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Sub-Topic- Classification of Library Classifications, By area of Coverage, By Depth of Coverage, By Functions, Knowledge Classifications, Bibliographical Classifications, Bibliotheca Classifications, By Structure, Species of Classification according to Ranganathan Evolution of Faceted Systems, Current Thinking, Comparison, Hybrid Systems, Categories by Medium, Glossary, References

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Classification of Library Classifications

Classifications are usually categorized on many accounts:

1. By area of Coverage

Special classification limited to a specific area of knowledge

1.2. General classification covering the entire universe of knowledge

2. By Depth of Coverage

Broad Classifications which do not provide enough details and are suitable for small libraries, or provide a synopsis of the knowledge area covered by them.

Depth Classifications which provide maximum details and are usually required for documentation work in special libraries or information centers. Special classification usually are depth classification.

3. By function

On the basis these function classification can be divided into:-

1. Cognitive,
2. Bibliographical
- and
3. Biblioethical systems

3.1 Cognitive/Knowledge Classifications These are usually termed as knowledge classification system. Their purpose is to show the map and structure of knowledge as viewed by the maker or it is the structure accepted by the majority. Mostly these are prepared by philosophers or scientists to take stock of knowledge. These can again be of two types:

Taxonomic Systems Classification of some entities such as Plant Taxonomy, Animal Taxonomy, Periodic Table of chemical elements are a few examples. Classification of diseases, or occupations may also fall in these areas.

Knowledge Classifications these are the maps of the entire universe of knowledge prepared by philosophers from time to time. In Vedas (1500 BC) the four categories of knowledge are

1. Dharm
2. Arth
3. Kaam
4. Moksh

Arsitotle (384-322) the Greek philosopher divided knowledge into the following ten categories :

1. Substance
2. Quantity
3. Quality

- 4.Relation
- 5.Place
- 6.Time
- 7.Situation
- 8.State
- 9.Action
- 10.Passion

Francis Bacon (1561-1626) divided knowledge into three categories based on the known three functions of the brain:

- 1.Imagination (Arts and Literature)
- 2.Memory (History, etc)
- 3.Reason (Sciences)

Ranganathan in his **Prolegomena** (1967,p 71) has gives an illustrative list of authors of some knowledge classification systems:

1. Vedic seers (1500 BC)
2. Aristotle (384-322 BC)
3. Francis Bacon (1561-1626)
4. Thomas Hobbes (1588-1679)
5. Immanuel Kant (1724-1804)
6. GFW Hegel (1770-1831)
7. August Comte (1798-1857)
8. Andre Marie Ampere (1775-1836)
9. Herbert Spencer (1820-1903)

But the number of classifications in pure science is much more as given by BC Vickery

(1918-2009) in his famous book classification and Indian Science London: Butterworths, 1958, pp.115-145.

These are all knowledge classifications which are preserve of the philosophers and scientists.

Bibliographical classifications: They are library classification systems which are mostly designed to organize micro literature in the form of bibliographies and indexes UDC was designed for the purpose of arranging entries in the proposed universal bibliography by the International Institute of Bibliography established in 1895 as the forerunner erstwhile FID (1931-2002). Obviously it is depth classification. CC and BC-2 can easily fit in this category.

Biblioetheal Classification: Such systems are designed, at the first instance as library classification for arranging books on the shelves. These are shelf arrangement systems of the modern librarianship. The DDC was designed for shelf arrangement of books. Later classification designed to improve upon the DDC had this purpose uppermost.

A cognitive classification can perform the latter two functions with equal ease while a bibliographical classification can equally be good as a shelf classification, but not vice versa. Nevertheless today's library classification systems are mostly based on knowledge/cognitive systems.

