Universal Decimal Classification and Colon Classification: Their mutual impact

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Universal Decimal Classification (UDC), being a predecessor of Colon Classification (CC), had impacts on CC in various ways – directly as well as indirectly. But surprisingly CC too made an impact on UDC in various ways during its revision process. The paper discusses how these two classification schemes have influenced each other in different spheres.

Keywords: Universal Decimal Classification; Colon Classification; Faceted Classification; Generalia Class; Indicator digit; Notation; Common isolate; Phase relation; Agglomerate

Introduction

Ranganathan traced the development of bibliographic classification schemes in three major periods, viz., Pre-Facet Period (1876-1896), Transition-to-Facet Period (1897-1932) and Facet Period (1933-1975). The main achievements of the Transition-to-Facet Period, according to him were:

- Venture into the work of arranging in a helpful sequence the main entries in periodicals – micro documents embodying micro thought as we call them;
- (2) Venture into pulling out of some of the subjects certain facets such as Time Facet and Space Facet capable of getting attached to any Host Class whatever and also another kind of facet – called Analytical Divisions (i.e. special auxiliary divisions) – capable of getting attached to any host class falling within the area of a single Main Class; and
- (3) Venture into the use of mixed notation not for lengthening the base of the notation but for use as distinctive Connecting Symbols for the different kinds of facets.

Ranganathan also identified Universal Decimal Classification (UDC) as the pioneering scheme of this triple venture¹. Thus it is evident that the concept of faceted classification began with UDC. It was developed initially by Henry la Fontaine and Paul Otlet and later by Donker Duyvis by grafting some facets through auxiliaries over the rigid DC structure.

On the other hand, Colon Classification (CC) is the product of Facet Period, in which different facets have been identified in every main class or basic subject and a schedule has been provided for each facet. Ranganathan, however, made continuous efforts over several decades to remove rigidities of different kinds that the scheme was suffering from and finally it became a freely faceted classification scheme.

Evidently, UDC being a predecessor of CC, had impacts on CC – both directly as well as indirectly. But surprisingly, CC too made an impact on UDC in various ways during its revision process. Mcllwaine has observed that "the scheme (i.e. UDC) exerted a strong influence upon the Colon Classification" and that "for some years Ranganathan worked on the UDC while he was living in Switzerland after the Second World War, so it was a two-way process"². The mutual impact of these two faceted classification schemes has been discussed in the following sections.

Overall structure

DDC, the first universal library classification scheme, is an enumerative classification scheme having a monolithic structure, which has often resulted in freezing of a facet after enumeration up to a certain extent. Moreover, it often enumerated even compound subjects as there was no scope for joining numbers to represent compound subjects. UDC did start with a monolithic structure, but it also had a large number of common auxiliary tables and the liberty to combine numbers from different schedules/tables. Thus the idea of facets, though of an elementary kind, was embedded in UDC. Recalling about his study of UDC structure, Ranganathan himself said that there was "no doubt UDC had introduced a dash of analytico-synthetic element. But it was too slight and too overshadowed by the massiveness of the enumerative element of its

DC core"³. This indicates that Ranganathan had become aware of the benefits of faceted or polylithic structure of a universal classification scheme and adopted such a structure in the very first edition of CC, its core schedules not having enumerated any compound subject.

Main class structure

While UDC main class structure is based on DDC main class structure, CC decided the structure of its main classes following some principles, such as Principle of Increasing Concreteness in science subjects and the Principle of Increasing Artificiality in humanities and social science subjects. Obviously, the collocation of basic subjects is poor in UDC, as in DDC, while that of CC is much better on this account. However, in Universal Decimal Classification, International Medium Edition, English Text (1985) [UDC(M)] one of the much criticized distance between Literature and Language classes was removed by placing Language along with Literature. This collocation of Literature and Language reflects the collocation of the two basic subjects as found in CC. Possibly the decision of UDC to bring Literature and Language at one place in UDC(M) has been inspired by the collocation of these basic subjects in CC.

Generalia class

Generalia class had originally been created in DDC to accommodate all such documents which could not be placed in any specific main class or basic subject. Both UDC and CC made provision for Generalia class. But nature of the class differs in the two schemes. While Generalities (i.e. Generalia) class of UDC, like DDC, includes Generalia approach materials, such as dictionaries, encyclopedias, etc., and even some basic subjects like Librarianship, Journalism, etc., the Generalia class of CC covers Generalia relating to place and person (e.g. z44 Indology, zG Gandhiana, etc.) as also Generalia approach materials. In UDC it was not possible to properly classify documents on Generalia relating to place and person earlier. Possibly to obviate this type of problem, UDC(M) mooted the idea of Independent Auxiliaries i.e. auxiliaries which can serve independently as class numbers or can be the first facet in a class number, e.g. (54) Indology, "18" Nineteenth Century Studies, etc. Thus the influence of CC is quite visible here.

