Cataloging of Chinese Language Materials in the Digital Era: The Cataloging Standards and Practices in China, Taiwan and Hong Kong

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【摘要】
在香港由於中文資料編目工作的合作僅限於八所政府資助大學的圖書館，因此每一篇中文書目的平均編目成本較英文書目昂貴很多。港中台三地圖書館之間幾乎沒有中文編目合作與共享之案例，其中主要障礙之一是彼此編目規則及標準各不相同。本文強調合作編目及書目共享的重要，同時認為必須要有一致的編目標準，才能達到編目共建共享的目的。本文概述港中台三地中文資料編目的規則與實施，然後就未來中文編目記錄共享的發展提出建議。

【Abstract】
In Hong Kong, cataloging of Chinese language materials is more costly than that of English language materials because the major sharing of cataloging work of Chinese language materials is limited to the eight government-funded universities. There is little sharing of bibliographic records among libraries in China, Taiwan and Hong Kong. One main reason is the different cataloging rules and practices in these three places. This paper stresses the importance of sharing cataloging work and the need of standardization to make this sharing possible. It provides an overview of the cataloging rules and practices in China, Taiwan and Hong Kong and also gives some thoughts on future directions to enhance sharing of bibliographic data among different Chinese communities.

INTRODUCTION
The cost of cataloging library materials has always been expensive. In Hong Kong, cataloging of Chinese language materials is even more costly than that of English language materials. One main reason is that a large percentage of English materials are shared cataloged by libraries in the U.S. and in many other countries all over the world, while this is not the case for Chinese language materials. The continuous growth of the number of Chinese language materials purchased by many libraries in Hong Kong has also posed great challenge to the cataloging departments. For example, in 1996-97, 23% of the books received by the Cataloging Section of the Run Run Shaw Library, City University of Hong Kong (hereafter referred to as CityU Library), were in Chinese language. In the eight years since then, the percentage of Chinese books received has increased to 29% in 2000-01 and 48% in 2004-05.
Although most academic libraries in Hong Kong have been participating in global cooperative cataloging activities and they have contributed records of Chinese language materials to the OCLC WorldCAT database, for many of these libraries, a large portion of Chinese language materials still need to be originally cataloged. In CityU Library, for example, 40% of the Chinese printed materials and 90% of the Chinese electronic materials cannot be found in any other bibliographic utilities and original cataloging is needed. Indeed, most of these Chinese language materials are published in China and Taiwan, and much cataloging effort can be saved if bibliographic data in these places can be used. However, there are little or even no sharing of bibliographic records among libraries in China, Taiwan and Hong Kong.

This paper aims to study the different cataloging rules and practices in China, Taiwan and Hong Kong and to provide a general picture of these developments in the last few decades especially to audience who know little about but are interested in this topic. It also gives some thoughts on future directions to enhance sharing of bibliographic data among different Chinese communities. Although some reviews of rules and practices of cataloging Chinese materials do exist in the literature, these reviews mainly focus on one or two aspects, such as on classification & subject headings (Yu and Yuan, 2001), machine readable formats (Wang, 2001) or authority control (Hu, Tam and Lo, 2004), rather than on multi-aspects of cataloging. Even though some other research may deal with different areas of cataloging (Liu and Shen, 2002), nearly no paper looks into the practices in all these three Chinese communities.

Based on literature review, this paper first explains the need for cooperative cataloging and the cataloging principles and standardization required for sharing of bibliographical information. Then, a comprehensive view of the cataloging rules and practices in China, Taiwan and Hong Kong will be provided so that the feasibility of cooperative cataloging between these three places can be considered and future directions can be proposed. Interviews with four libraries in these three places were also carried out to provide concrete examples for some of the findings in the literature [1].

**COOPERATIVE CATALOGING & STANDARDIZATION**

**The Need for Cooperative Cataloging**

With budget cut and the enormous amount of digital resources collected in many libraries, there has been debate on how the limited library resources should be allocated to cataloging and classification of library materials, including materials in electronic formats. Traditional cataloging is costly and labor intensive, and cooperative cataloging is a way to reduce the amount of original cataloging. Through sharing of cataloging work and reuse of records created by other libraries, cost can be cut and redundancy of cataloging the same copy by different libraries can be reduced.

