
Lowel	L95
Macaulay	M11

2. Vowels:

Abbot	Ab2
Anne	AN7
Edwards	ED9
Olmey	DL6
Smith	Sm51
Swam	Sel
Upton	UP1

3. Alphabets beginning with SC letters:

Scannon	5 – Sca 5
Schopenhaver	6 – Sch 6
Scheider	7 – Sch 57

16.2.4 Cutter – Sanborn Three figure Author Table:

Cutter's Book Number was revised by Kate-E-Sanbon and fitted it with three figures. This is known as "Cutter Sanborn", three figure Author Table. The table consists of three or more initial letters from a surname or surname itself and a three digited number. The letters J, K. E, L O and Uand the letters Q and X are fitted with two figures and one digit numbers respectively. The rest of the letters are fitted with three digited numbers. The arrangement is alphabetical but the letter "S" and thevowels have been given at the end of the consonants.

A sample from the cutter – Sanborn three figure Author Table is given below:

Ben	455	Chand1
Ben	456	Chandler, M
Bene	457	Chanl
Bend	458	Chann
Bendc	459	Chant
.	.	.
.	.	.
.	.	.
.	.	.
Na	111	Pa
Naas	112	Pac
Nab	113	Pace
Nabb	114	Pacc
Nabe	115	Pace
Nabi	116	Pach
Nabo	117	Paci
Nac	118	Pacin
Nach	119	Pack
.	.	.
.	.	.
.	.	.
.	.	.
Yor	61	Zet
York, J	62	Zeu
York, P	63	Zev
Yorke	64	Zi
Yorke,M	65	Zie
Yot	66	Zieg
You	8 67	Zies
Young	68	Zif
Young, C	69	Zil

In the above table, the numbers in the centre are applicable to letters in both adjoining columns. In order to apply the table, the letter group that is close to the surname of the author should be selected and the initial letter is to be added. In case, the surname of the author fits between two numbers, then the earlier number in the table should be selected. To this, a work mark (i.e. Title letter) can be added to get an individualizing number for each work.

The work mark is added after the cutter number.

Example:

1. Dispersal of light by Mathew Chandler gets the book number: C456 D.

2. The Indian way of life by C Young is the book number: Y 69 I.

3. The figures used in the table are regarded as decimal. In the case of authors whose names are common, if the book number available is already used for one of them, then another number asdecimal number is to be added.

Example:

Young	=	Y 66
Young, C	=	Y 69
Young, D	=	Y 692
Young, F	=	Y 694

4. In case of a work translated in many languages, the initial letter of the language is added to theauthor mark.

Example:
Bendint's Riddles
(In original language English) B 458 R

Bendint's Riddles
(Translated work in German) B 458 R. G.

5. When the number of editions of single work exceeds, the various editions are differentiated form one author by adding the year of publication of the edition isstead of numbers 2,3,4,5 and so on

16.2.5 Merrill Book Number:

Merrill Book Number was also constructed with numerical and partly by letters. The example from Merrill Book Number Table is given below.

01	A
02	Agre
08	Bax
10	Bix
98	wit
99	X-Z

16.2.6 Brown Book Number:

The Brown book numbers is also similar to the above methods. However, they do not individualize different copies of the same work, different editions of the same book and different volumes of a multivolume book.

16.2.7 Biscoe Book Number:

The first scheme of Book Numbers based on year of publication was worked out by W.S Biscoe in 1885. It was called Biscoe date table. The provision of the date table is given below.

Symbol		**year**	
A		B.C	
B	1	to	999 AD
C	1000	to	1499 AD
D	1500	to	1599 AD
E	1600	to	1699 AD
F	1700	to	1799 AD
G	1800	to	1809 AD
H	1810	to	1819 AD
I	1820	to	1829 AD
J	1830	to	1839 AD
K	1840	to	1849 AD
L	1850	to	1869 AD
M	1860	to	1869 AD
N	1870	to	1879 AD
O	1880	to	1889 AD

P	1890	to	1899 AD
Q	1900	to	1909 AD
R	1910	to	1919 AD
S	1920	to	1929 AD
T	1930	to	1939 AD
U	1940	to	1949 AD
V	1950	to	1959 AD
W	1960	to	1969 AD
X	1970	to	1979 AD
Y	1980	to	1989 AD
Z	1990	to	1999 AD

A Biscoe Book Number consists of a Roman capital is the first digit, followed by a single digited numerical, representing the year. For example 1986 AD can be represented by Y6

The advantage claimed is that generally a Biscoe Number will be short and have only two digits. But it is obvious that books published after 2000 AD it is not possible to construct book numberfor want of numeration.

The Biscoe Book Number allows an extra digit a Roman small – to be individualize two or morebooks published in the same year in the same ultimate class. But it does not provide for forming language groups among the books belonging to the same ultimate class. Nor does it provide formingseparate group for each of the form of exposition. Again, it does not provide for individualizing additionalcopies or the different volumes of one and the same book. This failure will cause an unhelpful mix up on the shelves. Further it has no means of bringing together the evaluation of a pedestrian book justa position to itself.

16.2.8 Rider Book Number:

F. Rider constructed a modified Biscoe Book Number. He used the Biscoe table for the first digit of the Book Number the digit of the decade of publication. For the second digit, the first letter in thesurname of the author was used and thus a "Two symbol book number" was developed by him. In thecase of the same author publishing two or more books in the same initial letters in their surname, he negotiated to increase the number of digits. For copies of a book, he prescribed an additional numbergroup initiated by the letter "C". Similarly for the different volumes of a book, he prescribed an additional number group initiated by the letter 'V'

16.2.9 Ranganathan's Book Number:

Ranganathan after a thorough study of the different practices adopted in the construction of booknumber, devised Colon Book Number based on facet formula. It is based on facet analysis and provides for possible characteristics which are likely to arise

in the exposition of an idea in forming a work and also the characteristics likely to arise in embodying a work in the form of a book (Prolegomena Ed.3 P. 307)

Ranganathan's Book Number with facet formula and rules for the construction are provided in Chapter – 3, Part – 1 of Colon Classification. In Part -1 under page no. 13, a special chronological table for the construction of book Number is also Provider

The facet formula for Book Number prescribed in the Prologomena Ed.3 (p. 507) is: [L] [F] [Y] [SN] [V] [S]; [C]; [EVN]
The symbols used in the formula are explained below;

L	Language Facet
F	Form Facet
Y	Year Facet
SN	Serial Number
V	Volume Facet
S	Supplement Number Facet
C	Copy Number Facet EVN Evaluation Number Facet

Ranganathan states that each facet has been introduced only on the basis of actual experience gained by observing the reaction of readers while in the stack room and nothing some of their remarks. The need for indicating the volume number and supplement number is inherent. So also the need for distinguishing by a serial number, from number and year number can be seen easily.

Description of Book Number Facets:

Language Facet: The language number is got by translating the name of the language in which the book is written into appropriate symbols in accordance with the language schedule given in chapter -5 page no. 2.26 of CC.

In order to adopt economy in Book Number Ranganathan developed the concept of favoured facet number. This is adopted for the language facet as explained below.

1. 'Each Library can find out its favoured language that is, the language in which the library has the largest number of books. The convention is that the language number need not be written in the Book number, if the book is in the favoured language of the library;
2. The class number of a periodical includes the number of its country of publication. Normally, this will indicate its language. So the convention is that the language number need not be written in the Book Number of a volume of a periodical;
3. In the case of a book falling within the basis subject literature, the class number contains the language number for the languages of the literature. So the convention is that the language number need not be written in the Book Number of a book in literature unless the language of a book is different from the language of the literature; and

4. In the case of a book falling with the Basic Subject 'Linguistics', the class number contains thenumber for the language. So the convention is that the language number need not be written inthe book number of a book in Linguistics, unless the language of a book is different from the language studied.

Example:

Let the language of the library be English which is termed as 'Favoured Language of the Library,Shakespeare's Dramas written in Hindi will get the call number.

0111.2 J64 152

Class Number Book Number

Shakespeare's Dramas in Tamil gets the class number: 0111.2J64, Book No. 31

Form Facet:

As there are books written in different languages, so there are also books written in different forms of exposition. Normally books are written in the form of code, index graph, picture, quotation etc., For example Colon Classification and classified catalogue code of Ranganathan are in the code form: Sear's List of subject heading is in the list form: Vol.3 of DDC is in the index form.

The form number is got by translating the name of the form of exposition into appropriate symbolsin accordance with the schedule forming chapter 3 of page no. 23 of colon classification. It may be stated that the form number need not be written if the book is in the conventional prose form. As a result of this prescription, the majority of books in the library will not require the form or facet in their book number. In addition Form Number beginning with 'w' is not applicable to a book in the Main ClassLiterature.

Example:

1. Ranganathan's Colon Classification is in the Code form

	Class No.	Book No.
Hence the call No. is	2:51 N3	q

2. Ranganathan's Classified Catalogue Code gets the

Call no.	2:55 N3	q

Year Facet:

Out of the facets of the book number, the number indicating the year of publication is the mostcompulsory one. It helps us to arrange books on one specific subject according totheir dates of publication and the latest books on the subject are always found at the end. This is found quite

convenient and useful by the year of publication into appropriate symbols in accordance with the‘Chronological Table for Book Number’ as forming page no. 1.13 of CC

Libraries whose collection mostly constitute of recent publications, say since 1900 A.D mayfollow the chronological table for book number as given below.

Symbol	**Year**
A	Before 1880
B	1880 - 1889
C	1890 - 1899
D	1900 - 1909
E	1910 - 1919
F	1920 - 1929
G	1930 - 1939
H	1940 - 1949
I	1950 - 1959
J	1960 - 1969
K	1970 - 1979
L	1980 - 1989
M	1990 -1999
N	2000 - 2009
O	2010 - 2019
P	2020 - 2029
Q	2030 - 2039
R	2040 - 2049
S	2050 - 2059
T	2060 - 2069
U	2070 - 2079
V	2080 - 2089
W	2090 - 2099
X	2100 - 2109

Y	2110 - 2119
ZA	2120 - 2129
ZB	2130 - 2139
ZC	2140 - 2149
ZD	2150 – 2159

Examples:

	Class No.	Book No
S.R Ranganathan: Colon Classification published in 1964	2:51 N3	K4
F.X. Fox: Mathematics in French published in 1939	B	113 G9

In the case of a periodical publication, the year covered by the volume should be used for the year number. If the volume of a periodical publication covers two or more years; the earliest, of them should be used. If the issues of the periodical publication, covering a year, from two or more voumes or parts such volumes or parts should be regarded as an indivisible set. In addition the volume of aperiodical publication cannot be related to definite years, they may be deemed to constitute a multivolume book

Serial Number Facet or Accession Part of Book Number:

In colon classification (page no. 1.13), this fact is referred to as Accession part of the Book Number. Later Ranganathan renamed this facet as ‘Serial Number Facet’ as observed in the Prolegomena Ed.3

In case, there are many books which have the same Ultimate class with the same language number from number and also published in the same year, then they sould be individualized by accession number or serial number. In case of the first of such books, the book number should end with the year number and for the second the digit 1 should be added after the year number and for the third, the digit 2 should be added after the year number and so on. If the case of nth book, the digit (n-1) is to be added to after the year number.

If the accession part of the Book Number consists of more than one digit, it should be read as an integer and not as a decimal fraction.

Example:

S. No.	Title	Class No.	Book No.
1	Text book of economics published in 1985	X	M5
2	Introduction to economics published in 1985	X	M5.1

Second book individualized by the digit-1
Glimpses of economics Published in 1985 X M5.2 Third book
individualized by the digit-2

Volume Number Facet:

Sometimes it so happens that the thought may be printed in more than one single book. For example the DDC contains of three volumes. The new encyclopedia of Britannica consists of 30 volumes; the Encyclopedia of Americana consists of 30 volumes; such books published in many volumes are termed as Multi volume books. In this case, it would be desirable to design the Book Number of the volumes in such a way that they are all bought together since a set of volumes is to be deemed to be indivisible and thus form multivolume books. However, books having the following features are said to be multivolume books.

1. The set possesses a common index
2. The same sequence of pagination is continued throughout all the volumes of the set; and
3. The subject matter is so distributed among the volumes of the set that it is not helpful to treat each volume as a separate book

Ranganathan has employed a device to bring all the volumes in one place by specifying the following rules (vice CC page no. 1.14)

1. In the case of an indivisible set of volumes, the volumes of the set are to be individualized by putting a dot (.) after the year number or the serial number part of the book number as the casemay be and putting the number of the volume in Indo-Arabic Numerals after the dot.
2. The digit or digits thus added after the dot may be termed the volume number.
3. If the volume number consists of more than one digit it should be read as an integer and not asdecimal fraction.

Example:

The DDC 18th Edition was published in the year 1971. In three volumes, i.e., volume -1;Introduction; volume-2; Schedule and Volume-3; Index.

