UNIT 2 TYPES OF CLASSIFICATION

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2.0 OBJECTIVES

After reading this Unit, you will be able to discuss different types of classifications by:

- history, i.e. fixed and relative location systems;
- methodology, i.e. enumerative and faceted Systems;
- areas of application, i.e. general and special systems;
- depth of details, i.e. broader and depth classifications;
- media, i.e. print and electronic versions; and
- environment, i.e. classifications for the web and ontologies.

2.1 INTRODUCTION

Classification of documents and other reading materials is indispensable for any library. Various standard and local methods for arranging library materials, ranging from clay tablets, papyrus rolls, monographs and other print documents, audio-video material,
CDs, multimedia and now web sources, have been employed from time to time by librarians to organise their collections. Their classification has varied from home-made or *ad hoc* systems to somewhat adapted from some universal knowledge classification systems. Since the late nineteenth century librarians have developed many standard classification systems pioneered by the Dewey Decimal Classification in 1876.

### 2.2 FIXED AND RELATIVE LOCATION SYSTEMS

#### 2.2.1 Fixed Location Systems

These systems of Pre-Dewey era assigned a fixed place to a book on the shelves. The "call number" indicated the shelf ground on which the book was stacked. For example, a call number, say, 2.4.6.25 meant that it was the 25th book on the 6th shelf of 4th almirah in the 2nd room of the library. Thus a book could be located even by a blind person. Its advantage was saving of shelf space, as such systems require vacant place only at the end of the shelf or almirah. (Present day systems called Relative Location systems require space for intercalation of new books at every point on the shelves.) In fixed location, maintenance of subject grouping was difficult. New books could be accommodated at the end of the shelf. Whenever the books had to be shifted to another place their call number had also to be changed frequently. That involved lot of labour and wastage of time and money. Melvil Dewey (1876-1931) while working in the library of Amherent College (Massachusetts) could not tolerate this wasteful task of reclassification, too often. He invented a relative classification system to solve this problem. His question was: "How to give permanent call numbers to books in a library?"

#### 2.2.2 Relative Location Systems

In relative systems class number refers to the intrinsic subject of the book rather than the shelf place. Decimal notation used by Melvil Dewey provided a neat technique for dividing knowledge and by denoting each division and subdivision by decimal fraction numbers. Call number indicated the subject rather than any fixed places on the shelves. It was a master stroke which brought a paradigm shift in library classification. The new books could be accommodated at their proper places without disturbing the relative location of the existing books. In the new method, the shelf location of books changes with addition of more books. Books on the shelves keep shifting to the right side, but their relative location of the document remains the same: on its right and left it will always have the same subject as its neighbours. Its great advantage was maintenance of strict and finely divided subject collocations. For example, a new book on geometry could be placed with earlier books on geometry without any problem. Not only this, Geometry could be further divided into Euclidean Geometry, Plane Geometry, Solid Geometry, Trigonometry, etc. Earlier a new book could only be placed at the end of the almirah containing books on mathematics. Fixed location systems are now a dead history as now all library classification systems are relative location systems.

### 2.3 BY DESIGN METHODOLOGY

#### 2.3.1 Enumerative Systems

A classification is a map of knowledge which lists every subject and its subdivisions in a top-down approach. Each subdivision is given a notational mark to denote it. Known as class number, this notation, or a cluster of digits, is assigned to a document having that topic as its specific subject. These are also known as ‘mark and park’ systems. Enumerative classifications are pre-defined and frozen lists of subjects of the past, present and of near future. These only provide readymade pigeon holes for documents
rather than finally individualising them according to their subjects and their various documentary aspects. Most of the time these prove square holes for round pegs. These are now considered rather old fashioned classification systems.

2.3.2 Faceted Systems

An enumerative system produces systematic but linear lists of subjects. Knowledge is multi-dimensional and growing dynamically. An enumerative classification can represent only one aspect of the specific subject at a time. Many aspects have to be left out. For example, in the earlier editions of the DDC a simple subject like “Anatomy of Dogs” could either be classified as “Zoology of Dogs” or “Anatomy of Animals”. Both aspects could not be taken together. Thus such systems fail to classify co-extensively the present day knowledge, not to speak of the subjects to emerge later. By the beginning of the 20th century these enumerative models were not very effective, yet no other model was available, though the UDC (1895+) had made some improvements in the DDC to denote some more auxiliary aspects of a document.

