UNIT 8 STANDARDS FOR BIBLIOGRAPHIC RECORD FORMATS : ISBD, MARC21, CCF STRUCTURE

Structure

8.0 OBJECTIVES

In the previous Unit you have learnt about the bibliographic descriptions of various types of information resources. In the context of computerisation, the need for record format arises. In this Unit we will be discussing the important standards for machine readable record format which are available and developed by various agencies.

After reading this Unit, you will be able to:

- understand bibliographic record formats and their developments; and
- learn structure of the record format standards like, MARC, UNIMARC and CCF.

8.1 INTRODUCTION

Computerised bibliographic information system consists of records that stores bibliographic details of an information source. When compared to the traditional situation a record is same as an entry in catalogue, bibliography or documentation list. In automated system, it refers to a single multipurpose record from which added entries can be generated. Fields are equal to sections or areas in the catalogue entry. A field may consist of several sub-fields, for example, the imprint field is made up of place, publishers and date.

As different from the manual systems, fields are differentiated into fixed fields and variable fields in mechanised systems. The length of the fixed field is predetermined and so it cannot accommodate characters more than the number

specified earlier. On the contrary, in variable fields the length of the field can be extended to the required extent to accommodate lengthy data. The beginning of each field in this case is to be indicated by markers or tags. A tag is a label used to identify a variable field. A record may be collection of either fixed fields or variable fields or a combination of both.

Format is concerned with arrangement for presentation of data in the record. In specific terms, it refers to the structure, content and coding of the record. Structure provides the framework for incorporating field of both types in the record. It must be suited to machine processing. It must also be efficient for information transfer. Content refers to the data contained in the record in the different fields and sub-fields. Coding is the digital representation of the characters.

8.2 STANDARDS FOR BIBLIOGRAPHIC RECORD FORMAT

Standardisation of the record format implies the standardisation of the above mentioned three aspects at national, regional and international levels. Design and implementation of a standard record format ensure uniformity which is acceptable to all bibliographic agencies involved in information transfer which is very essential.

Background

Standardisation of the record format in manually prepared bibliographic lists started to be a matter of international concern from 1960s. The International Conference on Cataloguing Principles (ICCP) held in Paris in 1961 set up the standards for the heading of the author and title records in catalogues and bibliographies. The conference was sponsored by IFLA with the intention of evolving a set of basic principles to serve as guidelines in the design of catalogue codes all over the world. Paris principle could make some impact on certain national codes. However, differences in heading continued to exist in various catalogues and bibliographies and they stood in the way of interchange of information. The major effort for standardisation of record formats started from the development of ISBD.

8.2.1 International Standard Bibliographic Description (ISBD)

Starting from the first ISBD on monographs, a number of ISBDs have been developed including ISBD(G). The details of these developments have been discussed in Unit 7 of this course.

In 1973 the ISBD(M) text had been adopted by a number of national bibliographies and, translations of the original English text into several other languages had been done. By then it was realised that the printed word is not the only means of documentary transmission through which the communication needs of individuals and institutions are met. And that there was need for a standardised descriptive structure for documentary materials other than books. Consequently, the ISBD(NBM) International Standard Bibliographic Description for Non-Book Materials was published in 1977.

"This ISBD contained provisions covering machine-readable data files. However, when the ISBD(NBM) was being reviewed, together with the ISBD(CM), ISBD(M), and ISBD(S), by the ISBD Review Committee formed by IFLA in 1981, it was decided that special consideration should be given to the rapidly increasing need for a separate ISBD for computer files [ISBD (ER), 1997]." With the development of programs and data files for smaller computers, the nature of the medium became more complex; in addition, this change resulted in physical items roughly comparable to other library materials to be more widely added to library collections. Hence bibliographic control was needed for them. As a result, the ISBD(CF) Working Group was established in 1986. In 1990, the first edition of ISBD(CF) was formally brought out.

With the emergence of interactive multimedia, development of optical technology,

availability of remote electronic resources on the Internet and World Wide Web, and reproductions of electronic resources, it was felt that ISBD(CF) should address the bibliographic implication of such developments. A Working Group was formed in 1994. In 1995, the Second Edition of the draft was prepared and distributed for worldwide review from individual readers, library associations and national libraries. As a result, many improvements were made, including recognition of the need for a new term to characterise the material under discussion. Thus, the more appropriate term 'electronic resource' was chosen.