Since all the volumes get the same class number and published in the same year, individualizationof these volumes is possible by volume number as shown below;

	Class No.	Book No.
Dewey Decimal Classification (18th ed) Vol.1; Introduction	2 : 51M76	L1.1
Dewey Decimal Classification (18th Ed), Vol.2; Secheule	2 : 51M76	L1.2
3. Dewey Decimal Classification Index	2 : 51M76	L1.3(18th Ed), Vol.3;

However, if the volumes of an indivisible se are not published in the same year, the year to be used for the year number is indeterminate. Hence, the following rules are prescribed to remove indeterminateness.

1. The year of the publication of an indivisible set is the year in which the earliest publishedvolume of the set is published.

Example:

Let there be two volumes having the title "Text Book of Physics – Volume 1" published in the year 1980 and Volume 2 in 1985. Then the two volumes get the following call number.

	Class No.	Book No.
Text Book of Physics Volume – 1 Published in the year 1890	C	M0.1
Text Book of Physics Volume – 2 Published in the year 1985.	C	M3.2 (Not as M5 2)

Supplement Number Facet:

Sometimes, multivolume books may have supplementary volumes. In such cases the BookNumber of the supplementary volume should consist of the Book Number of the corresponding mainvolume followed by a dash (—) which is itself followed by the number of the supplement in Indo-ArabicNumerals. The digit(s) thus added after the dash is called the Supplementary Number.

If the supplementary Number consists of more than one digit it should be read as an iteger andnot as a decimal fraction.

Example:

	Class No.	Book No.
Dewey Decimal Classification Volume -2; Schedule	2.51 M76	L1.2

Supplement of Dewey Decimal Classification Vol-2, Schedule (Supplementary Number)	2.51 M76	L1.2-1

If a supplementary volume relates to more than one volume of an indivisible set of volumes,the number of the supplement should be attached to the Book Number of the last of such volumes in the set. (vide CC, page no. 1.15)

Example:

	Class No.	Book No.
1. DDC (18th Ed) in 3 Volumes published In 1971 with a supplementary volume to three volumes Vol. Number Number	2.51 M76	L1.3-1 Supplementary

Copy Number Facet:

Normally libraries purchase some books of highest demand in many copies. In that case the first book is taken as original one and the rest as copies of the first original one. Hence, Ranganathan prescribes rules (vide CC page no. 1.15)

1. The book number of the second, third etc., copies of a book should consist of the first copy followed by a semicolon (;) and there after by the digits 1,2 etc., respectively.

	Class No.	Book No.
Text book of physics published in 1971 (first book purchased in the library)	C	L1
Text book of physics published in 1971 (second book purchased in the library)	C	L1;1
3. –do—third copy	C	L1;2
4. –do—fourth copy	C	L1;3
5. –do—fifth copy	C	L1;n-1

The number added after the digit semicolon (;) in accordance with the book facet formula is known as copy number

If the copy number is more than one digit, it should be read as an integer and not as a decimalfraction.

Facsimile – reproductions, reprints and even the successive non-distinctive of an ordinary book, without any substantial changes should be treated as copies of the book, even though they are broughtout in different years.

However, a distinctive edition of a work in literature, or a sacred book in religion or a classic in any other subject with a class number of its own, should not be treated as a copy; but it should be individualized by using its own year of publication to construct year number.

But re-issues and renewed editions of one and the same distinctive edition of a work in literature or a sacred book in religion or a classic in any other subject should be treated as copies of the earliest issue of the Distinctive Edition in question.

Sometimes different editions of the same book may be published in different years. For example,the first edition is published in the year 1940, it gets the Book Number as 'HO' the second edition ispublished in the year 1945 and hence the book number is H5 and so on. In arrangement, the above two editions are got scattered. To bring different editions of the same book, Ranganathan states, "The numbers of the years of publication of the successive editions may be used as if they were copy numbers" (Prolegomena Ed. 3 P.510). According the first edition published in the year 1940 gets theBook Number 'HO' and the second edition HO;1

Evaluation Number Facet:

In Colon Classification (Page No. 1.16) this facet is denoted by the symbol 'C' to mean critismnumber. But in the Prolegomena Ed.3 it is denoted by the symbol "EVN" to mean Evaluation Number.

Evaluation number in used for pseudo-classics. Pseudo-classic, is a pedestrian work that is, a work not fit to be treated as a classic – provoking associated works such as evaluation of paradise itself (Prolegomena Ed.3 p.501). In a word, a work which leads to the creation of other works on it, is called a 'Host Book' and the other works on the Host Book are called 'Associated Book'. To bring the host book along with its associated books, the book number of an Associated book should consist of that of its Host Book followed by ":g" and this number is known as Evaluation Number.

Example:

		Class No.	Book No.
1.	Theory of population by Dr. S. Chandrasekar (Published in 1940)	T : 5	H0
2.	An evaluation of Dr. S. Chandrasekar's Population theory by Dr. Krishnamurthy	T . 5	H0 : g

If there are may associated books of the same host book, then the Book Number should consistof that of the first associated work in the mere ":g" and for the second associated work with "g" followed by digit 1. This means the second associated work will have the Book Number :;g1 and forthe Third Associated work, the Book Number is :g2 and so on.

3.	An analytical study of Dr. S Chandrasekar's Theory of Population by Dr. M.S Jayachandran (This is the 2nd associated work of Dr. S. Chandrasekar's theory of Population)	Y : 5H	H0: g1
4.	An appraisal of theory of population Of Dr. Chandrasekar by Radhakrishnan (Third Associated work on the Host Book "Theory of Population" by Dr. S Chandrasekar) and so on	Y : 5	H0:g2

Accession part of Number

The number so added after the evaluation number may be called the Accession Part of the Evaluation Number. If the Accession part of the Evaluation Number consists of two or more digits, itshould be read as an integer and not as decimal fraction.

16.3 SUMMARY

In the light of the evaluation of writing materials and the methods of exposition of subjects in different languages and the library practices in possessing many copies of the same books with different editions. Colon Book Number holds good to individualize books belonging to the ultimate classes. Regarding the elaborate facet formula for book number as given in CO. Ranganathan observes thus. – 'There is no doubt that the facet formula for book number looks rather formidable. Inactivability, however, the colon book number of the majority of the books is no more formidable than any other book number prescribed for other schemes of classification. It is really simple and is secured by the economic measure adopted in different facets.'

16.4 SELF ASSESSMENT QUESTIONS

1. Explain the concept of Book Number
2. Examine the various types of constructing Book Number
3. Describe the procedure and facet formula of Ranganathan's Book Number

16.5 SUGGESTED READINGS

1. Ranganathan (SR): Prolegomena to Library Classification Ed. 2 Chapter 66-68, P. 371-386.
2. Ranganathan (SR): Prolegomena to Library Classification Ed. 3. Part-U.
3. Ranganathan(SR): Colon Classification, Ed.5 Chapter: 1-4 P. 13-1.19.
4. Krishnan Kumar: Theory of Classification Chapter: 22.
5. Parkhi (RS) : Decimal Classification and Colon Classification in perspective, Chapter T5-T8 p.507-23.

LESSON 17

DEWEY DECIMAL CLASSIFICATION (DDC)

AIM AND OBJECTIVES

1. To trace the landmarks in the development of DDC
2. To bring out the features of DDC21st edition
3. To highlight the features of DDC 22nd edition

Structure

17.1 INTRODUCTION

Melvil Dewey devised Dewey Decimal Classification (DC) in 1876. At the age of twenty-one that is in 1872, he got a job as a student Library Assistant at Amherst College. In 1873 he conceived the idea of formulating a scheme of classification, and in the same year, he put forward his plan for rearranging the collection in that library in a more systematic order. In 1876, the scheme was publishedanonymously under the title " *A classification and subject index for cataloguing and arranging the books and pamphlets of a library"*. The title of the sachem from the 2nd edition to the 14th edition remained as "Decimal

Classification and Relative Index". Thereafter, the scheme was published as "Dewey Decimal Classification and Relative Index".

Although the earlier editions of DC were in one or two volumes, the 18th and 19th editions werepublished in three volumes 1 for table, volume 2 for schedule, and volume 3 for index. The 20th and 21st edition published in 1989 and 1995 respectively is in 4 volumes: volume 1 introduction and Auxiliary Tables; Volume 2 and 3 The Schedules and Volume 4 The Index with manual of practice. The revised editions have been published at intervals of two to twelve years. The 21st edition, the latest published one appeared

17.2 HISTORY AND CURRENT USE

The Dewey Decimal Classification (DDC) system is a general knowledge organization tool thatis continuously revised to keep pace with knowledge. The system was conceived by Melvil Dewey in1873 and first published in 1876. The DDC is published by OCLC Online Computer Library Center, Inc. OCLC owns all copyright rights in the Dewey Decimal Classification, and licenses the system for a variety of uses.

The DDC is the most widely used classification system in the world. Libraries in more than 135 countries use the DDC to organize and provide access to their collections, and DDC numbers are featured in the national bibliographies of more than 60 countries. Libraries of every type apply Dewey numbers on a daily basis and share these numbers through a variety of means (including WorldCat,the OCLC Online Union Catalog). Dewey is also used for other purposes, e.g., as a browsing mechanism for resources on the web.

The DDC has been translated into over thirty languages. Translations of the latest full and abridgededitions of the DDC are completed, planned, or underway in Arabic, Chinese, French, German, Greek, Hebrew, Icelandic, Italian, Korean, Norwegian, Russian, Spanish, and Vietnamese.

17.3 STRUCTURE AND NOTATION

The DDC is built on sound principles that make it ideal as a general knowledge organization tool:meaningful notation in universally recognized Arabic numerals, well-defined categories, well-developed hierarchies, and a rich network of relationships among topics. In the DDC, basic classes are organized by disciplines or fields of study. At the broadest level, the DDC is divided into ten *main classes*, which together cover the entire world of knowledge. Each main class is further divided into ten *divisions*, and each division into ten *sections* (not all the numbers for the divisions and sections have been used). The main structure of the DDC is presented in the *DDC Summaries* following this introduction. The headings associated with the numbers in the summaries have been edited for browsing purposes, and do not necessarily match the complete headings found in the schedules.

The *first summary* contains the ten main classes. The first digit in each three-digit number represents the main class. For example, 600 represents technology.

The *second summary* contains the hundred divisions. The second digit in each three-digit numberindicates the division. For example, 600 is used for general works on technology, 610 for medicineand health, 620 for engineering, 630 for agriculture.

The *third summary* contains the thousand sections. The third digit in each three-digit number indicates the section. Thus, 610 is used for general works on medicine and health, 611 for human anatomy, 612 for human physiology, 613 for personal health and safety.

Arabic numerals are used to represent each class in the DDC. A decimal point follows the third digit in a class number, after which division by ten continues to the specific degree of classification needed.

A subject may appear in more than one discipline. For example, "clothing" has aspects that fall under several disciplines. The psychological influence of clothing belongs in 155.95 as part of the discipline of psychology; customs associated with clothing belong in 391 as part of the discipline ofcustoms; and clothing in the sense of fashion design belongs in 746.92 as part of the discipline of the arts.

The DDC attempts to organize all knowledge into ten main classes. The ten main classes are each further subdivided into ten divisions, and each division into ten sections, giving ten main classes, 100 divisions and 1000 sections. DDC's advantage in using decimals for its categories allows it to beboth purely numerical and infinitely hierarchical. It also uses some aspects of a faceted classification scheme, combining elements from different parts of the structure to construct a number representingthe subject content (often combining two subject elements with linking numbers and geographical and temporal elements) and form of an item rather than drawing upon a list containing each class and its meaning.

17. 4. BROAD OUTLINE OF THE SCHEME

DC is a hierarchical scheme, which proceeds from general to specific, using the decimal principle for the subdivisions of knowledge. The basic plan in DC is to divide the whole universe of knowledge into ten main divisions each of which is gain divided into ten subdivisions are divided into ten sections. These divisions are known as first summary, second summary and third summary. The first divisionof knowledge is as follows:

000	Generalities
100	Philosophy and related disciplines
200	Religion
300	Social Sciences
400	Languages
500	Pure Sciences

600 Technology (Applied Sciences)

700 Arts

800 Literature

900 General Geography and History and their auxiliaries.

Dewey adopted pure notation based on Indo-Arabic numerals except for a very rare use of alphabetical marks.

17.5 SPECIAL FEATURES OF THE SCHEME

Decimal Classification is an almost enumerative scheme of classification. DC has been translated into many languages, such as Chinese, Spanish, Danish, Turkish, Japanese, Hindi, Portuguese, Sinhales, etc., Dewey introduced the idea of using notation for the subject in his schemeand applying the notation to the book, and not to the shelves.

17.5.1 Hierarchical Structure

The DDC is basically hierarchical in its notation and in its structure. The notation expresses therelationship between each unit of knowledge and its subordinate elements. In the process, the universe of subjects divided in to 10 main classes, each of which is again divided into 10 divisions and its multiplication. For example the main class 300 are divided in a hierarchical manner.

300 Social Science

330 Economics

336 Public Finance

336.2 Taxation

336.24 Income tax

336.242 Personal Income Tax

17.5.2 Hospitality

Hospitality is successfully secured by the decimal notation by allowing new numbers to be insertedat any point some extent and by allowing extensive compounding of different facts e.g. 381.48 Economics of female labour is divided by industry, like 620/699.