S.R. Ranganathan (1892-1972) after a long study and experimentation in late 1920s developed a different method to classify multidimensional knowledge thrown by the 20th century industrial society. These are now known as faceted systems. A facet is any of the many sides of a cut diamond. Ranganathan used this term in classification to designate different aspects of a specific subject. Instead of making a long list of subjects in some systematic order he divided a subject horizontally into various categories and then vertically into different subdivisions known as facets and isolates respectively. For example, the subject of library science could be divided into ‘Kind of Library’ Facet, ‘Kind of Document’ Facet, ‘Kind of Operation’ Facet, and ‘Kind of Service’ Facet. The kind of service facet could be detailed as circulation services, reference services, current awareness services, reprographic services, and so on. Space and time facets are kept as common facets applicable to all classes of subjects. Later Ranganathan developed a theory of “Five and only Five Fundamental categories.” These categories are Personality, Matter, Energy, Space and Time. His postulate is that any subject comprises of some or all of these categories. A subject is always made of any of these categories. Nothing is beyond them. These facets are converted into digits and then combined in some postulated order to produce unique class numbers to suit specific subject of the document. Thus a class number can be tailored to exactly fit the document instead of assigning a class number to a book from the long list of readymade class numbers as in an enumerative classification. From a small list of facets numerous class numbers can be produced by their combinations and permutations. It started a new revolution in library classification.

This faceted system was later refined and developed into a very dynamic and effective model based on postulates and principles for which Ranganathan developed a theory in his famous book *Prolegomena to Library Classification*, (Madras Library Association, 1937). Its advanced version is called Analytico-synthetic classification. Such classifications have proved useful for the growing universe of knowledge, for information retrieval, and later have proved basis of designing all indexing languages. These are equally efficient at the traditional role of shelf arrangement. Indeed these have become popular methods of modern knowledge organisation. All the new library classification systems are faceted, while old systems like the Dewey Decimal Classification, or the Bibliography Classification (BC) and UDC are getting faceted through revision.

2.3.3 Synthesis Grafted on an Enumerative Base

It is a mix of the two systems. These basically enumerative systems have later developed
some special tables of documentary aspects to be combined with the base number. First such example is of the Universal Decimal Classification (UDC) which started simply as enhancement of the DDC in 1895. To the DDC base a multiplicity of auxiliary subdivisions were added to make a class number multifaceted. As survival approach, some additional internal tables are devised and many more provisions of number synthesis have been invented to make them more hospitable and faceted to combat the dynamically growing knowledge. The DDC in its 18th edition (1971) introduced five more tables and made many more provisions for number synthesis through instructions and special tables here and there. Being added quite late such a structure is not regular or uniform. It is an add-on provision which has its own problems.

2.4 KNOWLEDGE CLASSIFICATION AND LIBRARY CLASSIFICATION

Classification is a process, a logical visual method of simplification and understanding. No phenomena or object can be understood without classifying it. It organises all sorts of entities and depicts their due place in the universe. Classification can be both of abstract and concrete entities; of ideas and things. It is essentially a life process of learning, doing and living successfully. Human civilisation progressed as primitive humans learnt to classify the visible phenomena around. Let us say man learnt of edible and non-edible things; divided animals into useful and harmful groups. It was another (more sophisticated) act of classification when man related clouds with rain, and rain with growth of vegetation and life; and related certain herbs with certain diseases. All that became knowledge by and by. It has rightly been said that all knowledge is classification. Knowledge is defined as sum total of facts, beliefs, experience, memories, expressed feelings, arts, sciences, fiction and myths conserved by the society. Thinkers in all ages have tried to categories knowledge to understand its nature, categories, boundaries and growth. That became knowledge classification. Knowledge classification is outlining and mapping to depict its structure and boundaries. It leads to better understanding of its history, nature, kinds, properties, growth and also gaps in it. It becomes guide for the educationists, scientists and librarians. Knowledge classification is both speculative and empirical, and is a province of philosophers and scholars. One example of knowledge classification is Vedic categories (1500 BC) of knowledge in Dharma, Artha, Kam and Moksh.

Library classification is book or document classification. Documents are nothing but carriers of knowledge and information. In modern libraries documents are classified on the basis of their knowledge contents. Therefore, knowledge classifications have become basis of library classifications. But knowledge is abstract and fluid and takes the shape of its container and carrier. Books on the other hand are physical and solid entities to be arranged on shelves. Documented knowledge has some non-subject aspects such as language, viewpoint of the author, format, media, etc. All these have to be accounted for in a library classification. Library classifications are in fact more detailed, have notations/symbols to be assigned to documents, separate common tables for physical aspects, and have also a detailed index of subjects. Therefore library classifications are more formal and complex than the knowledge classification on which these are based.