The ISBDs for different kinds of items are depicted in Table 8.1.

Table 8.1: ISBDs for Different Types of Items

ISBD	Full Name	Year of First Edition	Year of Revised Edition
ISBD(M)	International Standard Bibliographic Description for Monographic Publications.	1974	1978, 1987, 2002
ISBD(S)	International Standard Bibliographic Description for Serials [now ISBD(CR)].	1974	1977, 1988
ISBD(CM)	International Standard Bibliographic Description for Cartographic Materials.	1977	1987
ISBD(G)	General International Standard Bibliographic Description.	1977	1992, 2004
ISBD(NBM)	International Standard Bibliographic Description for Non-Book Materials.	1977	1987
ISBD(A)	International Standard Bibliographic Description for Older Monographic Publications (Antiquarian).	1980	1991
ISBD(PM)	International Standard Bibliographic Description for Printed Music.	1980	1991
ISBD(CF)	International Standard Bibliographic Description for Computer Files [now ISBD(ER)].	1990	
ISBD(ER)	International Standard Bibliographic Description for Electronic Resources. [erstwhile ISBD(CF)].	1997	
ISBD(CR)	International Standard Bibliographic Description for Serials and Other Continuing Resources. [erstwhile ISBD(S)].	2002	

[Source: http://www.ifla.org/VI/3/nd1/isbdlist.htm]

8.2.1.1 Purpose of ISBD

The primary purpose of the ISBDs is to provide the stipulations for compatible descriptive cataloguing worldwide in order to aid the international exchange of bibliographic records between national bibliographic agencies and throughout the international library and information community. By specifying the elements which comprise a bibliographic description and by prescribing the order in which those elements should be presented and the punctuation by which they should be demarcated, the ISBDs aim to:

- make records from different sources interchangeable, so that records produced in one country can be easily accepted in library catalogues or other bibliographic lists in any other country;
- assist in the interpretation of records across language barriers, so that records produced for users of one language can be interpreted by users of other languages; and
- assist in the conversion of bibliographic records to electronic form.

The details about ISBD have been discussed in Unit 7.

Self Check Exercises

1) Write short note on Record Format.

2) Distinguish between fixed field and variable field in a record.

3) How ISBD helps in the standardisation of bibliographic records?

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

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8.3 MACHINE-READABLE RECORD FORMAT

Library of Congress (LC) was the first to design and experiment on a MAchine-Readable Catalogue (MARC) record format for the purpose of communicating bibliographic information to large number of libraries. When MARC-I commenced as a pilot project in 1966 in LC, there were no established MARC formats available. Library professionals had reached no consensus as to what all access points were required for taking full advantage of an automated catalogue.

The pilot project known as MARC-I began in the year 1965 with the main aim of creation and distribution of machine-readable cataloging data to other libraries with Library of Congress (LC) as the distributing point. MARC-I only dealt with books. The development of MARC-II started in 1968. It was planned to cover all types of materials including books and monographs. During 1970-1973 documentation was issued for other materials, i.e., in 1972 films records were issued, 1973 for serials, maps and French books and by 1975 records for German, Spanish, and Portuguese material [Simmons and Hopkinson, 1988].

In the year 1999, USMARC and CAN/MARC were harmonized and named as MARC21 [McCallum 1989]. The MARC21 bibliographic format, as well as all official MARC21 documentation, is maintained by the Library of Congress and by Canadian National Library [MARBI, 1996]. Recently UKMARC is also being merged with MARC21 and British Library is shifting from UKMARC to MARC21.

The Library of Congress and the National Library of Canada serve as the maintenance agency for the MARC21 formats for bibliographic, authority, holdings, classification, and community information data.

8.3.1 MARC Format

A MARC record involves three elements: the record structure, the content designation, and the data content of the record [MARBI, 1996]:

- **Structure:** MARC records is typical of Information Interchange Format (ANSI Z39.2) and Format for Information Exchange (ISO 2709).
- **Content designators:** By definition "the codes and conventions established to

identify explicitly and characterise further the data elements within a record and to support the manipulation of those data". Anything that establishes the kind of data is a Content Designator, for example, there are three kinds of content designators – tags, indicators, and subfield codes.

- **Content:** This is the actual data that is stored in the data fields. Often most of the data elements are defined by standards outside the formats. For example, Anglo-American Cataloguing Rules, Library of Congress Subject Headings, National Library of Medicine Classification.