Indicator digit

The symbol colon (:) was first used by UDC as an indicator digit for representing both facet relation and phase relation. Though the idea of faceted classification was conceived by Ranganathan while witnessing a demonstration of a Meccano set at the famous Selfridges departmental store in London, the choice of colon (:) as the symbol which can serve as the nut-and-bolt to join the isolate numbers of components of a specific subject seems to have been inspired by the use of that symbol in UDC. It may be mentioned that while in London, Ranganathan had made a study of the existing classification schemes, under the well-known teacher of library classification, Charles Berwick Sayers, and as such he must have come across this symbol being used in UDC and found it appropriate for use in his scheme. Mcllwaine has corroborated this view when he said. "it was the use of colon in the UDC that suggested the use of the same symbol to Ranganathan"⁴.

Notation

Notation is possibly the most important aspect of any library classification scheme as without notation a scheme cannot fulfil the purposes of classification. DDC used Indo-Arabic numerals and decimal device for division and sub-division. UDC also took up the same notational system, but used a large number of indicator digits, which gave it a bit of versatility. But still it was not possible to have more than ten divisions in an array. The limitations noticed in the notational systems of DDC and UDC prompted Ranganathan to find a notational system free of such rigidities to be used in his classification system (i.e. CC). Consequently, he opted for mixed notation with a longer base and also tried to find devices for extending the length of an array. His efforts resulted in enunciation of empty digit device, emptying digit device and empty-emptying digit device. Interestingly, in 1948, FID adopted Octave Device (predecessor to sector device and empty digit device) for use in UDC, as suggested by Ranganathan himself in Brussels International Congress of Libraries and Documentation Centres (1955)⁵⁻⁶. However, this device seems to have been used in UDC only in a limited manner. The following examples illustrate its use in Universal Decimal Classification, Standard Edition (2005) [UDC(S)]:

(1) 392 = Customs, manners, usage in private life 392.89 = Cannibalism 392.91 = Names

- (2) 535-7 = Totally reflected light 535-91 = Reflected light
 - 535-94 = Refracted light

(Note: In both the cases digit 9 does not indicate any subdivision because it has been treated as an octavising digit)

Common isolates

A Common Sub-Division is one which can be a subdivision of many basic subjects. Ranganathan termed it as Common Isolate and defined it 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 go"⁷. Such subdivisions first appeared in Expansive Classification of C A Cutter. Eric de Grolier has observed that "we are undoubtedly indebted to Cutter for the first so called 'common subdivisions' separated from the table of general divisions, which he used to indicate literary forms and to which is added what he referred to as the 'local list', i.e., a list of geographical divisions, applying to any subject"⁸. UDC called such subdivisions as common auxiliaries and provided a large number of common auxiliary tables. Ranganathan must have made a thorough study of common subdivisions in different classification schemes, including those of UDC, and his critical mind could identify two types of common isolates - Anteriorising Common Isolates and Posteriorising Common Isolates. He was the first person to conceive the idea of anteriorising common isolates and make provision for such isolates in CC by postulating anteriorising value to the digits (Roman small letters) used to indicate approach materials. Anteriorising common isolates help in placing approach materials like bibliography, encyclopedia, etc. before other documents on a subject. The helpfulness of keeping the approach materials before "positive expository documents on a subject", as visualized by Ranganathan, was confirmed in 1954 at the FID Congress held in Belgrade while he was communicating with non-librarian specialist readers of western countries. On being requested by the members of FID Classification Group present in the congress, Ranganathan suggested postulation of the digit pair '(0' in UDC to have anteriorising value for indicating anteriorising common auxiliaries⁹. However, his suggestion was not implemented at that time. It is only through the provision of 'independent

auxiliaries' in UDC(M) that it has now become possible to bring approach materials before the books on a subject. The experts responsible for revising UDC virtually postulated, in the line of CC, the idea of 'independent auxiliaries', though conceptually an auxiliary can never be independent.

Posteriorising Common Isolates

UDC in its earlier editions had enumerated property sub-divisions, material sub-divisions and process and operation subdivisions under some main classes as special auxiliaries. CC too had enumerated these isolates as special isolates under different basic subjects. However, during 1970s Ranganathan and his associates could identify common matter property isolates and common energy isolates which can become components of many subjects and consequently these were incorporated in Colon Classification, Ed. 7 (1987) (CC7). Possibly, this development had an impact on UDC which is evident from the fact that UDC(S) incorporated common auxiliaries of Property (-02), and common auxiliaries of Processes and Operations (-04), which are analogous to Common Matter Property isolates and Common Energy isolates of CC.

Time Isolates

Both UDC and CC enumerated time isolates, but UDC made so more elaborately. One of the provisions in UDC relates to provision of indicating a period of time, e.g. "1991/1999". But such provision was not available in CC. It is possible that to improve the provisions of time isolates in the line of UDC, Ranganathan evolved a method of showing a period of time with the help a backward arrow, e.g. N95 \leftarrow N86 (i.e. from 1986 to 1995).