In a paper on the establishment of the Library of Congress Program for Cooperative Cataloging (PCC), the benefits of cooperative cataloging were stressed. They are: more dependable, efficient, timely and cost-effective cataloging, better problem-solving through networking, greater influence on national and international cataloging policies and the ability to free up highly trained catalogers to explore new avenues of access (Beacher, W., 1998). Cooperative and centralized cataloging is also a must for larger scale of shared purchase and interlibrary lending, which has become the solution in response to the tight budget and limited space for library storage (Tillett, 1993). Besides, contribution of the bibliographic data of a country’s resources to an international bibliographic utility can also make these resources known to the world and provides opportunity for interested scholars and researchers to use these resources (Niu, 2002).
Cataloging Principles towards Global Bibliographic Control

To enhance successful sharing of bibliographic data in an international scale, IFLA (International Federation of Library Association) has led the way to work towards greater global standardization. In 1998, IFLA offered a conceptual model of the bibliographic universe, the Functional Requirements for Bibliographic Records (FRBR), which describes the entities in this universe, their attributes and relationships. It reiterates the importance of bibliographic relationships to collocate the “works” and “expressions” associated with a person or a corporate body. It also reminds us that users come first and that we catalog in order to meet specific user tasks to “find”, “identify”, “select”, “obtain” and “relate” (Tillett, 2004). The conceptual model was later extended to cover authority data and the Functional Requirements for Authority Records (FRAR) was developed.

The “Paris Principles”, which state the basic finding and collocating objectives of a library catalog (International Conference on Cataloguing Principles, 1963), were revisited in view of FRBR in the 2003 IFLA Meeting of Experts on an International Cataloguing Code (IMC ICC) held in Frankfurt, Germany. The new principles, or the Frankfurt Draft Principles, replace and broaden the “Paris Principles” from just textual works to all types of materials and from just the choice and form of entry to all aspects of the bibliographic and authority records used in library catalogs. The principles were also expanded to cover both descriptive and subject cataloging. Among all these principles the highest should be to serve the convenience of the users of the catalog (IFLA 2005).

International Cataloging Codes

This 2003 meeting started a multi-years series of IMC ICC meetings. The second and third meetings were held in Argentina and Egypt to review the cataloging codes in the Latin American/Caribbean and the Middle East regions. They will be followed by two more meetings to be held in Korea in 2006 and South Africa in 2007 so that the Asian and African aspects will also be studied. The goal of these meetings is to promote standards for the content of bibliographic and authority records used in library catalogs so as to increase reusability worldwide.

In order to take the best advantage of the concepts of FRBR and FRAR and to develop new standards for information access in the digital world, revision of current rules and redesign of our existing systems need to be done to apply the FRBR and FRAR models in cataloging. The Joint Steering Committee for Revision of the Anglo-American Cataloguing Rules (JSC) first issued a Draft of part 1 of what was then called “AACR3” in December 2004. Based on the feedback received, JSC further issued a revised Draft of part 1 in December 2005 with the new working title Resource Description and Access (RDA). Although RDA will not be finalized and published until 2008, its alignment with FRBR and FRAR has attracted much attention from librarians in different parts of the world including those in the Chinese communities.

LATEST DEVELOPMENT OF CATALOGING STANDARDS AND PRACTICES IN CHINA, TAIWAN AND HONG KONG

At present, different cataloging standards and practices are adopted by libraries in China, Taiwan and Hong Kong. This section introduces the descriptive cataloging rules, subject analysis, MARC formats applied in these places and name/title authority control. The states of cooperative cataloging in the three communities are also discussed.

