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# Modern Development of Classification

## Research and Practice in the People's Republic of China

Xiao, Yan: **Modern development of classification.** Research and practice in the People's Republic of China.
Int.Classif. 19(1992)No.1, p.10-14, 32 refs.
A review and prospect of modern classification research and practice in the PR China. Gives a systematic description of the evolution in methodology, scope and orientation of classification research, with special emphasis being put on the influence of Colon Classification (CC) and the principle of facet analysis and synthesis established by Dr.S.R.Ranganathan as well as on the achievements made by Chinese scholars and experts in designing classification schemes.          (Author)

## 1.Introduction

As one of the immortals of library science, Dr.S.R.Ranganathan has made most far-reaching contributions to the theory and practice of library science in general and classification in particular. Owing to his pioneer work, Colon Classification (CC) and a body of classification theory have provided a viable method and a framework for the creation of new classification schemes and become the foundation of knowledge organization in the twentieth century. The tremendous influence made by him is not only felt in the advancement of some well-known classification schemes such as DDC, UDC, BC, etc., but is also attested to by the modern development of classification research and practice in the PR China.

This article is an attempt to describe to what extent the principle of facet analysis and synthesis established by Ranganathan has been accepted by Chinese scholars and experts, as well as how it has influenced the course of classification research and practice in the PRC. On the basis of retrospective search and documents analysis, it is attempted to present here an outline of the chronological evolution and related judgments. It is also hoped that the article will serve as a vehicle to express my heartfelt respects for Ranganathan.

## 2. Tradition and Background

Classification has been regarded as the most dominant approach for knowlege organization in China since ancient time. Centuries of accumulated experience in classification have laid a firm background for the theory and practice of bibliographic classification. For obvious reasons, the history of ancient classification will be skipped. However, it should be borne in mind that the arrangement of books on shelves were based for many years on such characteristics as the size or the physical nature of the book. The situation was not changed until the first decade of the twentieth century, when the DDC was introduced into China and soon became the model for modern Chinese classification schemes ever since. From 1910-1949, dozens of classification schemes were worked out by Chinese scholars and experts, but theory-oriented research on modern classification is very scarce. Most articles published then were superficial in content.

In 1949, after the establishment of the PR China, as a result of sweeping changes of the political, economic and cultural spheres of social life the classification schemes used in the past proved to be unsuitable for modern Chinese literatures. As a result more than a hundred entirely new general and specific classification schemes have been designed (1). However, most of the classification schemes compiled since then are of a general nature and belong to pure enumerative systems, except the Chinese Library Classification (CLC) and its variant edition, the Chinese Documentation Classification (CDC), which, first published in 1975, are now the most widely used general classification schemes in China.

Along with the designing and utilization of the new classification schemes, research on the theory and practice of classification, including traditional and modern ones, is expanding constantly. But it has taken a long time for the research on CC and the theory of facet analysis and synthesis to become an indispensible part of modern developments in this field. The detailed descriptions are as follows.

## 3. Evolution and Development

The development of research on CC as well as the theory of facet analysis and synthesis can be divided into three stages as follows: Looking back at the related facts, we can describe Ranganathan's contribution to and influence on modern classification theory and practice in the PR China as follows.

### 3.1 Starting period (1950-1970)

During the first ten years (1950-1960) the main emphasis was put on the review of principles followed by compilers of classification schemes. The articles published in this period gave prominence to the political bias, the balance of scientific and pragmatic functions, the

logical rules relating to the enumeration of classes of things and ideas as well as their further subdivision, etc. The efficient organization and retrieval of documents and the techniques for the accomodation of new subjects were generally neglected. The inevitable result of this approach was that the inherent contradictions of traditional enumerative classification schemes could not disappear through the efforts to set up many regulations and restrictions. Hence in the efforts to solve this problem, CC with its distinctive theory, methodology and function drew the attention of the Chinese library scientists.

The studies on CC can be traced back to 1957, when Professor Guojun Liu (1899-1980) of Beijing University wrote an article on the development, basic concepts, structure and utilization of CC (2). At the same time, an essay by Ranganathan entitled "Colon Classification and its Application to Documentation" was translated into Chinese (3). But owing to the political bias and the strong influence of tradition, especially the influence of political movements such as the great Cultural Revolution, most scholars did not show enough interest in CC. Original research was therefore carried out only on a small scale. This can be illustrted by the fact that, whereas their foreign counterparts studied CC and the related theory on a grand and spectacular scale, the aforementioned two articles are the only ones published in the PR China before 1970 on this subject.