4. From structural view point

From their structure the library classifications are broadly divided into the following categories:

- a) Enumerative Systems
- b) Faceted Systems

Enumerative System

Library classifications prior to Ranganathan's Colon Classification (CC,1933) were more or less structurally similar. The term enumerative classification was coined post - CC to distinguish such system. It is just as the term landline telephone was coined only after the invention and popularity of cellular phones. Ranganathan's system was a faceted system by structure. It was a

game changer in the theory and practice of library classification. The term “Enumerative Classification” was coined to distinguish Ranganathan’s system from rest of the lot. An enumerative system is designed as a classification system which systematically lists (enumerates) all subjects of past, present and foreseeable future divided into disciplines, main classes and their subdivisions. How deep and granular the subdivisions are determines the depth of classification. If divisions are broad then it is not a depth classification. A depth classification entails dividing subjects deep down into its various hierarchical subdivisions and related aspects to classify micro and non-book material.

However depth and broad classifications are relatively qualitative terms. There is no hard and fast line to demarcate the two nor there is any quantitative standard. For example, the DDC not considered too detailed for research libraries is not a broad classification either. The UDC though designed as a depth classification at present is available in two versions, Standard Edition, and Abridged Edition or Pocket Edition. However, the Library of Congress Classification (LCC) though an example of purely enumerative classification, is an in depth classification in 25 parts contained in 45 volumes.

Faceted Classifications

The first truly faceted classification was Ranganathan’s Colon Classification (first published in 1933). Though the library classification historians see clear but undeveloped antecedents of a faceted system in the UDC first published in 1904.

Features

In a faceted classification there are no readymade class numbers. Instead, every main class is first divided into what is called facets belonging to different categories of concepts. Facets are further divided into what is called isolates. An isolate is the smallest i.e. further indivisible, unit of knowledge:

Universe of knowledge → Disciplines/Sub-disciplines → Main classes

Categories → Facets Isolates

A faceted system provides rules, grammar and devices to combine these isolates with the main class to form a class number co-extensive with the subject. It means every class number in a faceted classification has to be synthesized. A faceted system instead of a list of subjects and their class numbers is a sort of machine to turn out myriads of class numbers with a physically very slim schedule.

5. Species of classifications according to Ranganathan

However, Ranganathan true to his method of theorize and philosophize concepts did a very minute analysis of the species of classifications. He put forth a few more between these main two species. These as in evolutionary order are:

1. Enumerative
2. Almost Enumerative
3. Almost Faceted
4. Rigidly Faceted
5. Freely Faceted/ Analytico-Synthetic

He elaborates and illustrates their characteristics and features as follows:

5.1 Enumerative Classification

Ranganathan defines, “An enumerative scheme for classification consists essentially of a simple schedule enumerating all subjects of the past, the present and the anticipated future”. Such a schedule will have necessarily to be long. The Library of Congress Classification (LCC) is cited as an example par

excellence of their kind. Every subject, its subdivision and so called standard subdivision are embedded in the readymade class numbers. Another example of such a system is the International Classification (1961) by Fremont A Rider (1885-1962) which has a 922 pages and 17576 frozen class numbers all consisting uniformly of three alphabetical digits. Though simple it would not be an exaggeration to say that it had a still birth. No library is using it. It means a library classification both broad and enumerative cannot sustain itself in the environment where knowledge is growing exponentially and multidimensionally.

Almost Enumerative

According to Ranganathan such a scheme is purely enumerative with addition of a few separate schedules of common isolates. To represent mathematically:

Almost enumerative classification = Purely enumerative + A few schedules of common isolates.

In addition to main classes and their subdivisions resulting in compound subjects. It also provides some separate schedules of common and geographical isolates. It helps to construct monolithic class numbers for a few more compound subjects. Length of the schedule is fairly long. Editions 2 (1888) to 14 (1942) of the DDC fall in the category. Subjects Classification (SC 1906) by J.D. Brown (1867-1914) of UK is a good example of this specie. The SC consists of main schedule of basic and compound subjects and a categorical table. Indeed the hospitality and resilience of such a system is low and it is soon over powered by the cascade of new subjects. But since edition 16 (1958) the DDC is marching towards a faceted system. And since the 18th edition (1971) the DDC is heavily equipped not only with many (auxiliary) tables, but also employs synthesis of numbers by various ways through “add to...” instructions from the schedules 000/999 and also with some internal tables here and there. Though its base remains enumerative, yet the class number it can freshly generate outnumber the listed compound subjects. Eric Hunter (2009) terms such system as faceting grafted on an enumerative base. The present DDC is its best example.