17.5.3 Universal Scheme

A distinctive feature of the DC is that its classes reflect all the areas of specialized knowledgedeveloped in modern society. These specialised areas are loosely put together in the main classes in the scheme, although in this way the principle of collection, i.e. brining of related subjects in close proximity is sometimes violated.

17.5.4 Mnemonics

Another important feature of DC is mnemonics, which means ' aid to memory'. In DC, mnemonics are available for subject synthesis. The use of consistent order in the subject divisions of different classes produces mnemonics. There are various tables, such as Area table, Language table, Standard Division table, etc., which are used to achieve subject synthesis.

17.5.5 Synthesis in DDC

Basically the DDC was enumerative in character; but form the 16th edition onwards it slowly began to adopt additional synthetic features. As a result throughout the schedule, general rules and instructions offer the opportunity to expand a given number or series of numbers even though the subdivisions are not specifically enumerated in the schedules. The following types of synthetic devises are notices

- Add from tables
- Add from Schedules (Subject Device)
- Add from both tables and schedules

17.6 FEATURES OF 21ST EDITION OF DDC

Revision and Administration of DDC

In the span of 120 years (that is since the publication of its first edition in 1876), the DDC has been continuously revised to keep peace with the knowledge. A new edition has been released every six years approximately. The actual responsibility for the development and revision of DDC lies with the Decimal Classification Division at the Library of Congress, whose work involves the classification of works for whole MARC records and LC catalogue cards. The newest revision of DDC21 is the 'Electronic Dewey' published in 1996, which is the result of scholarly research, careful analysis of current literature, and consultants with users.

The New Edition DDC21:

The latest DDC21 has many interesting features. The OCLC Forest Press, Ohio (USA), offers the scheme in two convenient formats: 1) Print Edition – A traditional four volumes set; 2) A New Microsoft Windows Version – Dewey for windows.

Important Changes in DDC21:

There are three major changes in the classes 350-354 Public Administration, 370 Education and 560-590 Life Science. In Tables, some changes are made in the Standard Subdivisions. Christianity have been relocated in order to reduce the Christian bias. These adjustments reflect political and social changes, such as the major revisions of Areas Table 2-47, for the countries of the former Soviet Union. New subject areas that have gained momentum of library warrant. Ever since its 20th edition, items such a 'Rap Music'. 'Virtual Reality', and 'Snow Boarding' have been incorporated in the new edition.

Added Features:

The entries on new topics, selected built numbers and terms to provide entry

vocabulary for foreign users, have been added in the Relative Index. More interdisciplinary numbers are included in the main schedules and Relative Index as well. The terminology has been revised and updated, increasing the scope of currency, sensitivity and global usage.

Compact Disc:

DDC21 is available in Microsoft Windows based version on compact disc. Dewey for Windows lets you point and clock your way through familiar DDC functions and more with

i) An easy-to-use windows format: drag and drop information between windows;
ii) Expanded Search and display options;
iii) Ability to share a single CD-ROM among multiple users on a LAN
iv) Provision to display multiple DDC records from the schedule, table index and manual on one screen.

17.7 DEWEY FOR WINDOWS

Over 4,000 new entries appear in the electronic index.

- The annotation feature lets you add notes to the schedule to reflect local classification decisions.

- sample bibliographic records show how DDC numbers have been used;

- the database includes benefit numbers from the Dewey Relative Index, and

- Cut and paste Dewey numbers into OCLC records using PRISM and passport for windows.

The important features of the system were:

i) The assignment of decimal numbers to books themselves:

ii) The specification of relatively detailed subjects; and

iii) The provision of a relative index.

DDC – 22nd EDITION

DDC 22, the four-volume unabridged edition of the Dewey Decimal Classification (DDC) system, reflects the many changes to the body of human knowledge that have occurred since DDC 21 was published in 1996. Published in mid-2003, DDC 22 includes helpful tools that make the classificationeasier to use.

Arrangement of the DDC

The print version of the latest full edition of the DDC, Edition 22, is composed of the following major parts in four volumes:

Volume 1

A. New Features in Edition 22: A brief explanation of the special features and changes in DDC 22
B. Introduction: A description of the DDC and how to use it
C. Glossary: Short definitions of terms used in the DDC
D. Index to the Introduction and Glossary
E. Manual: A guide to the use of the DDC that is made up primarily of extended discussions of problem areas in the application of the DDC. Information in the Manual is arranged by the numbersin the tables and schedules
F. Tables: Six numbered tables of notation that can be added to class numbers to provide greaterspecificity
G. Lists that compare Editions 21 and 22: Relocations and Discontinuations; Reused Numbers

Volume 2

H. DDC Summaries: The top three levels of the DDC

I. Schedules: The organization of knowledge from 000–599

Volume

J. Schedules: The organization of knowledge from 600–999

Volume 4

K. Relative Index: An alphabetical list of subjects with the disciplines in which they are treated sub arranged alphabetically under each entry

Entries

Entries in the schedules and tables are composed of a DDC number in the number column (the column at the left margin), a heading describing the class that the number represents, and often one or more notes. All entries (numbers, headings, and notes) should be read in the context of the hierarchy.

In the print version of the DDC, the first three digits of schedule numbers (main classes, divisions, sections) appear only once in the number column, when first used. They are repeated at the top of each page where their subdivisions continue. Subordinate numbers appear in the number column, beginning with a decimal point, with the initial three digits understood.

Some numbers in the schedules and tables are enclosed in parentheses or square brackets. Numbers and notes in parentheses provide options to standard practice. Numbers in square brackets represent topics that have been relocated or discontinued, or are unassigned. Square brackets are also used for standard subdivision concepts that are represented in another location. Numbers in square brackets are never used.

Number Building

Only a fraction of potential DDC numbers are included in the schedules. It is often necessary to build or synthesize a number that is not specifically listed in the schedules. Such built numbers allow for greater depth of content analysis. There are four sources of notation for building numbers: (A) Table 1 Standard Subdivisions; (B) Tables 2–6; (C) other parts of the schedules; and (D) add tables in the schedules.

Number building is initiated only upon instructions in the schedules (except for the addition of standard subdivisions, which may take place anywhere unless there is an instruction to the contrary). Number building begins with a base number (always stated in the instruction note) to which another number is added.

The system is made up of ten main classes or categories, each divided into ten secondaryclasses or subcategories, each containing ten subdivisions.

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

000 Computer science, knowledge & systems
010 Bibliographies
020 Library & information sciences 030 Encyclopedias & books of facts040 [Unassigned]
050 Magazines, journals & serials
060 Associations, organizations & museums 070 News media, journalism & publishing
080 Quotations
090 Manuscripts & rare books100 Philosophy
110 Metaphysics
120 Epistemology
130 Parapsychology & occultism 140 Philosophical schools of thought150 Psychology
160 Logic
170 Ethics
180 Ancient, medieval & eastern philosophy190 Modern western philosophy
200 Religion
210 Philosophy & theory of religion220 The Bible
230 Christianity & Christian theology240 Christian practice & observance
250 Christian pastoral practice & religious orders 260 Christian organization, social work & worship270 History of Christianity
280 Christian denominations
290 Other religions
300 Social sciences, sociology & anthropology310 Statistics
320 Political science
330 Economics
340 Law

350 Public administration & military science360 Social problems & social services
370 Education
380 Commerce, communications &transportation
390 Customs, etiquette & folklore400 Language
410 Linguistics
420 English & Old English languages 430 German & related languages 440 French & related languages
450 Italian, Romanian & related languages460 Spanish & Portuguese languages
470 Latin & Italic languages
480 Classical & modern Greek languages490 Other languages
500 Science
510 Mathematics
520 Astronomy
530 Physics
540 Chemistry
550 Earth sciences & geology560 Fossils & prehistoric life 570 Life sciences; biology 580 Plants (Botany)
590 Animals (Zoology)600 Technology
610 Medicine & health620 Engineering
630 Agriculture
640 Home & family management 650 Management & public relations 660 Chemical engineering
670 Manufacturing
680 Manufacture for specific uses690 Building & construction
700 Arts
710 Landscaping & area planning720 Architecture
730 Sculpture, ceramics & metalwork740 Drawing & decorative arts
750 Painting
760 Graphic arts
770 Photography & computer art780 Music
790 Sports, games & entertainment 800 Literature, rhetoric & criticism 810 American literature in English 820 English & Old English literatures830 German & related literatures
840 French & related literatures
850 Italian, Romanian & related literatures860 Spanish & Portuguese literatures
870 Latin & Italic literatures
880 Classical & modern Greek literatures890 Other literatures
900 History
910 Geography & travel 920 Biography & genealogy
930 History of ancient world (to ca. 499)940 History of Europe
950 History of Asia
960 History of Africa
970 History of North America
980 History of South America
990 History of other areas

DDC22 has no "completely revised schedules" but nonetheless has some major changes. Dealt with in the twenty-second edition are updated developments and terminology for social groups andinstitutions in 305-306; improvements to the 340 schedule that relates to law of nations, human rights,and intergovernmental organizations; substantial updating of 510 Mathematics and 610 Medicine and health; movement of numbers for facilities for travelers from 647.94 into the 910-91 9 area with other travel-related concepts; and updating of numerous geographic areas in Table 2. Perhaps the most striking change in *DDC22* is the removal of Table 7 (Groups of Persons), which was largely a duplication of the broad outline of the schedules themselves. Classifiers are now instructed to use notations available in the schedules and in —08 from Table 1 in place of the former Table 7.

Table 1. Standard Subdivisions
Table 2. Geographic Areas, Historical Periods, Persons Table 3. Individual Literatures and the Arts
Table 4. Individual Languages
Table 5. Ethnic and National GroupsTable 6. Languages

The Relative Index

The "relative" index is so called because it is claimed to show relationships of each specific topic to one or more disciplines and to other topics. It contains terms found in the schedules and tables, and synonyms for those terms; names of countries, states, provinces, major cities, and important geographic features; and some names of persons. It does not have phrases that contain concepts represented by standard subdivisions (e.g., "Medical education"). Many *see also* referencesare given (e.g., "Organizations . . . *see also* Religious organizations"). Geographic name entries usually refer the user to the appropriate area table [e.g., "Macerata (Italy : Province) T2–456 73"]. A few referrals occur to the standard subdivisions and to other auxiliary tables (e.g., "Repairs ...T1–028 8"). The *DDC* relative index enumerates alphabetically all the main headings in the classification schedules, plus certain other specific entries not actually listed in the schedules.

17.9 ABRIDGED EDITIONS

The first *Abridged Decimal Classification and Relativ Index for Libraries, Clippings, Notes, etc.*, appeared in 1894, the year in which the fifth edition of the full schedules was published. Abridged edition 14 is based on *DDC22* and was published in 2004. Like its predecessors, it is designed primarily for general collections of 20,000 titles or fewer, such as are found in small public and school libraries. It contains many fewer entries than the full edition; and tables, schedules, index, and manual all appear in one volume. The numbers used are compatible with *DDC22* so that growing libraries can expand from the abridged to the full edition as their collections increase.

Webdewey

WebDewey offers online searching and browsing access to the Dewey Decimal Classification. In addition, it maps DDC to Library of Congress Subject Headings (LCSH)

and links from the mapped LCSH to the corresponding LCSH authority records. In the case of Abridged WebDewey, mapping is to the Sears Subject Headings. Selected Medical Subject Headings are also mapped to DDC numbers. WebDewey offers a work area where a cataloger may build a number during the process of reading the number-building instructions. Local notes can also be added that will be displayed in context so that local classification practices are appropriately available. WebDewey and Abridged WebDewey are available as add-on services to OCLC Connexion, OCLC's cataloging service.

It is considered difficult by some to learn DDC by starting with WebDewey instead of the print text, because one cannot get a sense of the "big picture" on just one screen versus being able to look at two or more pages of text at once. However, for the experienced user, WebDewey can offer advanced means of display that are found to be quite desirable. For example, searching can be done using one or multiple indexes and by using Boolean operators, proximity searches, right and left truncation, and character masking. There are browsable Keyword in Context (KWIC) indexes of the Relative Index and LCSH and browsable sequential indexes of DDC numbers. Classification and table numbers are shown in hierarchical displays that show the position in relation to broader and narrower classes. Extensive use of hyperlinks gives fast access to related records and to entries in the Manual that are cited in notes for particular numbers. Top-down navigation through DDC is possible starting with a display of the ten main classes.

17.11. Summary

DDC's decimal system means that it is less hospitable to the addition of new subjects, as opposed to Library of Congress Classification, which has 21 classes at the top level. DDC notations can be much longer compared to other classification systems.