Self Check Exercise

Note:  
1) Write your answer in the space given below.
2) Check your answer with the answer given at the end of this Unit.

1) Make a comparative study of the features of faceted and enumerative systems of classification.
Ontology is a powerful classification tool for the semantic web which describes and represents an area of knowledge. It specifies description for classes, relationships that exist among entities and properties that entities have. Ontology characterises well defined concepts, their taxonomy and many sided relationships. It is a hierarchical collection of concepts arranged in categories combined with multidimensional relations in order to reflect vocabulary of that area of knowledge. It is a web of connections. An ontology which is used for knowledge organisation and retrieval in an electronic environment has the power of traditional hierarchical classifications, subject headings lists and thesauri. It combines elements of all the three. Ontologies are sources of controlled and standardised terms which help to organise information in a more precise and multidimensional ways. They yield better search results by using new search techniques and natural language processing. Some examples:

Biogen Idec: Using semantics in drug discovery research

MINDSWAP: Using ontologies to aid terrorism intelligence gathering

2.6 BY AREAS OF APPLICATIONS

Another division of library classifications can be by the subject area covered. There are general classification systems which cover the entire universe of knowledge; the other categories are special classifications covering a specified subject or limited area of knowledge. These by default are broader and depth classifications, respectively.

2.6.1 Special Classifications

A classification for specific area of knowledge, for example, Economics, even Banking, Occupational Safety, Diamond Technology, Women Studies, Indology, etc. are examples of special classification. Some examples of special classification schemes are:

Uniclass: Unified Classification for the Construction Industry (London: RIBA, 1997)

London Education Classification, University of London, 1974.

London Classification of Business Studies, (London Business School, 2000)

Thesaurus of Psychological Index Terms (Washington: American Psychological Association)

Special Classifications inevitably are depth classifications used for classifying and indexing micro literature in the form of journal articles, research reports, theses, etc. These are eminently useful for information retrieval in special libraries and information centers. Ranganthan calls it depth classification.
Kinds of Special Systems

Special classifications usually do not exist alone. Every special library has documents on its special area and also on related subjects. Even a nuclear science library may have books on fiction, sociology, management, etc. A special classification such as classification of business studies may require another general classification for classifying documents in other areas such as political science, sociology, psychology, mathematics. For classifying in related and other areas usually a standard system is adopted. On the other hand a special classification may be a mere extension of certain class of a general classification system. For example, in India many local made detailed extensions exist of the DDC class numbers like 954 Indian History, 294 Indic Religions, 181.4 Indian Philosophy to adequately classify such subjects in Indian libraries.

2.6.2 Users’ Interest Classification

The ultimate function of a lending library is to serve its users to their satisfaction. A classification is a tool to manage a library. By definition it is an arrangement of information material in a way useful to the majority of the users. In other words it is a rational sequence of maximum utility. Convenience of library users is a weighty consideration, if not the overriding one in a classification. It is always advised to put a book at the most useful place. Practical utility must govern all arrangements, feel many librarians and classifiers.

But this is a utopian thought, or an ivory tower theory. In fact this logical or systematic arrangement is forced on the library users. We have assumed without much research that shelf arrangement is useful, meets the needs of, and matches with the habits of the users. Certainly, it is based on the theory of one-size-fits-all. Here we are certainly living in our make-believe world that the inverted Baconian arrangement or its like are useful and logical.

In fact different user communicates and organisations need different arrangements transcending the traditional division by orthodox disciplines. A user oriented library classification need not be overly logical. The essence of reader interest arrangement is to classify material in a bold and utilitarian way which cuts across traditional groupings. The aim is to group library materials the ways which coincide with the user’s thinking, interest, activity and needs. It is not a cognitive classification of a field of knowledge, but a contrived arrangement to serve local needs. A group of housewives may prefer all reading and information material on domestic chores such as child rearing, cookery, home-remedies, laundry work, interior decoration, pet care and personal body care arranged together, close by. In a junior college the students of commerce may need at one place books and other documents on elementary economics, accountancy, office management and mercantile law. In such situations the librarian may well adopt a shelf arrangement influenced by curriculum than by logic. It is called utilitarian arrangement and is not any negation of classification.

For this, we can have a broken order. If using the DDC we can place 400 languages together with 800 Literature. Similarly 320 Political science may be followed by 350 Public Administration. We may use some artificial digit in the call numbers to show this contrived proximity. Some libraries adapt their classification in such ways. If supported by adequate shelf guides it has high potential of satisfying users’ needs. Arthur Maltby is of the opinion that the user interest arrangement needs more attention and research. It may provide a real step forward a in shelf arrangement which is waiting for an innovation for long.
2.6.3 General Classifications

A classification of the entire universe of knowledge is known as general classification. These are also known as universal classifications. Dewey Decimal classification (DDC), Universal Decimal Classification (UDC) Colon Classification (CC) and Library of Congress Classification (LCC) are some outstanding examples of this category.