Almost-Faceted

Such a system consists of a large schedule enumerating most of the known subjects and of foreseeable future in addition to a few schedules of common and special isolates. Mathematically:

Almost Faceted=Almost Enumerative+A few schedules of special isolates.

Such a classification system also enumerates many compound subjects and a few complex subjects but many more class numbers for such subjects can be constructed.

In the brief line of evolution of library classification systems the UDC (1895/1903) is the first an almost-faceted classification. Apart from separate comprehensive tables of auxiliaries of form, place, ethnic groups, time, language and view point, it has also a series of some special auxiliaries applicable to a specific main class or its divisions. Signs of addition, relation and grouping provide much more synthesis of compound and complex subjects. Number addition Properties, Relations, Number of auxiliaries is increasing as recently common auxiliary schedules of materials and persons have been added.

In such faceted systems the length of schedules reduces but the number of class numbers it can churn out increases enormously. A faceted class number is structured and various facets can be easily recognized.

Another example of such a classification is the *Bibliographic classification* (BC,1944-1953) by H E Bliss (1870-1955). It consists in large general tables listing basic and compound subjects. Its auxiliary tables comprise of form subdivisions, schedules for space, time and language subdivisions. Further it has seven auxiliary schedules of historical and philosophical subdivisions. Here third category of auxiliary schedules is of special isolates of limited application. Indeed the system is resilient and hospitable to relatively micro subjects. Class number is visibly structured and its class numbers are polythetic.

Fully Faceted Classifications

Last in the line of evolution is the fully faceted classification. Mathematically:

Faceted classification=Almost faceted + more and more isolates.

Enumerative < almost enumerative < almost faceted < fully faceted.

In a fully faceted classification there are only basic subjects, schedules of categorised

special isolates under basic classes, and maximum schedules of common isolates. In addition the classification system provides some rules for syntax of facets and a few connecting symbols to connect and distinguish facets from each other to avoid cluttering. Class numbers for compound and complex subjects have to be built according to the rules by classifiers, howsoever simple these might be. Nothing is readymade expect basic classes, thus with a small schedule a huge number of class numbers can be easily built as a child builds different toys with a small meccano kit. Thus a faceted classification is a machine or a process to synthesize class numbers.

Fully faceted = Basic subjects + Special isolates + common isolates

5.5 Evolution of Faceted Systems

But due to pioneering and constant research by S R Ranganathan there has been an evolution in faceted classifications to solve its day to day problems and to make library classification more user friendly and efficient in information retrieval. In his own terminology Ranganathan divides faceted classification into two evolutionary stages:

- 1) Rigidly faceted classification
- 2) Freely faceted classification

Rigidly Faceted

This is a primitive faceted system having all the requisites of a faceted system. The first three editions of the Colon Classification (1933/1939/1950) are termed as rigidly faceted as at this stage facet formula for every subject was predetermined and so was rigid. Even if any of the intervening facet was missing, its absence had to be indicated. Absent facets were indicated by dummy connecting symbols in the CC. Till 1950 Colon (:) was the only connecting digit. For example, take the title "Libraries in India". Here Personality, Matter, and Energy facets are absent, but their absence was shown by colons in their place to make the class number:

2 :: : 44

Here the first colon is for Personality, the second for Matter, and the third of course for the space India 44. Though time facet is also absent but its absence is obvious being the last facet. Such a class number looked unwieldy and cumbersome. A small error on the part of the user in noting the shelf number proved highly troublesome in locating

the book. Also the predetermined and rigid facet formula prevented addition of new facets in compound subjects. Use of Rounds and Levels was not possible. It means hospitality to new subjects was discounted. Ranganathan was on the look for twenty five years for a neat solution to the varying problems.