Another disadvantage of DDC is that it was developed in the 19th century essentially by one man and was built on a top-down approach to classify all human knowledge, which makes it difficult to adapt to changing fields of knowledge. The Library of Congress Classification system was developed based mainly on the idea of literary warrant; classes were added (by individual experts in each area) only when needed for works owned by the Library of Congress. As a result, while the Library of Congress Classification system was able to incorporate changes and additions of new branches ofknowledge, particularly in the fields of engineering and computer science (the greater hospitability of the Library of Congress Classification was also a factor), DDC has been criticized for being inadequate in covering those areas. It is asserted that, as a result, most major academic libraries in the US do not use the DDC because the classification of works in those areas is not specific enough, although there are other reasons that may truly be more weighty, such as the much lower expense of using a unique "pre-packaged" catalog number instead of having highly skilled staff members engaging in thetime-consuming development of catalog numbers.

17.12 Self Assessment Questions

1. Trace briefly the land marks in the development of DDC
2. What are the features of DDC 21st edition?
3. State the salient features of 22nd of DDC
4. Write short notes on:

a. Relative Index
b. Windows DDC
c. WebDewey
d. Tables in DDC

17.13. Further Readings

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4. Lois Mai Chan and Joan S. Mitchell, *Dewey decimal classification: Principles and Applications*, 3rd ed. (Dublin, Ohio: OCLC, 2003).
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LESSON 18
UNIVERSAL DECIMAL CLASSIFICATION

AIM AND OBJECTIVES

1. To trace the landmarks in the development of UDC
2. To bring out the features of UDC Abridged edition
3. To highlight the features of UDC – IME

Structure

18.1 INTRODUCTION

Universal Decimal classification popularly known as 'UDC' is one of the most important popular and widely used general schemes of library classification. It was developed on the basis of Deway Decimal classification (DDC) and was first published in the year 1905 in French as Classification Decimale Universalle by Paul Otlet and Henri La Fontaine. The scheme is being continuously revised and brought out in major European and other languages of the world by International Federation for Information and Documentation (FID) whose headquarters are at the Hague (Netherlands). The scheme is very widely used by special libraries, information and documentation centres and a variety of indexing and abstracting services. It possesses certain notational techniques and features so as to meet the ever growing and changing needs of users libraries and information centres. In the following sub sections of this unit you will be acquainted with history development, structure, features and principles, notation, auxiliary tables, salient features of IME, 1993 and the published manuals for using the UDC.

18.2 HISTORY AND DEVELOPMENT

You are aware that the credit of using decimal fraction notation for the first time in libray classificationgoes to Mavil Dewey the author of world famous Decimal Classification (DC), Published in the year 1876 in USA. The value and utility of DC was soon recognized and its use in libraries rapidly extended to European continent. In the year 1895 the first International Conference on Bibliography was organizedin Brussels. As a result of this conference "Institute

International De Bibliography" (IIB) was founded. During the course of its history the Institute changed its name twice. In the year 1931 the name was changed to "Institute International De Documentation (IID). Again in the year 1937 the Institute assumedthe name of "Federation International de Documentation (FID).In English it is popularly known as "International Federation for Documentation (FID). At the Montreal (Canada) conference in 1986 FID resolved to include the word 'Information' in its present name although the acronym FID will continue to be used without any change.

The Institute sponsored a scheme initiated by two Belgians – Paul Otlet and Henri La Fontaine for bringing at a comprehensive classified index to all published information. After thoroughly examining the existing classification schemes the two Belgians have come to the conclusion that Decimal classification (DC) of Malvil Dewey which was in 5th Edition offered most suitable basis, being purely a subject classification using internationally known "Indo-Arabic'" numerals used as 'Decimal fractions' which allow infinite hospitality in sub division of a class. Otlet and La Fontaine approached Malvil Dewey and obtained his permission to extend and expand the schedules of DC and on the condition that basic structure, sequence of main classes and their sub divisions should be maintained. The two Belgians enlarged the schedules of DC by adding extensively to its enumerative classes. The extensions and changes provided an apparatus for synthesis or number building. Thus in the year 1905 the complete international edition in French language entitled "Mannel du Repertoire Bibliographique Universal" was brought out. Later the scheme came to be called as "Classification Decimal Universelle" (UDC).

18.3 DIFFERENT EDITIONS OF UDC

In the previous Sec 1.2 you are briefly introduced to the history and development of UDC. In the following sub sections you will be introduced to different editions of UDC, revision policy and management of UDC.

The British Standards Institution (BSI) was entrusted with the job of bringing out full and abridged editions of UDC in English language. The publication of full edition in English began in 1943 and was completed in 1977. It constitute a British standard BS 1000. The first English abridged edition was published in 1948, second edition 1957 and third in 1961. A multi lingual edition BS 1000 B in German,English and French was published in 1958. The International Medium Edition (IME) English text wasbrought out by BSI in 1985 (BS 1000 M: 1985) in two parts viz, Part-I: systematic Tables (1985), Part- II: Alphabetical Index (1988).

The International Medium edition (IME) English text,, Edition 2 was brought out by BSI in 1993 intwo parts. Part-I: systematic Tables and Part 2: alphabetical subject Index. You will be briefly introducedto this edition in subsection 1.8. In the following units 2-5 this edition will be extensively quoted andused in explaining common and special auxiliaries, synthesis or number building in worked examples.

Universal Decimal Classification (UDC) however, is peculiar in the sense that it consists of a combination of both enumerative an faceted character of the schemes and, hence, is designated as Almost-faceted schemes of classification. The UDC basically

derived from Dewey Decimal Classification.

18.4 PURPOSE OF UDC

UDC was designed to serve following two purposes.

i) To provide a method for arranging books on library shelves in an order which would be helpful tothe users, i.e. shell arrangement, and

ii) To provide a method of arranging substitutes of the books themselves in a card catalogue andprinted bibliographies.

UDC is the only scheme that was primarily designed, and has been continuously developed, to serve this end. It was developed by two Belgians Paul Otlet and Henri La Fontaine, using the DDC as the basis. The Federation International De la Documentation (FID) is the international body with overall responsibility for the revision and maintenance of UDC. This responsibility is vested with the Central Classification Committee of FID (FID/CCC) which works in cooperation with the numerous national committee of the member countries. The first complete edition in the French language waspublished in 1905 under the title 'Manuel du Reportoire Bibliographiaque Universalle'. The second edition of UDC was published between 1927-1933 in French language. The Third edition commenced in 1934 and was completed in 1952. In 1943, work was began on a fourth edition. An abridged version of the full UDC Schedules was first published in English in 1948 by the British Standards Institution, the official British Editorial Body for the Scheme. The Third abridged edition of UDC was published byBritish Standards Institution in 1961 as BS 1000A in 1961. It has been adopted widely in Europe. It now appears in three versions- full, medium and abridged – and has been translated into over twenty languages.

18.5 BASIC STRUCTURE OF UDC

Universal Decimal Classification (UDC) is a hybrid of two systems of classification – Enumerative and Faceted. The base for the division of Universe of Subject is taken from the Dewey Decimal Classification (DDC) and method of construction of Class Number (CN) is based on faceted analysis. The division of main classes and their subdivisions is the same as found in DDC. Such a division is based on the principles of 'Proceeding from General to Specific'. The subdivisions of UDC are based on decimal fraction notation. The Universe of Subjects is first divided into ten main branches. Each main branch or discipline has been further subdivided decimally to the degree of specificity of individualconcepts.

Principles:

We can find the following principles on which UDC is based.

1. It is a universal scheme in which an attempt has been made to include every branch of knowledgenot as patch work but as an integrated pattern of correlated subject fields.
2. It is based on the cardinal principle of library classification i.e proceeding from general to specificby dividing the whole universe of knowledge into ten branches (Main classes) and each further sub divided decimally to the required degree of minuteness.

3. It is essentially a practical scheme in which filiations of subjects is not of much importance thanthe provision of detailed specification.

4. It accepts certain principles such as mutually exclusive classes, collocation of related subjects and consistency of approach.

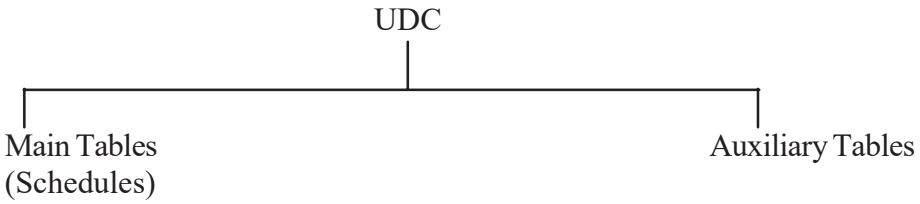
5. An effort has been made to remove or minimize to certain extent national and racial bias by introducing common facts .

6. The notation consists of world famous Indo-Arabic numerals used decimally to achieve infinite hospitality to accommodate subordinate classes.

7. It employs certain notational techniques by which it is possible to link a simple main class eitherwith other main number or with auxiliaries indicating place, time and other similar commonly used categories or auxiliaries.

Structure:

The structure of UDC is a hybrid of enumerative and faceted elements as well. The followingschematic representation provides you an idea of UDC structure.



The Main classes and their divisions are almost the same as in DDC. The notation is slightlydifferent in the sense that there is no three figure minimum in UDC. Thus for example: 3 is socialsciences, 37 education, 372 Elementary Education. The Out line of main classes denoted by decimal point is as follows.

- The Schedule of UDC consists of
- Main Tables
- Common Auxiliary Tables
- Special Auxiliary Tables and
- Index

Main Tables

The ten divisions are

0 Generalities

1 Philosophy, Metaphysics, Psychology, Logic, Ethics and Morals

2 Religion, Theology

3 Social Science

4 Philology - Linguistics-Language

5 Mathematics and Natural Sciences

6 Applied Sciences, Medicine, Technology

7 The arts, Recreation, Entertainment, Sports etc.,

8 Literature, Belles – Letter

9 Geography, Biography; History

Auxiliary Tables

There are two types of auxiliaries used in the UDC namely Common Auxiliaries and Special Auxiliaries. While Common Auxiliaries are applied to all the classes, the Special Auxiliaries are applicableto certain parts of the schedule.

These auxiliary tables consist of subdivision of concepts enumerated and arranged hierarchically with numeric notation to represent them. Besides, there are signs and symbols to be used to indicate different category of isolate concepts. These auxiliary concepts are applicable to all classes enumerated in the schedule.The auxiliary tables in UDC, thus provide maximum flexibility in the construction of class numbers. This is the most innovative feature of the UDC.

Common Auxiliaries

Common Auxiliary Signs

Coordination. Extension.
Relation Sub-grouping, Order fixing

Independent Common Auxiliary Subdivisions.

Common Auxiliaries of Language
Common Auxiliaries of Form
Common Auxiliaries of Place.
Common Auxiliaries of Ethnic grouping and Nationality.
Common Auxiliaries of Time.
Dependent Common Auxiliary subdivisions.
Common Auxiliaries of Point of view.
Common Auxiliaries of Materials.
Common Auxiliaries of Persons and Personal characteristics.

The Common Auxiliary concepts in UDC usually denote the relationship between two subjects or isolate ideas in a compound class. These are uniformly applicable to all classes enumerated in the schedule. When a common auxiliary concept is a part of a subject content of document, the number representing such a concept is to be taken from the concerned common auxiliary table and added to the main class number of a subject with appropriate connecting symbol.

Sl.No.	Name	Table No.	Sign to be used
1.	Coordination & Extension	a	+ ,/
2.	Relation, Sub grouping and order –fixing	b	: , ::
3.	Common Auxiliaries of Language	c	=
4.	Common Auxiliaries of Form	d	(0..)
5.	Common Auxiliaries of Place	e	(1/9)
6.	Common Auxiliaries of EthnicGroups & Nationality	f	(=..)
7.	Common Auxiliaries of Time	g	".."
8.	Subject specification by Non-UDC Sources	h	*, A/Z
9.	Common Auxiliaries of Point of View	i	.00
10	Common Auxiliaries of Materials		03
	Common Auxiliaries of persons And personal characteristics	k	05

The common auxiliaries are of two types as shown below:

1. Common Signs: and

2. Common Auxiliary Tables (Subdivisions).

Common Signs

The common sings denote the relationship between the subject or concepts in compound class. These are to be used to combine two or more subject in the main class. These are uniformly applicable to all classes enumerated in the schedule. These provide maximum flexibility in the construction ofcompound classes in UDC

The plus Sign (+)

In UDC, the plus (+) is used to combine two or more subjects to form a compound class in theclassification of documents. The plus sign is usually used to combine two non-consecutive class numbers. It is used only when there is no class number existing in the schedule to represent such acompound subject.

Example : Spiritualism and Religion = 141.135 + 2

The Stroke Sign (/)

The Stroke Sing (/) is used to represent a series of consecutive class numbers or concepts which usually denote a broad subject or range of subjects. In this case the first number and the lastnumber in the series are connected with stroke sign. Such combination of class numbers have already been enumerated in the schedule itself.

Example: Cosmology = 113/119

The Colon Sign (:)

The Colon sign (:) is used to connect two subject or concept of equal value. It shows a general relationship between the class numbers, but it does not specify the type of relationship that exists as in the case of phase relation in CC. The colon relation between subject is reversible as they are ofequal value. It may be, for instance A:B or B:A

Example : Astrology and Astronomy = 133.52 : 52

The Square Brackets [ ]

When a related concept is of a subordinate order and does not require any entry by reversal, Square Brackets [ ] are used in lieu of Colon. This is known as 'Intercalation' facts.