China

Descriptive Cataloging Rules

In China, various national standards for descriptive cataloging had been set up by the China Standards Technical Committee (CSTC) in the 1980s. Major standards include General
Bibliographical Description GB3792.1-83 (《文献著錄總則》), Bibliographical Description for Monographs GB3792.2-85 (《普通圖書著錄規則》) and Bibliographical Description for Serials GB3792.3-85 (《連續出版物著錄規則》). Under the leadership of CSTC, the Chinese translations of the International Standard Bibliographic Descriptions (ISBDs) were also published (Liu and Shen, 2002). These standards unified the ways of describing various forms of materials and are still the standards of descriptive cataloging for many libraries in China.

In 1996, the first edition of the Chinese Cataloging Rules (《中國文獻編目規則》) was published which was the first of its kind in China and was important in standardizing the cataloging practice in China. However, after being used for years as an essential tool, it became incompatible with the changing needs in the 21st century. In 2002, the National Library of China (NLC) set up a revision committee composed of cataloging experts of different institutions. The revised edition was published in 2005. Inconsistent and ambiguous rules in the previous edition were modified. Some chapters were updated and revised to accommodate various forms of digital and multimedia resources. In fact, this revised edition follows the basic framework of ISBDs and AACR2 1998 edition on the one hand and reflects the characteristics and requirements of Chinese literature and publications on the other. With the recent development of FRBR, the new RDA, and other metadata standards, many librarians in China are studying these standards in order to keep track of the latest trends or even to play a role in formulating international cataloging codes (Gu, 2005).

To supplement these standards and rules, many libraries in China also established user manuals and guidelines. For instance, the Union Catalog Project of the China Academic Library and Information System (CALIS), a government-funded project to support information resource sharing within the academic library community, has compiled CALIS Chinese Descriptive Cataloging Rules (《CALIS 中文文獻著錄原則》) to be followed by its member libraries. Thus in addition to use ISBD and the Bibliographical Description for Monographs, CALIS member libraries also use the CALIS Chinese Descriptive Cataloging Rules as cataloging guidelines. NLC also published user manuals on the interpretation of cataloging rules.

Subject Analysis
Classification

The classification schemes used by catalogers in China have evolved over decades, including traditional Chinese schemes such as Si Ku classification, self-compiled schemes, foreign schemes such as Dewey Decimal Classification (DDC) and translated version of foreign schemes. China Library Classification (CLC) (《中國圖書館分類法》) was one of the most important and complete classifications and was finally adopted by most libraries. Its latest fourth edition published in 1999 is now used by more than 95 percent of the libraries in China (Liu and Shen, 2002). To supplement this publication, other user manuals, indexes and special subject editions were also compiled.

Subject indexing

Traditionally abstracts rather than subject headings were included in Chinese cataloging records to reveal the book contents (Liu and Shen, 2002). In the 1980s, the importance of subject access was realized by many librarians and emphasis had been placed on developing a Chinese subject system. A general Chinese Thesaurus (《漢語主題詞表》) was constructed to be used for subject indexing in computerized information systems. So far, more than 100 thesauri of different subjects have been compiled. China has a long history of using classification, but applying subject indexing is a relatively new concept. In order to assist Chinese librarians in indexing with a thesaurus, a series of studies were carried out by experts from forty institutions in 1987 to integrate CLC and the Chinese Thesaurus. This led to the compilation of the Chinese Classified
Thesaurus (《中國分類主題詞表》), which was a huge and complicated project and was finished in 1994. Through cross referencing of classification numbers and subject descriptors, it provides great convenience for classification and subject indexing. The second edition of the Chinese Classified Thesaurus was published in 2005 with both print and electronic formats.

**Machine Readable Formats**

Library automation started in the early 1980s in China. The then National Library of Beijing, (the former name of NLC), drafted the Chinese Machine Readable Catalog (CNMARC) (《中國機讀目錄格式》) in 1986. CNMARC was formulated based on UNIMARC as well as other existing national cataloging standards in China such as the General bibliographical Description and the Bibliographical Description for Monographs mentioned above. In 1989, CNMARC was set up as the standard for Chinese materials while USMARC for Western language materials. Since then, using dual sets of MARC formats for materials of different languages has been a common practice of libraries in China (Liu and Shen, 2002). User manuals to apply CNMARC were also published. CALIS published the CALIS Cooperative Cataloging Manual (《CALIS 聯機合作編目手冊》) in 2000. In 2001-2003, an editorial group was commissioned by the NLC to revise the old edition of the CNMARC manual and the new edition (《新版機讀目錄格式使用手冊》) was published in 2004.