Freely Faceted

Solution to the problem was found in 1950 by breaking its rigidity and to have a flexible facet formula as per the need of the subject to be classified. It was a sort of a breakthrough to break the rigidity by prescribing a different connecting symbol for each of the category, though space and time category still shared the common connecting symbols that is a dot (.). Later finding some difficulties the Time facet was given an exclusive connecting symbol of inverted comma (‘). This breakthrough was reported in an American publication of 1951 edited by Jesse Shera and M. Egan. From the 4th edition (1952) the CC appeared as a freely faceted system. Thus for the above subject “Libraries in India” the class numbers became 2.44. It automatically shows the absence of all facets except of Space.

Libraries in 20th century

2‘N

Libraries in 20th century India

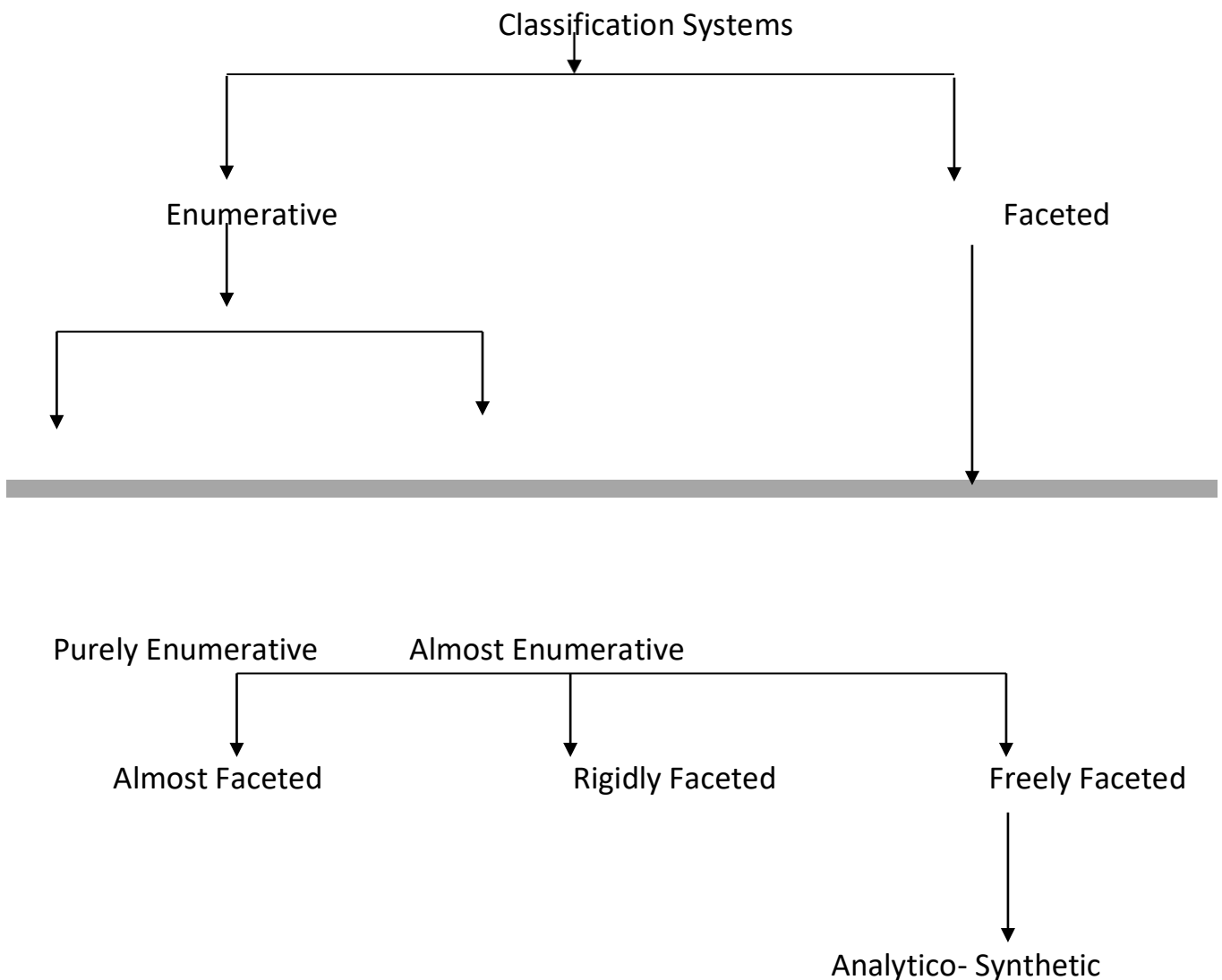
2.44‘N

Thus the facet formula becomes handy, very resilient and accommodative of any number of new facets in the form of Rounds and Levels.

Analytico-Synthetic Classification

Design of a freely faceted classification has been a fairly continued process. In a freely faceted classification there is nothing predetermined about facets, their number and sequence. But it also involves the analysis of subjects into categories and facet sequence has to be determined in the Idea plane based on some clearly stated Postulates and Principles. S R Ranganathan systematically and scholastically has formulated a set of Basic normative principles, canons, postulates and principles for work of analysis, naming concepts and synthesis of class numbers by dividing the whole work in three planes, namely Idea, Verbal and Notational Planes.

Analytico-synthetic classification based on a dynamic theory of classification has essentially to be freely faceted. Usually the two are deemed as two sides of the same coin. It may be stated that the UDC is commonly deemed faceted, but it is not analytico-synthetic in the strict sense. It is synthetic but really not analytical of subjects and it is not based upon postulates. It recognizes no categories of subjects. At the same time, it may be conceded that UDC was freely faceted much before the CC as it prescribes different connecting symbols for each of its auxiliaries. Not only this, it also allows the freedom of choosing the sequence of auxiliaries that is citation order to suit local convenience. It's flexibility is unmatched.