In MARC21, formats are defined for five types of data: bibliographic, holdings, authority, classification, and community information.

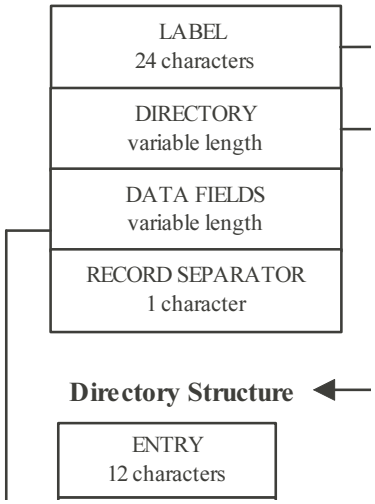

Fig. 8.1: Diagrammatic representation of MARC record

8.3.2 MARC Record Structure

A typical MARC record consists of three main sections: the leader, the directory, and the variable fields (Fig. 8.1) [MARBI, 1996].

- The *leader* consists of data elements that contain coded values and are identified by relative character position. It is also called as Record label in CCF and UNIMARC. Data elements in this section define parameters for processing the record. It is fixed in length (24 characters) and occurs at the beginning of each MARC record.
- The *directory* contains the tag, starting location, and length of each field within the record. The length of the directory entry is defined in the entry map elements in Leader/20-23. In the MARC21 formats, the length of a directory entry is 12 characters, while in CCF it is 14 characters where character 13th and 14th are Segment Identifier and Occurrence Identifier. The directory ends with a *field terminator* character.
- The data content of a record is divided into *variable fields.* The MARC21 format distinguishes two types of variable fields: *variable control fields* and *variable data fields*.

Self Check Exercise

4) What are the sections of a MARC record?

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

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8.4 UNIMARC

With a view to facilitate international exchange of MARC data, IFLA established a Working Group on Content Designators in 1972. The Working Group was charged with analysing the differences in content designation among the national formats that had been developed to that point in time, exploring ways of accommodating those differences, and recommending a uniform set of content designators that would serve as a standard for international exchange [IFLA, 1977].

The format developed by the Working Group became UNIMARC. UNIMARC was conceived not as a standard to be imposed on bibliographic agencies as a national communications format, but rather as a 'translation' mechanism to be used by those agencies when exchanging data across national borders. The idea was that UNIMARC would serve as the common 'vocabulary' that would function as a means of conveying data that had originally been encoded in the national format of the sender in a commonly recognised form that could subsequently be converted into the national format of the receiver. Each national bibliographic agency would therefore have to develop and maintain only one conversion program to convert from their national format to UNIMARC and one to convert from UNIMARC to the national format, rather than multiple programs to convert from one national format to another on a one-to-one basis.

The purpose of UNIMARC is to facilitate the description, retrieval and control of bibliographic items for data exchange and also for local bibliographic format. There are a number of factors that shaped UNIMARC into the flexible data package [Morataza, 1996].

Block Structure: One key objective of the format is to be able to accept easily the data from a number of different national formats. That is the basic requirement behind the block structure of UNIMARC. Since data may be carried in a number of different positions in various national formats, the emphasis in designing UNIMARC was to identify functionally the different types of data and establish clearly designated areas for them. On receipt of UNIMARC records, national systems may rearrange data in any way that is practical at the local level. The UNIMARC areas are called Blocks, and the block number forms the first digit of the tags for data fields in the block.

Record Structure: It required supporting International Standard Exchange Format, hence it adheres to ISO 2709 for record structure.

ISBD: Another important point for UNIMARC was appropriate support of the international description guidelines that were developed by IFLA and incorporated into cataloguing codes worldwide. The ISBD data is especially accommodated in UNIMARC Block 2, the descriptive paragraph.

Textual and Non-textual Material: Fourth requirement of UNIMARC is that it should be able to accommodate description of wide variety of materials. Hence, it covers books, periodicals, maps, globes, music scores, sound recordings, motion pictures, video recordings, pictures, drawings, sculpture, artifacts, computer files and other related items.

Multiple levels: Another basic requirement for UNIMARC is that it should accommodate various bibliographic levels, not just monographic (single part) material. Serially issued items (multiple part items) and analytic (part of larger item) need to be included, and these levels can occur for any of the above types of materials. Again the flexibility of the coded data field is important. Serial related fields are not confined to use in records for journals or the traditional forms of serially issued items, but can be included in records for serially issued maps, films, etc.