Another relevant feature in this period was the approval of the notation techniques used by CC. During the early 1960s, the Library Science Department of Beijing University (now the Library and Information Science Department) offered a course of lectures on library science, which was sponsored by Professor Guojun Liu. The introduction and comments on CC as well as facet analysis and synthesis theory were given equal position as DDC, EC, UDC, SC, BC, and LCC in the course. The attitude towards CC shown by Prof.Guojun Liu's comments is a mixed one: while laying undue stress on the contribution of the faceted notation devices and the facet analysis-synthesis theory to classification theory and techniques he also criticized the idealist tendency in the ordering of the main classes and the not readily understandable terminology. Despite the slowness and limitations of the research conducted then, what was done during this period laid a basis for further developments and provided some new standards for the review and different approaches for the design of new classification schemes.

## 3.2 Development Period (1971-1977)

A substantial development influenced by CC took place during the first 5 years of this period.

In 1971, many libraries which had been at a standstill since the Great Cultural Revolution resumed providing normal service. The crucial problem encountered was the processing of a great number of books and writings. This led to an urgent appeal to compile new classification schemes. Thus scholars from the National Library of

Beijing and 35 other libraries (including 29 public libraries, 5 academic libraries and 1 research library) started to compile a unified classification system - the Chinese Library Classification (CLC).

Through serious discussion and investigation, some approaches differing from that used in traditional enumerative classification schemes were adopted and provided some flexibility for several kinds of synthetic devices. For example:

(1) the subdivisions of the main tables were combined with the subdivisions of a great number of auxiliary tables both general and special.

(2) The multi-character of things was used to enumerate subsections at the same level. This in fact is a variant method of facet analysis and synthesis.

(3) ":" was used to provide a synthetic access when there is a need to connect two terms enumerated separately under different subclasses.

(4) The Octave Device was used to express arrays which are too long to be represented by decimal numbers.

Although these approaches were restricted to only a few places when the CLC was first published in 1975, they did mark the beginning of a new stage, namely the making use of a faceted approach in enumerative systems within a limited scope.

Compared with developments in the design of classification schemes, the research on the theory of facet analysis and synthesis was still backward during this period. Almost all articles published at this time were on the explanation and utilization of CLC. But objectively speaking, through the popularization of CLC, not only the advantages of synthetic devices were realized by more and more professional librarians and information specialists, but also the utilization of synthetic devices became a part of classifying practice in China. Since then, more attention has been paid to CC and its theory as well as to the related advances made in this field all over the world.

## 3.3 Flourishing period (1978- )

This period can be divided into three phases, which constitute the main parts of modern developments in classification research and practice.

### 3.3.1 Principle-oriented research

From 1978-1983, following the reform and ideological evolution of Chinese society, there was a great upsurge in comments and introduction of the CC and the facet analysis-synthesis principle. Many a journal either on library and information science or on other fields published a large number of articles on modern classification. Among these, the first one to be mentioned is the article "Comments on Major Classification Schemes used by the Western Countries in Modern Times" by Prof.Guojun Liu. Resulting from amending and supplementing his lecture notes of the 1960s, it was first published in instalments as a special contribution in the *Journal of the*

*Social Science Front* in 1978 and late in 1980 published once again as a monograph of the *Series of the Social Science Front* (4). Another important fact is that a monograph written by M.S.Sachdeva, entitled "The Colon Classification; Theory and Practice" was translated and published in instalments in the *Library Journal of Fujian* from 1982-1983 (5). At the same time some more introductory articles on CC and other faceted classifications came out, such as "Brief Introduction to CC" (6), "Brief Introduction to Faceted Classification" (7), "Introduction to Synthetic Classification Systems" (8), etc.. They served as a new enlightenment that freed some people from prejudices against faceted classification. Moreover, some articles published at this time suggested a further development of research on the subject. Pertinent examples are:

(1) *"On the Present Trend of Western Classification"* by Prof.Guojun Liu. In this work, starting from the introduction on revision of traditional classification schemes such as UDC, DDC, BC, etc., a series of research work carried out by members of the Classification Research Group (CRG), Classification Research Study Group (CRSG), the Classification Research Circle (CRC) were given thorough approval (9).