6. Current Thinking

In current classification literature published all over the world Ranganathan's scholastic categories of species of classification are not popular. It could also be due to the fact that his qualifying terms such as almost enumerative or almost faceted are non-scientific. In sciences there is no criterion to measure something "almost". Popularly there are only two categories of enumerative and faceted systems. Enumerative systems are led by Library of Congress Classification while the CC is the aboriginal example of a faceted system. Such scholars also surely include UDC in the category of faceted systems. Nevertheless they accept over the years a third specie has emerged from old systems trying to adopt some of Ranganathan's ideas and methods. It is faceting grafted over an enumerative base. Its best example is the evolution of the DDC especially since its 18th (1971) edition when the number of auxiliary tables was raised to seven in addition to provision of some internal tables of limited applicability here and there. (Now the DDC has only six such tables) Further number of "add to...." provisions is increasing edition by edition. Indeed the DDC, as of now, is a class in itself, Ranganathan's Theory of species of classification notwithstanding.

Comparison :

Here is a student comparison of enumerative and faceted systems:

Enumerative	Faceted
It is primitive/aboriginal	It is modern and emerged later
It is inductive & hierarchical	It is a literal and horizontal in its divisions
Lists past, present and anticipated subjects and their class numbers in hierarchical order	Lists main classes and their concepts divided into various categories and facets
Class numbers are mostly available readymade with some provisions to construct a few more	No class number is readymade, except that of basic subjects or main classes
Class numbers are monolithic, sometimes even the common isolates are undistinguished, e.g. 546.91,503	Class numbers are poly lithic, show the structure of the class number and its various facets, e.g. 2:51.44'N