Some studies were conducted on the feasibility of adopting one single MARC format for materials of all languages. Ma (2005) suggested using CNMARC for all languages of materials to resolve some practical problems such as the inability for some library systems to support two MARC formats in one database and to reduce the burden on catalogers to understand two sets of standards. Libraries having a considerable size of foreign language collections nevertheless still prefer using USMARC or MARC21 for foreign language materials, because this standard is widely used globally and enables greater sharing of records (Gu, 2005b).

**Name/Title Authority Control**

There is no single national authority database in China. At present, two main authority files have been established: one by NLC; and the other by CALIS. NLC started to create authority records in 1995 and by October 2005 they maintained 577,624 records in their authority file, including personal names, corporate names and uniform titles (Cao, 2005). Interpretations and guidelines for creating authority records were compiled for NLC catalogers. CALIS Union Catalog Project set up their authority file in 2003. By October 2005, 789,012 authority records were created and these are records of Chinese personal names, Western personal names and Chinese corporate names (Xie and Yu, 2005).

**Cooperative Cataloging**

The public and academic libraries in China have made efforts to explore the cooperative opportunities within their own fields. In 1997, NLC established a consortium for public libraries and set up the Online Library Cataloging Center (OLCC). The Center is responsible for maintaining the cataloging database, compiling cataloging standards and organizing trainings for member libraries. In May 2005, there were 536 member libraries and another 944 institutions using OLCC database (OLCC, n.d.).

The development of the CALIS Union Catalog Project started in 1998 with an objective of creating an online sharing system for academic libraries that includes online cooperative cataloging, WebPAC searching, interlibrary loan and resource digitalization, etc. (Liu and Shen, 2002). In March 2000, the CALIS Union Cataloging Center was formally launched and the system centre, based in Peking University Library, has taken up the duty of designing and maintaining the platform for shared cataloging, supplying bibliographic data for batch loading,
providing consultancy service, formulating guidelines and conducting training. By 2005, more than 470 member libraries had participated in the CALIS Union Cataloging Center (CALIS, 2005). The sharing of cataloging work has been enhanced among member libraries and the percentage of original cataloging in these libraries has been greatly reduced. In Tsinghua University Library, for example, about 75% of the Chinese catalog records were downloaded from CALIS Union Catalog.

Taiwan

Descriptive Cataloging Rules

In 1983, the first edition of the Chinese Cataloging Rules in Taiwan (《中國編目規則》) was published. Although it was based on the structure of a set of old cataloging rules – Cataloging Rules for Chinese Books (《中文圖書編目規則》), it was compiled with reference to AACR2. The practical needs in Taiwan were also taken into consideration. Since its publication, it has been widely followed by the libraries in Taiwan. With the new requirements of information resources and the revision of AACR2 in 1988, the compilation of the revised edition of the Chinese Cataloging Rules started in 1990, and the second edition was published in 1995. This edition follows ISBD to group materials into eight descriptive parts. It also lists out prescribed sources of information for different types of resources. Other changes include addition of optional rules, provision of guidelines for unpublished materials and the use of uniform titles. (National Central Library, 2000). Slight revisions were done to this second edition in 2000. Further revision of AACR2 in 1998 and 2002 and the evolving cataloging requirements have driven to another review of the Chinese Cataloging Rules in 2004 and its third edition was published in the end of 2005.