Parts of Items/Linking Technique: The provision of describing parts of items (e.g., journal articles, chapters) in UNIMARC follows the common practice in the library to provide a citation to the host (book or serial that contains the part) but provide a separate record to fully describe the host bibliographically. UNIMARC thus focuses on an analytical record on the part being catalogued – the monograph in series, journal article, books part, etc. Only linking entry field gives information about the host item, such as series (for a monograph in a series), the serial (for a journal article). The UNIMARC structure is provided below:

Table 8.2: UNIMARC Structure

Type of Data	Block	Fields
Identifiers (item and record)	Block 0	0nn fields
Coded information	Block 1	1nn fields
Descriptive paragraph	Block 2	2nn fields
Notes	Block 3	3nn fields
Links to other works	Block 4	4nn fields
Variant titles	Block 5	5nn fields
Subject analysis	Block 6	6nn fields
Intellectual responsibility	Block 7	7nn fields

(‘n’ substitutes for number)

8.4.1 UNIMARC Functional Blocks

The fields of the bibliographic record are divided into functional blocks, the first digit of the tag indicates the block of the field [McCallum, 1989].

0 — ***Identification block,*** contains those numbers that identify the record of the work (e.g., ISBN, ISSN).

1 — ***Coded Information block***, contains fixed length coded data elements describing various aspects of the work.

2 — ***Descriptive block***, contains the areas covered by the ISBD (i.e. title, edition, imprint, collation, series) with the exception of standard number and notes.

3 — ***Notes block,*** contains free text statements describing various aspects of the work.

4 — ***Linking Entry block***, contains standard links in numeric and textual form to other records.

5 — ***Related Title block,*** contains titles to be used as access points.

6 — ***Subject Analysis block***, contains subject identification (e.g., UDC, Library of Congress Subject Headings, etc.).Personal and corporate names used as subjects will appear in this block.

7 — ***Intellectual Responsibility block,*** contains names of persons and corporate bodies responsible for the creation of the work described in access point form.

8 — ***International Use block,*** contains internationally agreed field that do not fit in the preceding blocks, 0– to 7–. This block includes fields on originating agency, ISSN Center, general cataloguer's note and electronic location and access.

9 — ***National Use block,*** reserved for national use by agencies where UNIMARC is the basis of the domestic format.

8.5 COMMON COMMUNICATION FORMAT (CCF)

UNESCO was concerned in the late 1970s about the lack of developments in the field of scientific information, especially in systems for the sharing of information on journal articles. Especially in the light that secondary services such as abstracting and information services were being automated. UNESCO sponsored an international symposium in 1978 to look at the problems caused by this sector having many different formats and recommended developing a switching format taking into account the need to be compatible with MARC via UNIMARC, and the secondary services. Those experts who had developed ISO 2709 also attended the meeting since the format required more sophisticated linking features in order to be able to link records of articles and the journals and issues containing them. The symposium set up the UNESCO Ad-hoc Group on a Common Communication Format and the CCF was developed. This was mainly used by the secondary services in the science and technological sectors by UN agencies and more generally in India [Hopkinson,1989].

8.5.1 Structure of CCF Record

Record label	Directory	Data Field	Record Separator

It is a specific implementation of the ISO 2709. The record label consists of 24 characters and directory of 14 characters. Data field consist of indicators, subfields and data field separator. A CCF record may contain descriptions of more than

one item, but the description of each item occupies a single record segment. The major item occupies the primary segment and the others the secondary segments. Segment links are used in vertical relationships (e.g., a monograph and a chapter in it) and horizontal relationships (e.g., versions of a work in different languages) are also used. For details about the CCF record structure and data elements *see* Appendices 2 and 4.

Self Check Exercise

5) Explain the significance of Common Communication Format (CCF).

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

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8.6 INDIAN STANDARD

Standardisation of record format has not received due attention in Indian libraries. At national level Indian Standards Institution [renamed as Bureau of Indian Standards (BIS)] had evolved a standard for bibliographic references in 1963 for use in non-computerised systems. However, it could not keep track of the developments in the media and forms of documents. In the following years a revision of the standard appeared in 1979 wherein ISBD was suggested as a substitute format to be adopted by agencies willing to do so.