Devices for sharpening of foci

Ranganathan had introduced several devices for formation and sharpening of foci like Chronological Device, Geographical Device, Subject Device, Alphabetical Device and Superimposition Device. All these devices, except Superimposition Device, were unconsciously being used in UDC with the help of common auxiliaries and relation symbol colon. Possibly realizing the utility of these devices being used in UDC, Ranganathan picked up the idea and refined it for use in his CC. But his Superimposition Device (now a kind of Speciator Device), which consists of connecting isolate numbers of two enumerated isolate ideas in the same facet by a

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hyphen (-) to denote another isolate idea not enumerated in the schedule, did influence UDC(M), which adopted it in the newly introduced common auxiliaries of Materials and Persons, e.g. -055.52-055.1 (i.e. Father, derived by superimposing -055.52 Parents and -055.1 Male).

Phase relation

The concept of 'Phase Relation' is often associated with Ranganathan as it was he who used the term 'phase' for the first time in Colon Classification, Ed. 3 (1948) (CC3), to indicate each constituent of a specific subject formed by two simple/compound subjects and also the term 'phase relation' in Colon Classification, Ed. 5 (1957) (CC5) to indicate various types of relations between the constituents of twophased subjects¹⁰. But the idea of phase relation appeared much earlier, possibly in 1899, when UDC started coming out in parts. UDC introduced this concept through its symbol ':' (colon), which represented a general relationship. Eric de Grolier suggested a method to show different types of relationships in UDC like Appurtenance, Process, Dependence, Orientation and Comparison and suggested use of diversely oriented arrows as indicator digits. But his suggestions were not accepted fearing complication in the use of such classification numbers¹¹. Thus for UDC it was only possible to show that two subjects were related but the type of relationship could not be shown. UDC(M) clearly admitted this shortcoming thus: "When UDC numbers are linked by colon, it merely shows that the subjects denoted by the numbers are related to each other in some way; it does not specify which influences the other(s), nor show the nature of the influence exerted - in short, it does not denote the phase of the relation"¹². Ranganathan gave the idea of phase relation a concrete shape and developed it to a finer degree. He could identify three levels and six types of relationships. The three levels are Inter-Subject, Intra-Array and Intra-Facet and the six types of relationships are General, Biasing, Influencing, Comparison, Difference and Tool. It may be mentioned here that among these relationships general relation does not indicate any specific relation at all, while difference relation is only an extension of comparison relation since difference can be discerned only through comparison¹³. Thus there are only four main types of relationships - Biasing, Influencing, Comparison and Tool. Interestingly, in UDC(S) these four types of relationships, have been recognized as common auxiliaries. Thus different types of phase relation can now be shown in the following manner:

- > 17:7 Ethics in relations to art (General relation)
- 514.11-042.1:62 Engineering geometry (Biasing relation)
- 234-042.2:24 Comparison between Jainism and Buddhism (Comparison relation)
- 37-042.3:32 Influence of politics on education (Influencing relation)
- 37-042.4:004.38 Use of computers in education (Tool phase relation)

There is no doubt that this development is the result of the impact of CC.

Agglomerate basic subjects

An agglomerate basic subject (earlier called partial comprehension) consists of more than one subject treated integrally or disjunctively in one and the same document¹⁴. Two kinds of agglomerate basic subjects have been identified - Kind-1 that comprehends primary basic subjects appearing consecutively in a classification scheme, and Kind-2 that comprehends primary basic subjects not appearing consecutively in a classification scheme. UDC from the very beginning made provision for constructing class numbers for agglomerate subjects by using stroke (/) sign for agglomerates of kind-1 and plus (+) sign for agglomerates of kind-2, besides enumerating some agglomerates as main subjects. On the other hand, Ranganathan had only enumerated some agglomerates in Colon Classification, Ed.1 (1933) (CC1). But gradually he could realize that some device was needed for interpolating agglomerates without disturbing the existing order of basic subjects, possibly being influenced by the provisions in UDC, and decided to use some Greek letters for denoting class numbers of agglomerates. But this provision created problems of typing as also in determining the order of the agglomerate basic subjects vis-à-vis the order of other basic subjects. He then discarded use of Greek letters and instead used the digit Z as emptying digit for interpolation of agglomerates (e.g. SZ Social Sciences). Later, he prescribed the use of '*Z' (asterisk followed by Z) for this purpose and postulated asterisks (*) as having anteriorising value (e.g. K*Z Animal Sciences). This device has been widely used in CC7. Thus CC could find the way to denote any number of agglomerates like UDC, but of course CC is still unable to denote agglomerates of kind-2.

Conclusion

It is true that practical use of CC in libraries is going down because of various reasons, but the sound theory formulated by Ranganathan on which it is based, not only helps in designing new faceted classification schemes but also revising the existing ones. Langridge has rightly pointed out that "previous knowledge of CC can be of great assistance in understanding the faults [of existing classification schemes] and in compensating for the deficiencies"¹⁵. The experts responsible for revision of both Bliss's Bibliographic Classification and Universal Decimal Classification seem to have kept in view the theory propounded and applied in CC by Ranganathan and have thus been able to enormously improve these schemes.

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