Subject analysis

Classification

The seventh revised edition of the New Classification Scheme for Chinese Libraries (hereafter referred to as the CCL) (《中國圖書分類法》) edited by Yung-hsiang Lai in 1989 had been an important reference tool for catalogers in Taiwan. This edition had not been reviewed for more than ten years after its publication. Because of this, parts of this edition were modified by catalogers in the National Central Library (NCL) to resolve practical problems and the NCL Table of Revised Classifications (《國家圖書館增訂類目表》) was compiled in 2000. In 2001, the eighth edition of CCL was finally published. The greatest characteristics of this edition are the inclusion of many class numbers for computer terminologies and the addition of indexes for easy referral. After this edition, Lai handed over the revision work of later editions of CCL to NCL. As it was realized that frequent and continuous review of CCL is necessary, it was planned that the ninth revision will be compiled within three to five years after the publication of this eighth edition (Yu and Yuan, 2001).

Subject Indexing

An editorial group was set up in 1980 to study the standardization of subject analysis in Taiwan and the Draft List of Chinese Subject Headings (《中文圖書標題總目初稿》) was compiled in 1984. Based on this Draft List, NCL published the Chinese Subject Headings (hereafter referred to as CSH) (《中文圖書標題表》) in 1993 and its revised edition in 1995. In 1999, another editorial group organized by NCL was set up to review the 1995 edition of CSH to meet the indexing needs of the libraries in Taiwan. With reference to other subject systems, indexes, professional tools and subject dictionaries, a substantial number of new terms were added and the Chinese Subject Terms (hereafter referred to as CST) (《中文主題詞表》) was compiled. CST is different from CSH in that it is based on the "literary warrant" principle to select subject terms based on literature. And unlike CSH, the terms in CST express single concepts only and many subject subdivisions in CSH were upgraded to subject headings in CST. So far, terminologies of more than 25 humanities and social science disciplines were added in it.
Early when the Draft List was compiled in 1984, the class numbers in CCL were being used to map to the subject terms in the Draft List. This was an attempt to develop an integration of classification and subject headings in Taiwan. When CSH was developed in 1993 and 1995, the seventh edition of CCL was also referred to in order to map the subject terms to their corresponding class numbers in CCL. Even so, many terms in CSH do not have their corresponding class numbers. This is similar to the case in the Library of Congress Subject Headings (LCSH) where a large percentage of the subject headings are not supplied with corresponding LC class numbers. And there is still no alike publication in Taiwan that is comparable to the Chinese Classified Thesaurus published in China to completely implement the integration of classification and subject headings.

**Machine Readable Formats**

A working group was formed in 1980 to compile the machine readable format for bibliographic data based on UNIMARC-1980, USMARC-1980 and ISO 2708 format to be used in the libraries in Taiwan. Two editions of the Chinese Library Machine Readable Catalog (《中國圖書機讀編目格式》) were published in January and July 1981. In 1982, a new edition was published and renamed as Chinese MARC (CMARC) (《中國機讀編目格式》). In this edition, rules to handle different formats of materials such as continuing resources, maps, music and audio-visual materials were added. This follows the second, third and fourth editions published in 1984, 1988 and 1997 respectively (Wu, 1998). The 2001 revision based on the third and fourth edition is now being used by most libraries in Taiwan.

**Name/Title Authority Control**

NCL and the National Taiwan University (NTU) have established their own authority databases since the 1980s. In 1998, the two institutions began to combine their authority records into a single authority file and the Chinese Name Authority Database (中文名稱權威資料庫) was built. This database is available in the National Bibliographic Information Network (NBINet) for data searching and downloading (Li, 2005). Although both NCL and NTU base on the Chinese Cataloging Rules to establish authority records, both have different interpretations in many aspects. After some meetings and discussions between the institutions, user manuals were compiled to provide standard guidelines and principles to catalogers of both institutions as well as other cooperating libraries of NBINet. Besides, the Chinese Name Authority Database was built upon CMARC format and records of other formats such as the MARC21 records created by NTU will be converted. By October 2005, the database had collected 438,706 name authority records and among them 223,192 records were unique entries after the de-duplication process (L. Gu, 2005).