Example : Hindu Sacred Music = 783 [294.5]

The Double Colon (::)

The Double Colon Sign (::) us used to fix the order of arrangement of components in a compound class number. When the concepts in a compound class is fixed by the double colon sign :: the arrangement is irrevocable.

Example: Cytogenetics = 575 :: 576.3

Common Auxiliaries of Language (=)

The common Auxiliary language concepts denote the language in which the subject is treated. It is but necessary to show such a language is which the subject content of a document is presentedwhile classifying documents in a library. Such language concepts are enumerated in UDC : IME 1993, in Table-Ic. The Common Auxiliary language concepts enumerated it the above able are commonly applicable to all classes provided in the Main Table.

Example : Classical Greek literature 821.14'02

Common Auxiliary of Form (01/09)

It denotes the form in which the subject matter is presented in the document. Such a form is one of the important aspect for the user while selecting a document. The citation order of the form auxiliary concepts are normally after the subject. However, if it is so desired, such form presentations can be grouped under the appropriate form auxiliary.

Example : Encyclopedia of Social Science = 3 (031)

Common Auxiliary of Place (1/9):

Common Auxiliary of place is a geographical isolated denoting locality, region, nation etc., It includes the concepts relating to physiographic, celestial and physiographic aspect of earth. There are special auxiliary subdivisions provided in this table and are supposed to use along with the place auxiliary concepts, whenever such a use is warranted in the classification of documents.

Example : Indian Finance Ministry 354 (540) 21

Common Auxiliary of Race and Nationality (=)

The concepts relating to Race and Nationality and Ethnic groups occur sometime in the classification of documents in libraries. They denote the nationality and ethnic aspect of subject represented in the document. All such concepts, are identified and enumerated in Table-If in UDC.These can be combined with main class numbers whenever it is warranted. The symbol 'equal' sign within brackets (=) is used to indicate these concepts.

Example : Marriage customs of Jews 392.51 (=411.16)

Common Auxiliary of Time (" ")

The concepts of 'Time' is another important aspect which often associates with the subject content of a document. It indicates the date, point of time or range of time. It also indicate seasons, geographical times, day, hour, etc. But it does not indicate the date of publication of a document. The symbol double quotation marks "" is used to indicate the time concept. It may be used with any main class. The time concepts are enumerated in Table –g in UDC

Example : 15th August, 1947
"1947.08.15"

Dependent Common Auxiliaries Tables:

The Dependent Common Auxiliary Tables have no independent status and are always be suffixedto the Main class numbers. They cannot be used at the beginning and in the middle of the class number. It is generally used when there is need to expand a base number for local variation to represent a specific concept in the classification. In such an occasion the asterisk mark (*) is to be used as notation for such non-UDC number.

Example : Maintenance of National Highway No.5
in Indian625.711.1(540) * No.5.004.54

The use of Alphabets (A/Z)

Whenever it is warranted to represent names or agronomy in the classification of documents, alphabets can be used directly to the class number.

Example : Biography of Nehru 929 Nehru

Common Auxiliaries of Point of View (.00)

These are provided to obtain a more helpful grouping whenever colonel numbers may not be found suitable. This device helps to classify documents from a more subjective viewpoint.

The origin and development of UDC is an important milestone in the history of general

schemesof classification.

18.6 INTERNATIONAL MEDIUM EDITION (IME), 1993

In order to meet the changing needs of various types of libraries, UDC is not only updated at regular intervals but also brings out abridged editions for easy reach of small and medium size libraries. In consonance with this policy International Medium Editions (IME) were published with more extensive versions to replace abridged English editions.

The British Standards Institution (BSI), London brought out International Medium Edition (IME), English Text. Edition 1 (1985). This consists of two parts. Part 1: Systematic tables published in 1985 and Part 2: Alphebatical subject Index published in 1988.

The International Medium Edition English Text, Edition 2 was published in the year 1993, as aBritish Standards BS 1000M. Like 1985 medium edition it consists of two parts. Part 1: Systematic Tables and Part 2: Alphabetical subject Index.

In addition to various signs and symbols provided in the abridged English editions two morenew symbols: (arrow) meaning "see else', eg:

159.9 Psychology.

301.151, 591.51, 612.821, 616.89

and 2 ~ (Parallel division) meaning 'subdivision as' have been introduced in the medium edition. The symbol ~ denotes parallel division which means the number preceding ~ may be divided in a manner analogous to the number following it. Take for example.

591.2 Diseases of animals.

591.2 ~ 591.4

591.22 Diseases of respiratory organs of animals (591.42)

Summary of main tables:

In order to familiarize you with the main branches of knowledge, summary of main tables isgiven below. It is better you memorise them.

0 Generalities.
01 Bibliography
02 Librarianship
030 General reference works
050 Serial Publications
06 Organizations.
070 News Papers, Journalism.
08 Polygraphies
09 Manuscripts.
1 Philosophy, Psychology.
11 Metaphysics
122/129 Special metaphysics.
13 Philosophy of Mind
14 Philosophical systems.
159.9 Psychology.
16 Logic

17 Moral Philosophy Ethics.
7. Religion,
Theology21 Natural
theology 22 The
bible
23 Dogmatic theology
24 Practical theology
25 Pastoral theology
26 Christian church in general.
27 General history of Christian church.
28 Christian churches, sects,
denominations.
29 Non-Christian religions.
3 Social sciences.
31 Demography
32 Politics
33 Economics
34 Law Jurisprudence
35 Public administration
36 Ensuring the mental and material needs
of life.37 Education, Teaching.
389 metrology.
39 Ethnology, Ethnography.
4 Vacant
5 Mathematics and natural
sciences.51 Mathematics
52 Astronomy
53 Physics
54 Chemistry
55 Earth Sciences
56 Palaeontology
57 Biological sciences
58 Botany
59 Zoology
6 Applied Sciences, Medicine./
Technology61 Medical Sciences
62 Engineering, Technology in
general.63 Agriculture and related
sciences.
64 Home Economics.
65 Management
66 Chemical technology
67 Various industries.
68 Industries, Crafts.
69 Building trade.
7 The Arts /Recreation,
Entertainment/Sport.71 Physical planning
72 Architecture
73 Plastic arts.
74 Drawing Design
75. Painting
76 Graphic arts.
77 Photography
78 Music
79 Recreation, Entertainment./Sport.

Alphabetical subject index

8 Language, Linguistics,
Literature.
81 Linguistics, Language.
82 Literature.
9 Geography, Biography,
History
91 Geography, Exploration
929 Biographical and related
studies.
93/99 History
94 Medieval and modern
history950 History of Asia
960 History of Africa
970 History of North and Central
America980 History of South
America
990 History of Oceania.

As you are aware that part 2 of IME, 1993 is the Alphabetical Subject Index. This is a computer generated Index. The entries in the Index reflect the terminology used in the schedules. The entries are arranged word by word alphabetical order. It is intended to provide access to UDC classes set out in the schedules and not intended as substitute for schedules. The users of the Index are advisednot to classify documents solely with the help of Index but to verify the class number from the schedules. You have to use the Index as a simple guiding tool to find out the base number for simple or compound or complex classes. The following is a sample entry from the Index.

Fasteners	621.88
Books	686.122.8
Building/construction	69/.88
Heads	621.88.091
Inserting tools	621.882.087
Locking devices	621.882.5
By quality	621.88.07
Railway track	625.143.52, 625.143.57
Removing tools	621.88.088
Smallware manufacture	672.837
Threaded	621.882
Timber construction	694.12
See also fishing devices	

18.7 MANUALS FOR THE USE OF UDC

UDC lacks precise rules and guidelines for its use within the scheme. The introductory part ofabridged English editons and IME, 1985 and 1993 is not sufficient for us to understand clearly and apply it in practical classification. To overcome this difficulty a very useful hand book titled

"Guide to Universal Decimal Classification" (UDC was published by BSI as BSI 1000c, 1963, complied by J.Mills, which contains guidelines and worked out examples for the use of UDC with synopsis and outline of the schedules. Another work of importance by the same author is the Universal Decimal Classification published by the Graduate School of Library Services, Rutgers, the State University, New Brunswick (N.J.USA) in 1964, which lucidly and briefly highlights the various aspects of the scheme.

There are also programmed texts by J.M. Perrault titled "Introduction to UDC" published in 1969 and also by H. Wellisih entitled "The Universal Decimal Classification : a Programmed Instruction Course" Published in 1970. There are few Indian authors who have brought out manuals or guides onUDC. But very few on self instrumentional mode.

18.8 SUMMARY

In the preceding sections and subsections you have been introduced to the history and development of UDC which is an important landmark 5 in the history of general classification schemes.It is primarily based on the 5th edition of DDC. But the progenitors of UDC – Paul Otlet and Henri La Fontainre have introduced several signs and symbols and notational techniques to achieve synthesis or number building. The features, principles and revision policies of UDC have greatly contributed to attain truly universal status. The use of Indo-Arabic numerals 0/9 as decimal fractions and introduction of a variety of common and special auxiliaries helped to achieve minute classification with UDC. The bringing but of IME in English in 1985 and 1993 have greatly contributed to the use of UDC in a varietyof libraries, throughout the world. The publication of variety of manuals and guides by prominent authors helped us to use the UDC very effectively in classifying documents of compound and complexnature.

18.9 SELF ASSESSMENT QUESTIONS

1. State the features of UDC Abridged edition
2. Explain briefly about UDC IM Edition
3. Write short notes on:
   a. Common auxiliaries
   b. Special auxiliaries
   c. UDC Editions

18.10 SUGGESTED READINGS

1. "About Universal Decimal Classification and the UDC Consortium," available: http://www.udcc.org/about.htm (accessed 6/3/2005)
2. British Standards Institution, *Universal Decimal Classification, Complete Edition* (London: BSI, 2005).British Standards Institution, *Universal Decimal Classification*, 2nd ed., abridged (London: BSI, 2003).
3. Chan, Lois Mai, and Joan S. Mitchell. *Dewey Decimal Classification: Principles and Applications*. 3rd ed. Dublin, Ohio: OCLC, 2003.
4. *Extensions and Corrections to the UDC* (The Hague: FID, 1951–). Annual.
5. Ferguson, Bobby. *Subject Analysis: Blitz Cataloging Workbook*. Englewood, Colo.: Libraries Unlimited,1998.
6. Foskett, A. C. *The Subject Approach to Information*. 5th ed. London: Library Association Publishing,1996.
7. C. McIlwaine, *The Universal Decimal Classification: A Guide to Its Use*, (The Hague: UDC Consortium, 2000); W. Boyd Rayward, "The UDC and FID: A Historical Perspective," *Library Quarterly* 37July 1967): 259–278; A. C. Foskett, "The Universal Decimal Classification," in *The Subject Approach toInformation*, 5th ed. (London: Library Association Publishing, 1996), pp. 281–294.
8. McIlwaine, I. C. *The Universal Decimal Classification: A Guide to Its Use*. The Hague: UDC Consortium,2000.

LESSON 19
COLON CLASSIFICATION

AIM AND OBJECTIVES

On reading this Lesson, you will be in a position

1. To understand the background in the design and development of Colon Classification
2. To know the structure and devices and provisions in the sixth edition of CC

Structure

19.1 INTRODUCTION

Ranganathan's theory of library classification has been presented in several publications and in particular in the Prolegomena. The practical applications of this theory are shown by the developments in Colon Classification Schedules. Ranganathan's theory is an analytic-synthetic one. One version of analytic synthetic approach is the structuring of a compound subject into Basic Facet and Isolate Facets. The Isolate facets are manifestations of Personality or Matter or Energy, or Space or Time. A set of postulates and principles were developed to implement these two major postulates for design of schemes for classification and for classifying.

Colon classification (CC) was devised by the late S R Ranganatha. The first edition of thescheme was brought outin 1933. So far, seven editions of theschme have been published.

The idea behind thecolon classification took its root in1924. Ranganathan used the principle of meccano set was applied, in his classifcation scheme, where the standard units resembled thestrips of a meccano set and the connecting symbols were like the screws and bolts. The standards units constituted the schedules and colon was used initially as the connecting symbol for constructing class numbers.

19.2 HISTORY

The Colon Classification was brought out in 1933, by Shiyali Ramamritha Ranganathan. He wasborn on 9th August, 1892, received college education in Madras and having passed M.A (Maths) and L.T became, Assistant Professor of Madras in 1917. In January 1924, he took charge of MadrasUniversity Library without library experience during 1924 – 25.

In England, Ranaganthan made a close study of the then existing classification schemes and being dissatisfied, he wanted to develop a scheme for the classification on the analogy of meccano set. He used colon to link different components of schedules like the bolts and nuts in a meccano set. Thus the Colon, after which the scheme was named, symbolized principle in the classification scheme.