Chain indexing to derive subject headings from the class number is not that easy	Eminently suitable for chain indexing
Not adept in electronic database searching	Very useful for database and web searching
Comparatively difficult to design but easy to apply	Conversely, easy to design but comparatively deemed difficult to apply
Theory in designing enumerative systems is nominal, even non-existent	Mostly these are based on a sound theory. But Ranganathan's CC goes to the extreme limits to build a minutely thrashed out theory
Physically and textually schedules are bulky and large and with detailed subdivisions. The LCC has more than ten thousand pages.	Schedules are slim and isolates divided into facets are compartmentalized. CC has only 200 pages.
Requires a comprehensive index to locate class numbers for most of the subjects	Dependence on alphabetical index is quite less
Soon overpowered by the emergence	With devices and rules can help to
of new subjects. Frequently requires new editions to specifically classify new subjects	classify new subjects without waiting for the new editions
Soon becomes dated	Ranganathan calls it is a self perpetuating system
Leaves nothing for classifier by way of autonomy or creativity	Provides lot of autonomy to the classifier and leaves lot of space for creativity
These are the systems of past and their application limited only to libraries	These are systems of the future and faceted system can be designed for various industrial products and services. These are quite useful classification systems for warehouses of different goods

However an enumerative system is not all outmoded. For a small and static collection, it is the best system in terms of cost and efforts.

7. Hybrid Systems

Since the invention of the Colon Classification synthesis of class numbers has become a trend. Even the born enumerative and hierarchical systems are now increasingly making provisions for synthesis to provide co-extensive class numbers for micro-subjects: It is done through:

- 1) Provision of more and more general auxiliary tables of form, language, people, places, relations, materials, processes and many more.
- 2) Provision of tables of special subdivisions (internal tables) under different classes e.g. in the DDC a long table of diagnosis and treatment of diseases has been given under 614 diseases. The DDC and UDC now abound in such tables.
- 3) More provisions of synthesis of numbers are made through "Add to ... instructions". It is taking a part or whole of a number from anywhere in the schedules for addition to a base. Such a provision did exist in the DDC since the second edition, yet from the 18th edition (1971) it has increasingly resorted to it to provide specific class numbers. The DDC is the best example of such a trend. With so many synthesis provisions while keeping the base intact makes it a unique but hybrid system. In the future all new systems will invariably be faceted with more and more devices and concepts for resilience and flexibility. But the old systems like the DDC will still continue to invent provisions for adding more facets on the enumerative base. Evolution of classification still continues as predicted by Ranganathan.

8. Categories by medium:

There are two kinds library classifications by media:

1. Online classifications
2. Print classifications

Classification plays an important role in online searching and retrieval. At the same time, computers have enormously facilitated the design and editing of

classification systems. Most of the living classification systems have digitized their print schedules and held them in computers since 1990s. Now their various versions and editions are rather born digital and various versions and products are derived from the databases of classification systems held as electronic files, for e.g. the UDC is now converted into Master Reference File (MRF). The electronic edition of the DDC, now known as WebDewey, is prepared from the DDC database called Editorial Support System (ESS). The electronic editions have many additional features for number locations, number synthesis, have many notes and additional material and facilities not possible in print versions. The print versions derived from the databases are merely discounted versions or toned down versions of the electronic form. The major systems such as the DDC, UDC, LCC are available both as print and electronic versions.

9. Glossary

Enumerative systems : A classification systems which lists in a systematic way all the basic, compound and the complex subjects of the past, present and likely future.

Faceted classification: A classification system which enumerates basic subjects and their sub-divisions divided into facets in addition to some common sub-divisions separately. It provides syntactical rules for their combination to synthesize (construct) compound and complex subjects. Current trend in classification is towards finely faceted systems.

Hybrid systems: A new breed of classification systems with enumerative antecedents acquiring features and facilities of a faceted system. The current edition of the DDC falls in this category.

Knowledge classification: A classification and mapping of the universe of knowledge to study its evolution and cognitive structure. It is a province of philosophers and scientists. Modern library classifications are based on knowledge classifications. Knowledge classifications are mostly enumerative in nature.

Species: (plural unchanged) A group of bio entities with a same genus and who can interbreed among themselves. The term has been used by Ranganathan to designate various stages of development of Library Classification in its march towards refinement and sophistication.

Taxonomy: Generally, science of classifying and naming living organisms. Scientific

classifications are taxonomic.

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