**Cooperative Cataloging**

NBINet was established by NCL and became fully operational in 1991. The objectives were to standardize the cataloging processes in Taiwan and to provide single cataloging effort for multiple utilization (Yang, 1999). This system accepts both CMARC and MARC21 and provides MARC conversion functionality. Standardization of cataloging practice is a must to facilitate resource sharing, and the compilation of the NBINet Principles of Processing Bibliographic Resources (《NBINet合作編目書目資料處理原則》) is a great step towards better quality control of shared bibliographic resources. In 2005, libraries of 75 colleges and universities were connected to NBINet and they can download and upload bibliographic records via this network. In Feng Chia University Libraries, for example, about 50% of their Chinese catalog records were downloaded from this database.

**Hong Kong**

**Bibliographic Control Standards**

The academic libraries in Hong Kong have a long history of following AACR2 and
MARC21 in cataloging. When providing subject indexing, most libraries apply LCSH. Some libraries also use additional controlled vocabulary thesauri for special types of materials. For example, Chinese University of Hong Kong (CUHK) uses Medical Subject Headings (MeSH) for biomedical materials. Library of Congress Classification (LCC) is adopted by most academic libraries in Hong Kong to classify materials in Chinese and Western languages. Some libraries use different classification schemes such as CCL or CLC for Chinese language materials. Lingnan University (LU), for example, has adopted CCL for their Chinese collection. CUHK has applied NLM Classification, a product of the U.S. National Library of Medicine, to classify materials in biomedical and related sciences.

Since most academic libraries are following American cataloging standards, nearly all of them are members of the Online Computer Library Center (OCLC) and have contributed English and Chinese bibliographic records to the OCLC WorldCAT database. On top of the American cataloging standards, many libraries tailor local cataloging practice to the needs and priorities of their community. However, records containing local descriptions or subjects are modified before they are shared by libraries worldwide.

**Name/Title Authority Control**

Academic libraries in Hong Kong create authority records according to AACR2 and MARC21. Records in the Library of Congress Authorities, including names of Chinese person and corporate bodies, are used. Although there are over 3 million name headings in the LC authority file, all Chinese headings are in romanized form only. Hong Kong is a bilingual society with both Chinese and English as the official languages. The lack of Chinese script headings in the LC authority records has led the libraries in Hong Kong to find a solution to better serve the bilingual user community. The Hong Kong Chinese Authority (Name) (HKCAN) Project began in 1999 to build a Chinese name authority database with CJK (Chinese, Japanese and Korean) scripts to meet this need. This is a sub-workgroup under Joint University Librarians Advisory Committee, HKSAR (JULAC). HKCAN consists of seven member libraries. They are the libraries of Chinese University of Hong Kong (Host), City University of Hong Kong, Hong Kong Baptist University, Hong Kong Institute of Education, Hong Kong Polytechnic University, Lingnan University and University of Hong Kong. By October 2005, there were over 137,000 records in the HKCAN database, including personal names, corporate names and uniform titles. About 60% of these records were created originally by the participating libraries, and the remaining 40% were enhanced based on LC authority records.

At first, the HKCAN software was contracted out to a software vendor to upgrade an existing authority control software, which contains searching, downloading and record maintenance functionalities. In October 2003, the XML version of the system was developed by the host library, Chinese University of Hong Kong, to facilitate resource sharing and data exchange with other libraries. This version supports Unicode display, thus enabling the transcription in both simplified and traditional Chinese, Kanji and Korean forms. A simplified vs. traditional mapping table was also set up to make use of the Tamino built-in linking function in the system so that Chinese searching, irrespective of input characters in simplified and traditional formats can all be supported. In addition, the HKCAN Project also developed a one stop searching mechanism to search across multiple authority files concurrently. Apart from the HKCAN database, the Chinese Name Authority Database of Taiwan, the NLC authority database and the Library of Congress Authorities file can also be searched using a single interface.

In fact, this one stop search is a step towards more sharing and coordination among different
communities on Chinese name authority work. In 2003, a Coordinating Committee on Chinese Name Authority (CCCNA) was set up between JULAC-HKCAN, CALIS and NLC. NCL in Taiwan joined the Committee in 2004. Agreements were made to i) create name entry of “Chinese name authority” following the internationally recommended format and retaining the characteristics of Chinese names and documents; ii) release each other’s authority databases for sharing when these databases are mature and iii) develop their Chinese name authority databases with Unicode encoding. In July 2005, HKCAN Chinese name records became accessible via OCLC Connexion and can now be shared globally.