19.3 PRINCIPLES OF COLON CLASSIFICATION

Ranaganthan developed the colon classification scheme with a sound theoretical backgroundbased on normative principles, Five laws of Library science, canons, etc. They are all described in detail in his books prolegomena to Library Classification, 'Descriptive, Account of Colon Classification', Elements of Library Classification' and in the periodical 'Library Science with a slant to Documentation'.

CC is a fully faceted classification scheme because, first subject is analysed into many isolate ideas and then categorised according to fundamental categories as facets and listed on the basis ofhelpful sequence. The components of a subject are synthesised with the help of connecting is recognised as analytic synthetic classification scheme.

19.4 STRUCTURE AND LAYOUT OF CC 6TH EDITION

The Colon Classification edition six, which is prescribed for the present course is a single volumewith three parts.

Part – 1 is Rules and gives is a general rules on which the construction of Colon Class Number depends, such as call number, class number, book number, collection number, focus and facets, canons and principles for classification. Then for main class, rules and descriptions with examples are provided. A separate index is found at the end of part – 1.

Part – 2 gives schedules of classification. Chapter – 2 provides a schedule of book number. Chapters 1 to 5 give respectively the preliminary schedules of the main classes. Common isolates, Time isolates, space isolates and language isolates while chapter –m 6 gives the schedules for phase relation, intra facet and intra – array relations. The schedules for several facets of several Main classes are given in the remaining at the end of part -2.

Part – 3 is devoted for classics and sacred books. This part provides classes and classics in Indology worked out in far greater detail than in other schemes. The indologcal schedules will be of much use in classifying the collection of manuscript libraries. It includes schedules of sacred books with special names. At the end of this part, an alphabetical index of author, commentators and worksis provided with class number against each item.

S R Ranganathan, used in his Colon Classification the following types of notation to representthe classes and its subdivisions

‡ Ten Indo-Arabic numerals (0 and 1 and 9)

‡ 26 capital letters of the roman alphabets

‡ 23 small letters of the roman alphabet

‡ 2 Greek letters (delta and sigma)

‡ 10 connecting symbols indicating digits

19.4.1 Main Classes in CC6

The main classes and the connecting symbols are given separately in the following pagesScheme of the main classes

A	Generelia
1.	Universe of Knowledge
2.	Library science
3.	Book Science
4.	Journalism
A	Natural Sciences
B	Mathematics
C	Physics
D	Engineering
E	Chemistry
F	Technology
G	Biology
H	Geology
HX	Mining
I	Botany
J	Agriculture
K	Zoology
L	Medicine
LX	Pharmacognosy
M	Useful arts
N	The arts
△	Spiritual experience and mysticism

O	Literature
P	Linguistics
Q	Religion
R	Philosophy
∑	Social sciences
S	Psychology
T	Education
U	Geography
V	History
W	Political science
X	Economics
Y	Sociology
YX	Social work
Z	Law

19.4.2 Connecting Symbols

→	(Backward arrow): its use is to connect two point
←	(Forward arrow) indicates future time.
"0"	(Zero) indicates phase relation.
"'"	(Single iverted comma) indicates time facet
"."	(Dot) indicates space facet
":"	(colon) indicates energy facet
";"	(Semi colon) indicates matter facet
","	(Comma) indicates personality facet
"-"	(Hyphen) indicates super imposition
"("	(Starter) and ")" (Arrester) indicate of subject device

19.4.3 Fundamental Categories

It is assumed that all the facets obtained by breaking the subjects can be grouped into five categories or aspects or points of view depending ion their relationship. They are enumerated as five fundamental categories, namely, personality, matter, energy, space, and time. For brevity they are indicated by PMEST.

Each fundamental category is represented with a connecting symbol. Up to the third edition ofcolon classification there was only one connecting symbol, colon. That is why the scheme is calledcolon classification. The 4th edition (1952) brought in radical changes with the introduction of five fundamental categories with their own connecting symbols. It is not necessary that in a given subject all the fundamental categories are to be present.

The five fundamental categories fall in the sequence of PMEST and their connecting symbols are:

Fundamental category	Connection symbol	Facet
Personality	, comma	[P]
Matter	; semi-colon	[M]
Energy	: colon	[E]
Space	. dot	[S]
Time	‘ single inverted comma	[T]

Time Isolate

Isolate in [T] : Chronological Division

A	Before 9999 B C
A1	Eozoic
A2	Palaeozoic
I	1400 to 1499 A D
J	1500 to 1599 AD
K	1600 to 1699 A D
L	1700 to 1799 A D
M	1800 to 1899 A D
N	1900 to 1999 A D
P	2000 ti 2099 A D
Q	2100 to 2199 A D
R	2200 to 2299 A D
S	2300 to 2399 A D

Below are worked out some examples to show how to represent time in a lcass number:

1) 19th Century literature O’M
   O = literature
   M = 19th century

2) 20th Century literature A’N
   A = natural sciences
   N = 20th century

3) Libraries in 32 BC 2’C967
   2 = library science
   C967 = 32 BC

Sometimes we come across inclusive dates like Germany of 1939 to 1945. There is a provisionto bring to dates together. They are represented by arrow marks.

Germany of 1939 to 1945 = V55’N45 N39

When there are inclusive dates the later date to be taken first and the second date

to berrepresented by backward arrow mark. Forward arrow mark is shown as follows :

Future of Libraries 1977 : 2'N7?

SPACE ISOLATE

Isolate in [S] : Geographical Division

1	world	
	empire	
	to be divided by (GD)	
1-52		Roman Empire
1-56		British Empire
19G		South
19L		south-west
19M		west
1A		Near Sovereign formation To be divided by (CD) (illustrative)
1N		Leagueof Nations
1N4		United Nations area
1N48		The Commonwealth area
1(P111)		English speaking countries
1(Q7)		Muslim countries
4	Asia	
	41	China
	42	Japan
	44	India
5	Europe	
	51	Greece
	52	Italy
	53	France
	55	Germany
	56	Great Britian and Ireland
6	Africa	
7	America	
	73	United States
8	Australia	

To explain with examples :

1) Geography of the world = U.1

U =
geogr
aphy I
=
world

[s]

2) Economic conditions of India = X.44

X =
econo
mics
44 =
India
[S]

3) Agriculture in African countries = 1.6

J =
agric
ultur
e 6 =
Afric
a [s]

Energy :

In its order of concteteness it lies in between all the five categories. It means it is as concrete as it is abstract. As compared to space and tiem categories, in identification /energy gives some difficulties. Roughly it can be taken as the manifestation of action, reaction, problems, process, solution etc., it is almost like a verb in a sentence,. In the facet formula it is represented as [E]. in the class number it isindicated by a colon ":"

By and large they can be traced in a given subject as they are enumaerated in the schedule. Forexample see the energy isolates as given in the basic class "library science".

foci in [E] cum [2P]
book selection

organization
function
cooperation
technical treatment
51 classification
cataloguing
Circulation
61 consultation
62 lending
7) reference service
8) administration
81 book selection
811 source
815 indent
82 order
84 accession
85 preparation
88 maintenance
97 documentation

Examples :

Library classification	2 :51	
	= library science (BC)	
51	= classification [E]	
2) Documentation in India	2: 9744	
	2	= library science(BC)
	97	= documentation[E]
	44	= India [s]

MATTER

It is a material facet. It is less concrete than personality but more concrete than energy. Spaceand time. It lends itself as a medium to be acted upon as a kind of surface material or a commodity for consumption. In the facet formula it is represented as [M] and in the class number it is indicated by asemicolon.

In Painting the material used like paper, canvas, glass stands for matter. In economics the material used for minting currency like copper, solver, gold or paper stand for material. The fundamental categorymatter is used in very few classes .

NQ PAINTING

NQ [P], [P2] [P3]; [M] : [E] [2P]

1) Wood
2) Paper
3) Fresco
4) Stone
5) Metals
6) Glass
7) Canvas
8) Ivory
9) Other surfaces

Examples :

Canvas paintings	NQ; 7	
NQ	=	painting(BC)
7	=	canvas[m]
2) paper money		X61; 4
X	=	economics(BC)
61	=	money [p]
4	=	paper [M]

PERSONALITY :

It is the most concrete but most difficult to recognize it. It is very important facet I many subjects. Without it a subject may be formless. Personality manifests itself in persons institutions substances kind of life or plants body organs languages religions etc. it is like a noun in a sentence.

In the facet formula it is represented as [P] and I the class numbers it it indicated by a

coma ",”however the comma need not be used in the case of first level[P] in every round.

(More detailed study of Five Fundamental Categories is provided in Lesson Number 6)

19. 4.4. Facet sequence

The fixing of the sequence of the facets are done on the basis of the following principles :

1) Wall- picture principle
2) Whole- organ principle
3) Cow -calf principle
4) Actand- action- actor- tool principle
5) Commodity -raw material principle

Three principles are dealt with in detail in the theory part of CC in the course material for "theory of classification".

(More detailed study of Facet Sequence is provided in Lesson Number 7)

19.4.5. Speciators

A Speciator is an idea that creates species of whole ideas, when it is attached to whole idea. For example,

In the concept "blue waters" "blue" is a speciator attached to the whole idea 'waters'. In the concept short road, "short" is a speciator attached to the whole idea "road" and
In the concept "ladies bicycle" the concept 'ladies' is a speciator to the whole idea "bicycle".

The speciators can be any idea. The ideas, they speciate also can be anything. There is a freely- faceted phenomenon in such combination. One may have concepts such as Acute Fever. Intermittent fever, Infectious Disease, structural disease, and psychosomatic disease. One can also have speciator to speciators such as 'Deep Blue Waters' where "Deep" is a speciator of "Blue" which is a speciatorof "Waters".

19.4.6. Phase Relation:

Varieties of Phase Relations between any two subjects can be represented. There are six varieties of Phase Relations namely General Phase Relation, Bias Phase Relation, Comparison Phase Relation, Application Phase Relation, and Influence Phase Relation. There are also different levels of PhaseRelations, such as Intra – array Phase Relation, Intra – facet Phase Relation, and Intra – Subject Phase Relations. The Colon Classification structure for Phase Relations is given in Section B94.

(More detailed study of Phase Relation is provided in Lesson Number 9)

19.5 STEPS IN PRACTICAL CLASSIFICATION

After identifying all the categories and supplementing the latent facets, if necessary they are all to be arranged in the facet formula given for each subject. In the facet formula the terms are replaced in their isolsate numbers preceded by their respective indicator digis. All these steps are explained in a graded manner. It is called the postulational approach. This approach is explained in Sec.0268 in pages 1.7 and 1.8 of rules part of CC6.

Illustrative example :

Step 1 Raw title : Title as found in the document (eg nationalization of banks Inindia)

Step 2 Full title : title expressing each of the relevant basic and isolate ideas in the subject of the document got by filling up all the ellipses in the raw title, i.e., by breaking down composite term s into fundamental constituent terms. Some times terms that are needed to complete the meaning are to be added.

e.g Nationalization of banks In india in economics

Step 3 Kernel title : removing all puffs and auxiliaries from the full title. Kernel means essence. Puff means hollow. Eg Nationalization ,bank, India , economics

Step 4 Analysed title : it is to be derived from kernel title by analyzing the basic and isolate facets and correlating them , with the fundamentalcategories, by their symbols.

e.g Nationalization (Spl) , banks (P), India (S) economics (BC)

Step 5 Transformed title : it is the title derived from the analysed title by keeping the basic class as the first facet and isolate facets in the sequenceof PMEST

e.g economics (BC) Nationalization (Spl) , banks (P), india (S)

Step 6 Title in the standard terms : it is the title with the kernel terms replaced by their Respective equivalence number as given in the schedules

Eg. Economics (BC) Public Enterprise (Spl) , bank (P), india (S)

Step 7 Title in Facet numbers : it is the title in standard terms with the kernel terms Replaced by the equivalent isolate numbers as found in the schedule ofthe CC

Eg. Economics	(BC)	X
Public Enterprise	(Spl),	9w
bank	(P),	62
india	(S)	44

Step 8 Synthesized numbers : the class number is dereived from the title in facet Numbers by removing the symbols of each facet after inserting theirconnecting symbols

Eg. X9w,62.44

Verification : The class numbe is to be reversed into natural language bydigit by digit interpretation in order to verify its correctn

X	Economics
X9w	Public Enterprise
X9W, 62	banks in public enterprises
44	India

Example :
1) Examples for a simple specific subject:

Principles of Biology G
Step 0 : Raw title : Principles of biology
Step 1 : Full title : Principles of biology
Step 2 : Kernel title : Principles biology
Step 3 : Analysed title : Principles biology(BC)
Step 4 : Transformed title : Biology (BC) principles
Step 5 : Standard term : Biology(BC)
Step 6 : Title in facet numbers : G(BC)
Step 7 : Synthesised number : G
Step 8 : Verfication : G Biology

(More detailed study of Postulates and postulational Appraoch is provided in Lesson Number 5)

19.6 USE OF THE INDEX TO SCHEDULES

This is an alphabetical index to the fundamental constituent terms in the schedules of classificationcontained in part 2 in pages 2.3 to 2.123.