By Levels of Details

Universal classifications are further of two kinds known as full and abridged editions, depending upon their level of details and use in a kind of library.

Full and Abridged Editions

These are the standard editions having full details and generally aim at large general libraries, say a university library, or large public library. Historically speaking till 1980s the UDC was available in three versions of details, namely, Full, Medium and Abridged editions having about 2,30,000, 70,000 (70% of the full), and 20,000 (10%) entries respectively. Abridged edition was meant for small libraries whereas Medium edition was adequate for general libraries. Full edition was available in many small fascicules which were meant for highly special libraries. At present UDC has two official versions: the Standard version of 70,000 entries and the Pocket/Abridged edition meant for teaching and shelf arrangement of small collection in libraries. Similarly, the DDC is also available in full version of four volumes and one volume abridgement. The latter is now in 15th edition (2012). The Abridged Dewey Decimal Classification is useful for a small library of about 20,000 titles. This simplified edition is a good model of a broader classification. It is quite popular in small public and school libraries. This trend of varied versions goes back to the Expansive Classification (1893) by C.A. Cutter (1837-1903) who planned to design his system in a series of seven schedules of successive increasing details. The first version was suitable for, say village libraries, the final version was meant for large libraries of the magnitude of national libraries having huge collection in all areas of knowledge. Abridged versions being comparatively inexpensive are also popular in developing countries. Abridged DDC is also very useful for teaching. It may also be used in conjunction with some special classification to cover remaining general areas of knowledge.

2.7 BY FORM OF LITERATURE

Apart from subject specialisation, special forms of documents such as, official reports, patents, standards, maps, CDs and videos are arranged by different methods. Some official documents such as reports, patents and standards bear some special code number. These are arranged by that official number. Pamphlets are usually arranged by title. Popular fiction is mostly arranged alphabetically by author. There is also what is called user oriented system. These are local even ad hoc arrangements to place together all books at one place likely to be required by a single group of users. J. Mills has listed the following sections or form of documents which may require a different type of arrangement in a library:

1) Age and grade of the reader.
2) Books for short loan or those for reference.
3) Current and reserve stock.
4) Size of documents.
5) Other physical considerations, i.e. films, cassettes, CDs, etc.
6) Factual and imaginative literature.
7) Language of the documents.
8) Documents of temporary significance.
9) Value of documents, like manuscripts, rare materials, special editions, etc.
10) Form of presentation, like bound periodicals etc.
11) Date of printing, incunabula.
12) Documents for abnormal readers, such as the blind.

2.8 PRINT AND ELECTRONIC VERSIONS

Traditional classifications are not only being used for classifying electronic and web documents, the IT itself has been used as a tool and medium for designing and publishing classification systems. As a result many classification systems are now available in electronic form. The 21st edition (1996) of the DDC available on a CD was known as Dewey for Windows (DfW) which has many more useful features over and above the print version. The electronic and much enhanced version of the DDC-23 (2011) known as Web Dewey 2.0 is now available only through “OCLC Connexion” on the Internet to the licensed users. Abridged Web Dewey is also available in the same way. Electronic versions are updated monthly. Electronic version of the Library of Congress Classification is available on the www as Classification Web (www.loc.gov/cds/classesweb). The website includes both the LCC number and LC subject headings with links between many of the class numbers and their LCSH equivalent. It also displays co-relations among LCC, LCSH and WebDewey. On the extreme, Broad System of Ordering (BSO, rev. ed. 1991) is now available only as machine readable form on disk and on the web at (www.classbso.demon.co.uk). All these electronic versions are easy to use, versatile with many more features including expert systems for number building, and are easily updated. Unlike the print or CD versions web versions cannot be pirated or duplicated.

Self Check Exercise

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

2) Explain the special features of the electronic version of the DDC.

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2.9 SUMMARY

In the universe of classifications there are three types of them: Classification as such of any entity which also includes the process and methods of classification. It is applicable to all phenomena, objects and entities whether abstract or concrete. We can classify all living things, human beings, mammals, dogs, languages, chemicals, fruits, plants, everything and anything.
The second category is, taxonomies, that is classification of animals and plants to study their evolution and group them in families. It is essential for simplification, understanding and for living with sanity and success. As human beings we are classifying every moment unconsciously. Classified abstract knowledge becomes knowledge classification which is a field of philosophers, educationalists and scientists. These range from Indian Vedas (1500 BC), Greek philosophers (Aristotle, Plato, 300 BC), Muslim scholars of Medieval ages to Conrad Gesner, Francis Bacon, and August Comte.