Cooperative Cataloging
In 1993, a task force on cooperative cataloging of Chinese language materials was appointed by the Joint University and Polytechnic Libraries Advisory Committee (JUPLAC) to study the feasibility of establishing a system of cooperative cataloging via the local academic network in Hong Kong (Tam, 1999). In 1996, the development work was taken over by the Chinese Cataloguing Coordination Team (CCCT) and the Shared Cataloguing of Chinese Language Materials Project was in full operation in 1998. This project enabled the effective use among JULAC libraries, not only of their own cataloging information, but also of the cataloging data of NLC, NCL and LC. Participating libraries could download the records and at the same time automatically convert the data into the required format of the requesting library, for example from CMARC or CNMARC to USMARC, or from pinyin to Wade-Giles romanization. LC’s move to adopt the pinyin system of Chinese romanization in 2000 had standardized the diverse practice of Chinese romanization in the academic libraries in Hong Kong. Together with the advent of library system technology to start providing record downloading capabilities, the project ended in March 2002 after completing its mission (JULAC, 2002).

At present, nearly all academic libraries in Hong Kong are OCLC members. Via the OCLC WorldCAT database, cataloging information can not only be shared with libraries in Hong Kong, but also with other libraries in the world. Even so, as mentioned above, a large proportion of Chinese language materials still require original cataloging. For instance, about 40% of the Chinese language materials in CityU and 46% in CUHK need to be originally cataloged.

DISCUSSION AND CONCLUSIONS
Because of the different cataloging rules and practices, libraries in China, Taiwan and Hong Kong cannot benefit from data sharing even though they have common titles in their collections. Nevertheless, more cooperation and data exchange should be our future goal if we want to reduce our cataloging cost and to achieve efficiency. We suggest some considerations below for rethinking the future of cataloging Chinese language materials.

The Role Of Computer Technology
Computer technology is of utmost importance to cataloging today. Conversion tools to transform CNMARC to MARC21, MARC21 to CNMARC, CMARC to MARC21 or MARC21 to CMARC have been developed and applied in China, Taiwan and Hong Kong and they help enhance MARC compatibility in different systems.

The various Chinese encoding used, for example, GB in China, Big5 in Taiwan and Hong Kong, and EACC in many library systems, hinders data exchange. Character code conversion and mapping tools have been developed to enable interchange of Chinese data between different systems. However, some mapping cannot be done because of the various sizes of the character sets and some “one to many” conversions, for example, may require human involvement. Many librarians
also became aware that Unicode (or UTF-8) is the future for Chinese data not only because of its universal acceptability but also because of its comprehensive character set which enables the use of both simplified and traditional Chinese characters. In 2003, the III-UTF8 Working Group was set up by four Hong Kong academic libraries, including CityU Library, to resolve the UTF-8 mapping problem in the III INNOPAC system. Our effort had inspired the setting up of a similar Unicode work group in Taiwan in 2004. Indeed, Unicode has become the fixed character set of many newly developed Chinese bibliographic and authority systems, such as the CALIS and the HKCAN XML database.

With the advancement of computer technology, many new library services can be provided to users. For example, a system can alert users by retrieving editions or translations related to their search; or it can repackage book data to be used as footnotes in students’ papers (Tillett, 2004). These services, nonetheless, usually involve manipulation of the bibliographic data in the library catalogs. Thus we can guarantee their quality only when the bibliographic data are consistent and accurate.

The Need For Standards

Cataloging standards are a must if we want to assure consistency and accuracy of bibliographic data, especially when inter-library catalogs are concerned. The implementation of the Hong Kong Academic Library Link (HKALL) is a good example. Using a union catalog, HKALL is an automatic interlibrary loan system aiming at accelerating library resource sharing among all government-funded academic libraries in Hong Kong. In order to combine all the holdings for a bibliographic entity in one display, the union catalog was built by matching the fields of title, publisher, publishing year, edition, etc. of the bibliographic records contributed by the participating libraries. This kind of matching is impossible if libraries are applying different cataloging rules and standards.