The number given against an entry requires some explanation. The first letter or digit represents a common isolate if it is a lower case and a main class if it is a numeral or a capital letter. If the numberbegins with a capital letter followed by a numeral, it is the number of the canonical class.

Examples of interpretation of index :

1) Abdomen G[P], D[P2],L[P],14
"Abdomen" has the isolate number 14 in the personality facet of main class G biology, secondlevel personality facet of main class K zoology and personality facet of main class L medicine.
2) Abnormal S, Y[P], X[E]9P, Z[P2]6
"Abnormal" has the isolate number 6 in the personality facets of the main classes S psychologyand T education. It has also the isolate number 9Pin the energy facet of the main class X economics, and the isolate number 16 in second level personality facet of the main class Z law.

3) Administrative report (ACI.Asf)
R is the isolate number for administrative report which should be applied after space facet as ananteriorizing common isolate.

19.7 NOTATIONAL PLANE

The study of Notational Plane presents guidelines for design or revision of the schedules forclassification. These guidelines may be stated as follows:

The notational system of a scheme for classification should

1. Be able to accommodate the decisions made in the Idea Plane.

2. Be capable of providing unique class number for each and every subject in the Universe of Subjects.
3. Be capable of co-extensively representing each and every component idea in the subject andexact kind of interrelationship between the components.
4. Preferably have in its base, digits which are universally familiar.

5. Be able to have faceted structure in its notation. It should have distinctive indicator digits to indicate different varieties of compound ideas and varieties of interrelation among the componentsin a subject.
6. Explicitly define the ordinal values of every digit used by it. Wherever, universally understood sequence is there it may be respected.
7. Be able to provide infinite hospitality at all levels and at all points – such as array, chain, speciators, facets, and phases in the construction of a class number – that is, it should have devices for interpolation and extrapolation at all points.

8. Make provision for a variety of devices such as mnemonic device, Alphabetical device, Geographical device, Chronological Device, and Subject Device in order to give greater autonomy to the classifiers in constructing class number.

9. Brevity and economy should be respected as far as possible without sacrificing in any way thehierarchical expressiveness and uniqueness of class number.'

The practical application of Ranganathan's Theory of Library Classification is illustrated by the new edition of Colon Classification.

19.8 COLON CLASSIFICATION, AN ANALYTICO – SYNTHETIC SCHEDULE

Colon Classification is an analytic-synthetic scheme. The tendency towards analytic-syntheticity increases in each of its editions. The seventh edition is much more analytic – synthetic. The major structure of the scheme is in its Basic Subject schedules, and the schedule of Isolates. It is observed that the schedule more special to a Basic Subject is the schedule of Personality Isolates. One can, in general, consolidate Matter Property isolates, Energy isolates, Space Isolates and Time Isolates. Besides these, one needs common divisions such as Environment divisions, Language divisions, Anteriorising Common divisions and other forms of divisions. Edition 7 of Colon Classification would thus be presented in several fascicules. The first fascicule contains the schedules of Basic Subjects, the schedule of Common Isolates such as Common Personality, Common Property Isolates, Common Energy Isolates, Space Isolates, Time Isolates, Language divisions, Environment divisions. The other fascicule would cover groups of Basic Subjects such as Formal Sciences, Mathematical Sciences, Physical Sciences, Engineering, Chemistry and Technology, Biological Sciences, Useful Arts and Fine Arts, Humanities, and Social Sciences.

In this year 1989, the first fascicule of Colon Classification was brought out. In this presentation,an attempt is made to study the features of this fascicule.

The schedule of Basic Subjects consists of a variety of Basic Subjects. They can be grouped asfollows:

1. Primary Basic Subjects;
2. Systems Basic Subjects;
3. Environment Basic Subjects;
4. Special Basic Subjects; and
5. Secondary Basic Subjects.

The schedule of Basic Subjects provides a framework of the scheme which is highly flexible. It is freely faceted. The hospitality in the schedule is augmented by Extrapolation and Interpolation accommodating may new Basic Subjects. The listing in the schedule primarily accounts for Primary Basic Subjects, Special and Secondary Basic Subjects. The other two varieties can easily be derived on the basis of Chronological Device for Systems Basic Environmented Basic Subjects. The following table presents extracts from the schedule of Basic Subjects from the seventh edition of Colon Classification.

19.9 SUMMARY

The developments of Colon Classification since 1950's are more and more tending towards scientific method. The theory generated from blending a priori and pragmatic research have been applied to the revision of Colon Classification schedules. However, this procedure is done cautiously so that complexities may not increase in the ultimate Colon Class Number. Construction of schedules for classification is the first line of such operations. The schedule provided indicate Analytico-Synthetic approach of Colon Classification. The indicatory digits are provided for different kinds of relations of synthetic purpose. Rules for classifying the subjects is given under different schedules in the respective chapters. Special

rules regarding identification of Personality, Matter, and Energy are given in the chapter for each primary Basic Subjects.

19.10 SELF ASSESSMENT QUESTIONS

1. Trace the genesis and various editions of Colon Classification

2. Highlight the salient features of Colon Classification, Sixth edition

19.11 SUGGESTED READINGS

1. Ranganathan(SR) - Prolegomena to Library classification, Ed3.

2. –do- 1967. - Colon Classification, Part -1 : Rules 6ht Ed Reprints

3. –do- - Colon Classification, Ed 7 (1971): A review (In Library science with a slant to) Documentation Vol, 1969, paper M).

LESSON 20

TRENDS AND DEVELOPMENTS IN LIBRARY CLASSIFICATION

AIM AND OBJECTIVES

1. To understand the trends in the Classification during Ranganathan period
2. To highlight the recent trends during the post-Ranganathan period

Structure

20.1 INTRODUCTION

Library classification has become increasingly important. Its importance will increase further, due to greater emphasis being laid on the provision of information service in libraries/information centres/documentation centres. For the retrieval and organization of subject information, we require powerful techniques and tools. The role of classification has been realized in computerized retrieval information systems, which has added to the importance of classification.

20.2 CLASSIFICATION IN FIFTIES

The research trends followed by Ranganathan can be summarized by the following factors:

- Separation of work of classification in three planes and formulation of guiding principles in each plane;
- Grouping of isolates into five fundamental categories
- Formation and accommodation of new subjects
- Versatility of notational system

With the successive editions of various schemes of classification in use continued to come in,certain trends of research the following trends are major importance:

- Contribution of Classification Research Group (CRG)
- Broad System of Ordering

- Computer Generated Classification Scheme
- Classification in Online System

The period from 1950 (FID/CA was founded in 1950) onwards can be called a golden period for library classification. This has been a period during which the dynamic theory of library classification has been placed on sound footing. This period is dominated by S.R.Ranganathan, who maybe considered a genius of the twentieth century.

In 1946, FID/CA (General Theory of classification) war formed. In 1962 FID/CA was renamed FID/CR classification Research. The FID/CR report series is an important contribution. These reportresearch activities on a given aspect of classification in a country.

Classification Research Group or CRG (London) is an unaffiliated discussion group, which meetsregularly in London. Its first meeting was held in February 1952.. Occasional summaries of their discussions are published as "CRG Bulletins" in the *Journal of Documentation.* CRG issued a memorandum entitled " The need for a faceted classification as the basis of all methods of informationretrieval" in 1955. The memorandum emphasized three basic ideas, namely, facet analysis as the basis of library classification, Farradane's theory of relationship and the use of simple notation. The members concentrated on the construction and use of special schemes of classification. They formulated many schemes. These were faceted ones, based mainly on the principles propounded by S.R.Ranganathan.

Much work was carried out on the notation for classification schemes. Another important area which drew the attention of the members was the analysis of relationships between different concepts. In this context, the work of J.E.L. Farrandane on "relational operators" is extremely important

S.R.Ranganathan was able to achieve the following from 1950 to 1956:

i. He concluded that each isolate facet of a subject can be considered as the manifestation of oneand only one of the five fundamental categories called PMEST
ii. He prescribed different connecting symbols (later called indicator digits) for the different fundamental categories. However, connecting symbols for time and space were the same.
iii. He formulated a generalized facet formula.
iv. He put forward the concepts of rounds and levels.
v. He realized the need for a long base of a notational system by the use of mixed notation.
vi. He succeeded in the development and application of the concept of zone analysis along properlines.

The second edition of P*rolegomena to library classification came* out in 1957. This edition was a great advance over the previous one. Some persons consider it as the first book on the dynamic theory of library classification. The number of canons had increased from twenty-eight to thirty-five. The postulation approach to classification, along with the 21 postulates and 11 principles, made its appearance in this edition. His thinking became clearer in this edition because the work of classificationwas attempted at three levels, and the concept of zone analysis was put into practice. It was also un 1957 that the 5th edition of Colon *classification* came out. It incorporated many of the ideas discussed earlier. By this

time, the ideas of Ranganathan had already had already spread beyond the confines ofhis own country.

The first International Study Conference on Classification for Information Retrieval was held at Dorking in 1957. The conference suggested the need for a faceted classification as the basis of all methods of Information retrieval. Indexing or classification or automated selector were all considered systems of information retrieval. This set a trend towards faceted classification.

Bibliographic classification appeared in its complete form between 1940 and 1953. Bliss based the scheme on principles of clsssification. This is considered an important scheme of classification. The Standard (fifteenth) edition of DDC appeared in 1952 and a revised standard (fifteenth) edition (1953) came out. The revised edition had a completely restructed relative index. The sixteenth editioncame out in 1958. It was the first edition to be brought out with the cooperation of the Decimal Classification Editorial Policy Committee and the Library of Congress.

20.3 CLASSIFICATION IN SIXTIES

During the 1960s, much progress took place in different areas of library classification. The design of classification schemes and the application of machines to information retrieval were the two major areas in which tremendous advances took place. In the 1950s doubts had been raised by some about the feasibility of machine retrieval systems. However, during 1960s many of these doubts had beenovercome to a large extent. An increasing application of the computer began to take place. This led toa new role for classification.

During the 1960s, the CRG turned its attention towards a study of the relation between specialand general classifications, and the problems relating to the construction of a newgeneral classification. The contribution made by the members is reflected in the work entitled *Classification and I nformation control.*.

CRG concentrated on : Determining of principles for the categorization of concepts; (ii) ordering of concepts within categories (iii) relationships between concepts.

Under (i) a set of categories was produced by Helen Tomlinson, which was developed further byDarek Austin; (ii) involved use of the theory of integrative levels, and (iii) led to a set of relational operators by J.E.L. Farradane. Austin produced a set of role indicators.

CRG came to the conclusion that certain principles had been discovered which could provide a solution to the problems faced in the formulation of general schemes, and it would be necessary to construct two classified thesauri- one of entities and the other of attributes organized according to the above-mentioned principles. Classifying would consist of selecting terms from thesauri and linking their notational elements, using the set of roles developed by Darek Austin.

A project financed by the Office For Scientific and Technical Information (Great Britain) to test the feasibility of an intermediate lexicon is under way, where the indexing

terms or notation applied to a given document entry under one indexing system may be converted to their conceptional equivalents in any other indexing system by clerical means. The results of such a project have immense possibilities for further development.

ickery's *Faceted classification* has proved to be a valuable guide. Many of those who have compiled special schemes in England and elsewhere have made use of this guide. These schemeshave proved to be quite satisfactory.

Thesaurofact is a significant contribution. It is a classification scheme for engineering and allied topics, combined with a thesaurus for post-coordinate indexing, which serves as an alphabetical index to the classification scheme.

The Documentation Research and Training Centre (DRTC) was established in Bangalore in 1962. S.R.Ranganathan, S.Seetharama, A.Neelamegan, and M.A.Gopinath have contributed extensively to library classification. DRTC has been engaged mainly in areas, namely, the study of structure and development in the universe of subjects, development of a theory of library classification and design, a revision and continuous updating of schemes of the computer. DRTC has also been looking after the revision of *Colon classification* , and bringing out depth schedules.

Along with the Sarada Ranganathan Endownment for Library Science, it started a quarterly journal, called *Library Science with a Slant to Documentation,* in 1964. This journal mainly concentrates on classification. *Annual Seminar of DRTC* was started in 1963, and is being published since. A number of issues have been devoted to classification and allied areas. Research done at DRTC is covered in the above journals.

The following reports indicate the research in classification mainly done at DRTC:
FID /CR report no. 6 "*Classification research 1963-1967, Trend report (India)" by M.A. Gopinath.. FID /CR report no.14 " Classification research 1968-1973"* by M.A. Gopinath.

In 1962, Ranganathan formulated a principle called the "wall-picture principle" for a determination of the sequence between isolates ideas deemed to be a manifestation of the same fundamental category. In 1963, work on a theory in the notational plane led Ranganathan to the idea of an emptying digit. It is a remarkable idea to provide infinite hospitability in an array. In 1n 1966, he came to the conclusion that the property of an entity is the manifestation of the fundamental category matter. This has importaht implications for the desigining of schedules. In the same year, he propounded the concept of a subject bundle.

Ranganathan's third edition of *Prolegomena to library classification* was published in 1967. He published an article entitled *Design of depth classification in 1964, (Library Science, 1 1964, pp. 1-42).* This is a classic article, which describes the methodology for design in a scientific way. The depth schedules prepared in India are mostly based on the above article.