Third category is of library classifications which are applications or adoption of knowledge classification to classify and arrange books and other reading materials in libraries. For individualised arrangement of documents and to display the internal and external features of the documents (media, viewpoint, form and language) a library classification has some additional features over the knowledge classification. Modern library classifications which originated in late 19th century can be divided into various categories and types. Since the beginning we have traditional enumerative systems which are long systematic lists of past and present subjects along with their class numbers. Also known as “mark and park” systems, these are bit old fashioned and out of favour of the librarians. Though easy to use indeed these are not effective to classify and index dynamically growing multi dimensional knowledge. These have given way to faceted systems which first divide knowledge into traditional main classes and then each main class into various categories, facets and other aspects of the subjects. These facets are combined to tailor the fitting class number for the specific subject of the book. There is nothing readymade. Some advanced faceted systems also termed as analytico-synthetic classifications are quite useful for depth classification and indexing for information retrieval. S R Ranganathan is the father of faceted systems which have been much improved by his disciples and the Classification Research Group, London. By all account faceted system are basis of all information retrieval and have a bright future in knowledge organisation. But to organise and retrieve information on the semantic web we need ontologies which are hierarchical systems showing deep hidden and multiple relations. General classifications are available in various versions of details such as full, medium and abridged editions to suit large and small libraries. General classifications such as the DDC, CC, LCC meant for general libraries cover entire universe of knowledge, while there are numerous special subject classifications delving into much more details suitable for depth classification and information retrieval in a specified area of knowledge. These range from a narrow subject, say Indian History to a multidisciplinary subject like Indology or Women Studies. However, Library of Congress Classification, spread over to 41 volumes, and also being available as an outline with sufficient details, serves both as general and special classification. S R Ranganathan was of the opinion that a general classification like the CC can serve as both. He compared his system to a trunk of an elephant which can pick a heavy log of wood and a light leaf with equal ease. But broad and depth classifications are relative, even subjective, terms. For some even the full versions of UDC and LCC may prove broader, and such libraries may resort to special or super special depth versions to serve their needs. These classification systems are available both in print and electronic versions, latter are now termed as vocabulary management systems. The electronic versions of DDC and LCC are much more enhanced, versatile, multi functional and remain always updated. For researching the semantic web ontologies have been developed which are classifications with myriads of deep links.

2.10 ANSWERS TO THE SELF CHECK EXERCISES

1) Enumerative classifications are old systems which provide readymade class

Types of Classification
numbers. Their schedules are long and frozen. They usually fail to provide co-extensive class numbers for the subject of the document. They are also less hospitable to the new subjects. Faceted systems have slim schedules. Here subject of the document is first analysed into facets which are arranged in a citation order. Then a class number is constructed which fits the subject of the document. They provide solutions to the problems of enumerative systems. Faceted systems are also better for database design and retrieval in computerised databases.

2)  www.oclc.org/dewey

### 2.11 KEYWORDS

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tr>
<td>Enumerative Classification</td>
<td>These are long and systematic lists of subjects of past and present along with their class numbers. Also called as ‘Mark and Park Systems’, these create pigeon holes for the subjects to fill in which usually prove to be square pegs in round holes and vice-versa.</td>
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<tr>
<td>Facet</td>
<td>A group of entities obtained by applying a single characteristic, e.g., kind of libraries facet in library science.</td>
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<tr>
<td>Faceted classification</td>
<td>A system in which a main class is first divided into various facets and the facets are combined in a specified order to tailor a class number according to the specific subject of the document.</td>
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<td>Fixed location systems</td>
<td>The pre-Dewey systems which only indicated shelf ground of a book just like the house number in a street and sector of a city.</td>
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<td>Knowledge classification</td>
<td>Systematic outline of knowledge known at a time to study its growth and structure. It is knowledge mapping.</td>
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<tr>
<td>Ontologies</td>
<td>Hierarchical and multi-relational classifications for the semantic web.</td>
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<td>Special classification</td>
<td>Depth classification for limited and narrow area of knowledge used for information retrieval and classifications of micro subjects like theses, journal articles, patents, research reports, etc.</td>
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<tr>
<td>Taxonomy</td>
<td>Scientific classification of animals and plants.</td>
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### 2.12 REFERENCES AND FURTHER READING