(2) *"Analysis on the Influence and Achievements of the CC - with Consideration of the Limitations of Enumerative Classification"* by Yun Xia and Yuan Zhou. On the basis of an introduction to and analysis of the CC, the authors stress that there is no other remedy for defects of traditional enumerative classification schemes but to adopt the faceted devices (10).

(3) *"On the Contradiction of Concentration and Dispersion in Enumerative Classification"* by Qiyu Zhang. Starting from an analysis of the causes which arouse contradictions, the attention focus was on improving the efficiency of document retrieval. The author aimed at adopting some devices to improve the retrieval efficiency of enumerative classification. Nine preliminary plans, including the adoption of the direct synthetic device of a class number, were put forward (11).

(4) *"Tentative Study on Concept Analysis"* by Chenggui Li, in which the principle of facet analysis established by Ranganathan was given thorough approval and some factors which influence the concept analysis were discussed (12).

All the articles mentioned above suggest that instead of putting criticism in the first place, the scholars and experts in the PRC have accepted in general the facet-analysis and synthetic policy and are prepared to use it in their work.

### 3.3.2 Combination of Practice and Theory

From 1983-1987, along with the preparative work for the third revised edition of the CLC, the research went into a new stage. Through years of utilization of the CLC, most library scientists agreed that although the CLC had been widely used after the revision of 1980 and had become a trial edition of the State Standard Classification of China, the scheme was too rigid to meet the demands of new subjects that had come into existence. So there was a need to change the situation. There were many preliminary plans put forward during the first two years on how to improve and enlarge flexibility in combining concepts:

In order to lay a strong foundation for revision of the CLC, in May 1985, the Symposium on Revision of the CLC was jointly sponsored by the Editorial Committee of the CLC, the National Society of Library Science, and the National Society of Information Science. 64 scholars from all around the country took part in this meeting. There were two topics for discussion: first, the application of synthetic devices in enumerative classification schemes, in the concrete, how to promote the CLC and its variant CDC developing in this direction; second, how to deal with the arrangement of the continuous stream of new subjects.

Through serious discussions, most scholars and experts came to share the view that it is necessary to adopt synthetic devices in the CLC and CC, but there should be some different procedures according to the respective functions of the schemes (13).

Nearly at the same time, the Chinese translation of "The Colon Classification; its Theory and Practice" by M.S.Sachdeva came into Being as an individual book (14). Late in 1986, the first monograph written by 2 Chinese scholars on the CC and entitled: "The Explanation of the CC and its Schedule" was published (15). Besides, the number of articles published on facet analysis and synthetic policy as well as their utilization in CLC, CDC and thesauri was greater than at any time before. In the following, a few representative ones are listed:

(1) *"Exploration on the Possibility and Methods for Extending Synthetic Devices in CLC"* (16).

(2) *"Making the Pragmatic Principle a Basic Principle in the Adoption of Synthetic Devices in CLC"* (17).

(3) *"Increasing the Retrieval Efficiency of CDC by the Use of Synthetic Devices"* (18).

(4) *"Facet Analysis and Indexing Language"* (19).

(5) *"Research on the Theory and Practice of Facet Analysis"* (20).

(6) *"On the Application of Facet Analysis in Thesaurus Design"* (21).

When the revision of CLC-3 and CDC-3, both published in 1990, was finalized in 1988, this revision, which had lasted more than five years, was brought to a temporary close. Although the changes were not as radical as some people had hoped, they did extend the utilization of synthetic devices to varying degrees. For example:

(1) in CLC, 22 new special auxiliary tables were offered, thereby increasing, together with the former ones, the number of special auxiliary tables serving as synthetic elements in various places of the schedule to 39.

(2) The classes allowed to make use of ":" as a

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coordinated code in CLC were increased from 19 to 32. Here, as well as in CDC, the classificationist can freely adopt this device whenever necessary to express a complex subject.

What should be noted is that owing to the enumerative system unchanged in general, it seems that both CLC-3 and CDC-3 are nothing more than a mixture of desire for change and long existing traditional bias.

### 3.3.3 Review, Comparison and Various Directions

After the revised schedule of CLC-3 selectively published in 1988, the enthusiasm for research of the facet analysis and synthetic policy did not drop down. From 1988-1991, a large amount of reviews were published on the revision of classification schemes, either Chinese or foreign ones. Compared with the review before, they show more systematic and profound features.