The sixth edition of Ranganathan's *Colon Classification* appeared in 1960 . In it, he avoided the use of Greek letters. Many of the schedules were revised. In 1961, it was suggested that the singleinverted comma (as an indicator digit for the time isolate instead of a

dot) be used to overcome rigidity in *Colon Classification.* This was an important idea. The sixth revised edition of *Colon Classification* was published in 1963. An annexure was added in the revised edition, where the inverted comma was prescribed as an indicator digit for the time facet. A few corrections and minor changes were also included.

Ranganathan's *Colon classification edition 7 (1971); A preview* appeared in 1969. This described the changes which are likely to take place in the seventh edition. It indicated how the libraries could change over the new edition. The changes suggested are the major ones, which would take CC towards a freely faceted scheme. The schedules are going to be overhauled, keeping in view the latest ideas in notational techniques, greater use of emptying use of emptying digits, zone analysis, use of new indicator digits and so on. Starting from 1963, 63 depth versions of CC schedules were produced, covering various areas. Most of these schedules belonged to science and technology. They have been applied on a limited scale and more areas need to be covered.

In May 1968, DRTC initiated experiments to determine the feasibility of using a general-purpose computer in a document-finding system, based on a classified catalogue system using a freely faceted version of CC. the results have been encouraging. The use of a computer for a synthesis of the class number with a freely faceted version of *Colon Classification* has been described by A. Neelameganand S. Venkataraman.

J.Mills was given the responsibility of revising *Bibliiographic classification.* An attempt was made to include the best features of the original as well as the latest developments in the revised edition. A general classification scheme called Library-Bibliographical classification (its Russian abbreviated name is BBK) based on the "Principles of Marxism-Leninism" was compiled at the Lenin Library (Moscow). The full edition is in 30 volumes (1960-68)..

The seventeenth edition of DDC appeared in 1965, in two volumes. It has a reasonable amount of relocation. A whole new schedule for 150 (psychology) was assigned. Form divisions were redesigned into standard subdivisions. The area tables were separated as an auxiliary. "Add to" replaced "Divide like" . The index was so poor that a revised index had to be brought out in 1967. *Dewey decimal classification : additions, notes and decisions* is a useful publication, which keeps the users of the scheme informed about the changes taking place.

Rider's international classification appeared in 1961. This scheme is for the arrangement of books on shelves of general libraries. It is an enumerative scheme of classification, providing readymade class numbers. However, no number is more than three digits. It uses pure notation, consisting of Roman caps. Gaps have been left for future expansion. It follows the non-structural notation.

Much research has been done on the use of UDC as a language for information retrieval. In the United States, research on UDC in computer-based retrieval systems had been carried out by R.R. Freeman and P.Atherton in late 1960s, in the AUDACIOUS (Automatic Direct Access to Information with an On-line UDC System) project at the American Institute of Physics. Similar research has been done by M.Rigby and T.W.Caless and others, who have

tried to evaluate UDC as a tool for computerretrieval, and discussed means and ways for its manipulation. The full English edition had not beencompleted by the end of the 1960s. at the same time, it may also be pointed out that many of the schedules of full edition were out of date.

The Second International Study Conference on Classification Research, held at Elsinore in 1964, with sixteen nations was represented. The topic of the conference was a broad one, covering the general theory of classification, research in mechanized classification, selected specialized schemes and evaluation techniques. The topics ranged from conventional classification schemes to computer- generated ones. This set a trend towards the application of the computer during the 1960. This conference should be regarded as an important land-mark.

The work of J.C.Gardin on relational indexing needs to be noticed widely. He is the author of SYNTHOL (SYNTagmatic Organising Language). The system is designed for retrieval by computer,but indexing is done by human beings.

20.4 CLASSIFICATION IN SEVENTIES

In the initial stage. CRG aimed to produce a general compatible scheme to serve different purposes like shelving, arrangement of classified catalogues and information retrieval. However, this was notfound feasible because of different purposes are not compatible.

CRG believes that no general scheme suitable for computer retrieval existed. Therefore, it was decided to develop a general classification in association with the UK MARC project for an automated retrieval system. The theory of integrative levels is being developed, and it would possibly be used to serve as a basis of the arrangement of concepts in the new general classification scheme.

CRG believes that enough knowledge is available regarding theory of Document information retrieval systems to enable designing of a new general scheme, which would be satisfactory for libraries and information centres I n all subjects, general as well as special. This would also be useful to some extent for machine based retrieval systems. One would fully agree with CRG that none of the existing schemes of classification are good enough to meet the challenge of the growing universe of subjects. The work of CRG has been widely noticed. It has a tremendous impact on the research, teaching and practice of classification and information retrieval in Great Britain and elsewhere.

PRECIS (PREserved Context-Indexing System) is a by-product of the continuing research for a general classification scheme. PRECIS is a direct descendant of faceted classification. However, the credit for developing it should go Dared Austin. From 1971, British national bibliography has beenfollowing it. It is also being used by UK MARC as well as many other bibliographies. The ideas of Farradane have influenced the work of Austin.

FID / CR Secretariat had shifted to DRTC at Bangalore for a few years. Fifty-five depth versions of colon classification schedules were produced, covering various areas, during the 1970s till April 1974. However, much still remains to be done.

The methodology for the design of classification schemes is still being improved. The basic methodology worked out in the 1960s remains the same, but minor improvements, based on experience, have been incorporated from time to time.

The seventh edition of colon classification was expected to be published in late sixties, but ithas eluded its users so far. Colon classification edition 7 (1971): a preview was published in LibraryScience .

POPSI (Postulate-based Permuted Subject Indexing)is being developed at DRTC. It is a procedure for implementing the policy of grouping by juxtaposition. It has a strong classificatory base. The results have been encouraging.

Ranganathan aimed at providing an excellent representation of the semantics of a given document.This required the use of a large variety of indicator digits. As a result of a large variety of indicator digits, arranging and retrieval of documents or information based on CC7 became rather complex. Such an approach may be useful for certain purposes e.g. trade catalogue, documentation list, etc. Theoretically speaking the approach adopted by Ranganathan was excellent. However, practicing libraries found the schedules of CC7 too complicated for arrangement and retrieval of documents orinformation. CC7 was felt to be uneconomical to use. In libraries shelving is done by attendants, who find the job rather complicated. Users also find it difficult to locate documents.

Bibliographic Classifications planned in 20 volumes, and a few volumes have already appeared. The new edition is a totally revised one, incorporating the latest ideas. The volumes which have comeout show great promise.

The 18th edition of Dewey Decimal Classification appeared in 1971., in three volumes. The revision from the seventeenth to the eighteenth edition has been substantial. It incorporated new materials, especially in the scientific fields. It has tried to provide more adequately for the requirements of foreign users. The tables forming introductory matter have been revised. westernemphasis has been reduced to some extent, and there is a trend towards making it an international scheme in the true sense. It introduces, for the first time, a flexibility of notation beyond the use artificial digits, to the use of established numbers with unofficial meanings. In the recent edition of DDC the influence of British National bibliography is evident. Some of the ideas of Ranganathan also seem to have influenced the revision.

DDC 19 appeared in 3 volumes. The past four editions, 16 to 19, have been edited under thedirection of Benjamin A. Custer. This edition has been produced by computerized photocomposition. DDC 19, has greater provision for notes of explanation and instruction. For instance, very detailed instructions for building numbers have been given in 800s at two places, namely the schedule and table 3. Table 3 is followed and supplemented by table 3-A. Table 3A aims to provide additional elementsfor building numbers within table 3.

There are many new provisions in Table 1(standard subdivisions). There are also more directives taking one from unused standard subdivisions to proper places in the schedule.

DDC 19 shows greater commitment to international use and value. This is evident from the newpolicy laid down by the Decimal Classification Editorial Policy Committee and the Forest Press. According to this, " in preparation an edition it is desirable to allow positively for the needs, both in detail and in order, of countries outside the US. Where there is a conflict between these needs andthose of the US, the Editor should give his preference to the needs of the US, but must make provision for an alternative use by libraries outside the US in a manner appropriate to the particularproblem" (DDC 19, vol 1, p xxiii)

A number of special schemes are available. Many of those created during the last 25 years are based on the faceted approach. Still, there are many areas in which satisfactory special schemes are not available.

The need to formulate a programme for setting up "ordering systems for global information net-work," to be carried out by authorities and agencies. This was the theme of the Third International Study Conference on Classification Research, held in Bombay in 1975. This conference may be considered an important landmark. This has given fillip to the application of computers, with cooperation at the global level. This has also led in-depth examination of indexing methods and switching languages.

A thesaurus-based indexing and classification system has been developed for INSPEC. It is a vocabulary system consisting of a unified indexing and classification scheme. It uses a hierarchical classification and a vocabulary – development file with thesaurus structure.

FID published the BSO - *Broad System of Ordering: Schedule and Index* in 1978. It is a classification of the whole field of knowledge, covering about 4000 terms in English.*The Broad System of Ordering* described a general classification scheme for information exchange and switching.

In order to get over the problem in information explosion, we require one, standard switching languages or linking device between the indexing thesauri of different languages and countries. UDC has been proposed due to its large usership, usability in modern mechanized retrieval and dissemination systems and organizational set-up. In order to promote UDC as a switching language, FID has started the preparation of concordances between the UDC and various descriptor lists and thesauri. Perhaps *Colon Classification* is better fitted for such a task, but the organizational behind it is too small and has little influences at the international level.

It has been found the formal classifications can assist in the selection and building of terms for a thesaurus. The hierarchies of a classification scheme can be helpful in the preparation of references also. The compilation of concordances between the UDC and thesauri or other special schemes would throw more light on their combined use. It would also lead to optimal methods of subject organization and control. A number of such projects have been undertaken.

20.5 CLASSIFICATION IN EIGHTIES

The Fourth International Study Conference on Classification Research was held in Augsburg (W. Germany) from 28th June to 2nd July 1982. The conference was organized by FID /CR in collaboration with IFLA section on Classification & Subject Cataloguing and Gesellechaft fur Klassifikation. The theme was "Universal classification; Subject Analysis and ordering systems". The aspects covered included (a) General principles and policies, (b) Structure and logic of indexing languages; (c) Empirical investigation and practical use.

UDC (International medium edition, English text) appeared in 1985. This edition is a great improvement over UDC abridged edition. The International Medium Edition (IME) English text was brought out by BSI in 1985 (BS 1000 M: 1985) in two parts viz, Part-I: systematic Tables (1985), Part- II: Alphabetical Index (1988).

DDC 20th edition was published in 1989 in 4 volumes. Use of classification in computerized information retrieval system has continued in 1980s. facet analysis has been used in a number of data bases. Indexing and classification have come closer. Some of the experts have advocated a combination of depth indexing and classification for the purpose of information retrieval. It is being realized that classification has a greater role in the communication of information. Classification is now moving towards becoming a discipline of classification as a science in its own right.

20.6 CLASSIFICATION IN NINETIES

The International Medium edition (IME) English text,, Edition 2 was brought out by BSI in 1993 intwo parts. Part-I: systematic Tables and Part 2: alphabetical subject Index.

The 21st edition published in 1995 in 4 volumes: volume 1 introduction and Auxiliary Tables; Volume 2 and 3 The Schedules and Volume 4 The Index with manual of practice. The revised editionshave been published at intervals of two to twelve years. The newest revision of DDC21 is the 'Electronic Dewey' published in 1996, which is the result of scholarly research, careful analysis of current literature, and consultants with users. DDC21 is available in Microsoft Windows based version on compact disc.

20.7 CLASSIFICATION IN THE NEW MILLENNIUM

DDC 22, the four-volume unabridged edition of the Dewey Decimal Classification (DDC) system, reflects the many changes to the body of human knowledge that have occurred since DDC 21 was published in 1996. Published in mid-2003, DDC 22 includes helpful tools that make the classificationeasier to use. In 2005 the UDC Standard edition was brought in two volumes.

WebDewey offers online searching and browsing access to the Dewey Decimal Classification.In addition, it maps DDC to Library of Congress Subject Headings (LCSH) and links from the mapped LCSH to the corresponding LCSH authority records. In the case of Abridged WebDewey, mapping is to the Sears Subject Headings. Selected Medical Subject

Headings are also mapped to DDC numbers. WebDewey offers a work area where a cataloger may build a number during the process of readingthe number-building instructions. Local notes can also be added that will be displayed in context sothat local classification practices are appropriately available. WebDewey and Abridged WebDeweyare available as add-on services to OCLC Connexion, OCLC's cataloging service.

20.8 SUMMARY

Research in classification has become diversified in nature and new areas have opened up. Impressive progress has been made in classification. Classification forms the basis of all kinds of organisation of information including the computerized information retrieval systems.

20.9 SELF ASSESSMENT QUESTIONS

1. Trace the important landmarks in the development of classification during Ranganathan

2. Describe the trends in classification post-Ranganathan period.

20.10 SUGGESTED READINGS

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