Gorman (1999) reminded us to distinguish two types of cataloging standards: 1) content standards, such as cataloging codes, lists of subject headings and classification systems, which prescribe the content of the bibliographic records; and 2) framework standards, such as MARC, which are ways of storing and making data capable of manipulation that have been formulated according to content standards. Conversion from one framework standard to another, such as between different MARC formats as mentioned above, is possible and has been generally applied in many systems. This kind of conversion, in fact, only transforms the encoding of the content, while the content itself, being the result of the cataloging process, remains unchanged. The lack of content standards in the library communities in China, Taiwan and Hong Kong is still the difficulty that faces us today. This obstructs sharing of bibliographic data, and as a result hinders the possibility of many library cooperative activities such as building up a union catalog & an automatic interlibrary loan system, cooperative cataloging and cooperative collection development. Recently, research has been carried out beyond the framework standards by CALIS to study the automatic conversions of subject headings and classification systems. This move is indeed encouraging, though undoubtedly these conversion projects must be tough and complicated.

The Need For International Cataloging Codes And Our Participation

In terms of cataloging codes, we indicated earlier in this paper that the *Chinese Cataloging Rules* of both China and Taiwan were formulated and revised with reference to AACR2 and its revisions, and at the same time reflect the characteristics and needs of Chinese users and publications. This shows that the need to align with international codes has long been stressed in China and Taiwan. However, to strike the balance between following
international standards and satisfying local needs is not at all easy. At CityU Library, it is not an uncommon experience that we had to make hard decisions to deviate from AACR2 for our local needs. Some examples are the use of “Hong Kong, China” instead of just “China” in the qualifier of Hong Kong place names and the supply of vernacular data for English names of Hong Kong people or corporate bodies. The result is documentation of these exceptional practices and follow-up actions to remove these practices before we contribute our records to OCLC. Local practices and sharing of data are therefore not contradictory and can coexist, given that the deviations are identified and documented. Of course, if there are too many deviations, the benefit gained from data sharing may not be able to cover the cost involved to eliminate all the local practices. An active move to resolve this problem is to participate in the formulation of international cataloging codes. RDA, the new edition of AACR2, provides us this opportunity. The strategic plan of its creation reveals that the rules will strive for increased alignment with other cataloging rules through international efforts (Tillett, 2002). Catalogers from the Chinese communities should therefore make use of this valuable chance to give feedback and comments to the drafting of RDA and to help make the rules more applicable and adaptable to our cataloging communities. As brought up earlier, the IFLA Meeting of Experts on an International Cataloging Code will be held in Seoul, Korea, in August 2006. The Asian cataloging rule-makers, including those from the Chinese communities, will come together to examine the various Asian codes, to compare the similarities and differences of these codes and to see if more consistent presentation of information can be achieved worldwide. We anticipate this event will be a start to a promising future of standardizing the cataloging of Chinese language materials.

Despite the diverse cataloging practices and the inability to share bibliographic data of China, Taiwan and Hong Kong at the moment, there have been frequent exchange and cooperative activities between catalogers of these places, either between individual libraries, or between groups of libraries. The CCCNA, as pointed out earlier, is a collaborative effort of the three library communities to share each other’s experience of Chinese name authority control. The achievements of its various meetings have been encouraging. We believe that a similar committee should also be set up to examine the similarities and differences of our cataloging standards and practices, to consider the flexibility that will allow for local variations due to political and social diversities and to study the future directions of Chinese material cataloging. As a group, we can then make our voice more representative and noticeable at an international level.

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NOTES

[1] Telephone interviews were conducted with the cataloging librarians of four libraries to review their cataloging practices and the cataloging standards they use. They are Ms. Yang Hui of Tsinghua Library in China, Ms. Winnie Wang of Feng Chia University Libraries in Taiwan, Ms. Fanny Chan of University Library System, Chinese University of Hong Kong and Mr. Patrick Lo of Fong Sum Wood Library, Lingnan University, Hong Kong.
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