First of all, the review of foreign classification schemes concentrated on the facet oriented transformation of UDC, DC, BC, etc.. Apart from some translated reviews existing on CC-7 and DDC-20, many articles were written by Chinese scholars. In the following some examples:

(1) *"Review of BC2"* (22)

(2) *"Study of the Notation System of the BSO"* (23)

(3) *"Review of the BSO"* (24)

(4) *"From an Enumerative System to a Faceted Synthetic System - A Tentative Research on Facet-Oriented Transformation of BC"* (25).

On the basis of systematic research of foreign classification, a comparative method was adopted to look for the advantages or disadvantages of some classification schemes. In this respect, the following articles are worth mentioning:

(1) *"Looking at the Features of the CLC-3 from the point of view of the UDC."* The author indicated that in comparison with the UDC, CLC-3 could not be said to have the general character of an enumerative and synthetic classification, and the future development should follow the pattern of the UDC (26).

(2) *"Inspecting the Direction of Classification Research in the PRC from the point of view of the UNESCO Thesaurus"*. In this essay, the result of a comparison, the author suggested to take as focal points of indexing language research the improvement and creation of classification schemes and to stick to the combination of the enumerative method with synthetic devices (27).

(3) *"On the design of a New General Auxiliary Table for the CDC"*. Through the analysis of auxiliary tables of the UDC, DDC, and BC, new policy and methods to be adopted in the design of a general auxiliary table of the CDC were described. (28)

(4) *"Review and Study of the Background of an Auxiliary Table for Literature Dealing with Specific Themes and Subjects of CLC form the Literature Schedule of DDC"*, in which the property, function and formation of

a newly established auxiliary table for literature in CLC were discussed and full approval was given to the creative work of the DDC (29).

Through comparative research, more and more people see clearly the disadvantages of purely or basically enumerative classification schemes and make many attempts to solve the problems appearing.

In 1989, there was a suggestion to adopt the phase notation device formulated by Ranganathan to settle the interpolation of a new general subject, or a new series of terms representing a new dimension (30). In 1990, the utilization of a self-made faceted schedule for indexing and retrieval of documents in the field of Law was introduced (31). Furthermore, at the end of 1990, the Fifth Subcommittee of the *Committee on National Standardization of Documentation Activities* made a proposal to convene a "Symposium on the Facet-Oriented Transformation of the CDC". According to the call for papers, the following topics were emphasized:

(1) Review of the theory and practice of a facet-oriented transformation of foreign classification schemes.

(2) Methods to remould the schedule of the CDC according to facet theory.

(3) Research on the notation system of the CDC.

(4) Synthetic symbol and rule, especially the rule for synthesis when ":" is used as the coordinating code.

(5) The design of auxiliary tables.

From the above we can see the clue of a new trend: the general classification schemes used in the PRC, such as CLC and CDC, will become more faceted in the next edition, and sooner or later the new facet synthetic classification schemes used in special fields will emerge as time requires. What should also be noted here is the work of the *National Institute for Coding and Classifying of Standardization Information* established in 1988, which will play a more important part in this field.

### 4. Conclusion

As indicated above, we can draw a conclusion that started from a brief introduction of the CC more than 30 years ago: the research on facet analysis and synthetic theory, which has been demonstrated in CC and a series of works by Ranganathan, has become an important part of modern Chinese development of classification. The evolution is of special significance for China as one of the countries with an age-old tradition in classification.

Although the transformation in the direction of a fully faceted synthetic approach in classification revision seems to be in a state in which conflicting purposes and methods still confront Chinese scholars with baffling problems, it is quite apparent that various attempts which have been made in this direction should be taken as a component part of the worldwide research on the CC and its facet analysis-synthesis theory.

Considering the need for more flexibility in indexing and retrieval of information as well as the experience of knowledge organization, we must do our utmost to keep-up with the unpredictable way in which a subject would be formed. Imagining this led to the design of the CC nearly 60 years ago, now it is the dynamics spurring us onto a deepening of present research and practice. I would like to quote the words of Dr. Dahlberg: "We still have not fully considered and digested the wealth of ideas in classification which Ranganathan left us" (32), and say with confidence that with the lapse of time the situation will be changed through the joint efforts of scholars and experts from all over the world.

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