The sixteenth Indian Standards Convention of ISI held in Bhopal in October 1975 discussed the issue of standardisation of bibliographic information in the context of machine-readable records. Continued efforts in this area by ISI resulted in the design and publication of a standard (IS:11370-1985) titled, 'Guide for data elements and record format for computer based bibliographic description of different kind of documents' in July 1986. Considerable assistance in the preparation of this standard has been taken from international standards relevant to machine-readable record format. Structure of this format conforms to ISO 2709: 1981.

Structure of IS:11370-1985

Leader	Directory	Data Field	Record Separator

(For details, see Appendix 3 of this Unit for detailed structure).

Among the data elements, descriptive block is based on ISBD. Subject analysis block includes POPSI, PRECIS, keyword and synopsis or abstract. There is a local use block which is intended to communicate the variations made in the existing data and for the inclusion of new data needed for local use.

The standard specifies the requirements for machine-readable record format for books, periodicals, conference proceedings, articles in a periodical, research reports of ongoing research projects, patents and standards.

However, the latest decision of National Library of India is to follow MARC21 standard and retro-conversion work is already in progress.

8.7 SUMMARY

Libraries are no longer individual systems that can operate in isolation. There is a trend towards universal access to library data. Hence it is very important to maintain international standards for library operations especially for bibliographic standards. This Unit has covered in detail the different standards for bibliographic record format. International standards laid down by IFLA and other agencies, ISBD description has been described. In machine-readable record (MARC) format, MARC21 that is fast becoming the de-facto standard, has been dealt in detail. Common Communication Format for the exchange of bibliographic records and structure of CCF record is explained.

Indian libraries and documentation centers had been passive towards standardization of bibliographic record format in the past. Lack of communication facilities, non-availability of bibliographies in machine-readable form, diversity of languages and slow pace of computerisation might be the possible reason for this. Moreover, lack of awareness of the significance of the standardisation is pointed out by ISO as the major obstacle in this path. Of late the major libraries including National Library of India are adopting MARC21 standard for bibliographic records thus following international trends.

8.8 ANSWERS TO SELF CHECK EXERCISES

1) Record format is the arrangement of data in the record. It refers to the structure, content and coding of the record. Structure provides the framework for fields, suitability for machine processing keeping in view the information transfer. Content refers to the data contained in the record in various (both fixed as well as variable) fields. Coding is the digital representation of the characters.

2) In the record the fixed field refers to the length of the field. It refers to the number of characters, which a field occupies. The length of a fixed field is predefined and it cannot accommodate data more than the length specified earlier. Whereas in the case of a variable field, the length of the field can be varied depending upon the size of the data.

3) ISBD helps in the standardisation of bibliographic records, as it:

   i) Facilitates records from various sources interchangeable.

   ii) Assists in the interpretation of records across language barriers.

   iii) Assists in the conversion of bibliographic records to machine-readable form.

4) A typical MARC record consists of three main sections: the leader, the directory, and the variable fields.

   - The *leader* consists of data elements that contain coded values and are identified by relative character position. It is also called as Record label in CCF and UNIMARC. Data elements in this section define parameters for processing the record. It is fixed in length (24 characters) and occurs at the beginning of each MARC record.

   - The *directory* contains the tag, starting location, and length of each field within the record. The length of the directory entry is defined in the entry map elements in Leader/20-23. In the MARC21 formats, the length of a directory entry is 12 characters, while in CCF it is 14 characters where character 13th and 14th are Segment Identifier and Occurrence Identifier. The directory ends with a *field terminator* character.

- The data content of a record is divided into *variable fields*. The MARC21 format distinguishes two types of variable fields: *variable control fields* and *variable data fields*.

5) The importance of CCF is that it provides a method for recording a number of mandatory and optional data elements. CCF helps in exchange of records between two or more computerized systems. CCF also converts the data in its processing format into the common format.

8.9 KEYWORDS

Coding : The digital representation of the characters.

Content : It refers to tags, indicators, sub-field codes, occurrence identifiers, etc.

Designator which describe or identify some attribute of a data element or group of data element.

Fixed Field : A field which has predetermined length and it cannot accommodate more characters than the specified earlier.

Format : Arrangement or presentation of data in the record

MARC : A machine-readable catalogue for the purpose of communicating bibliographic information to large number of libraries.

Variable Field : A field which can be extended to accommodate longer data as per requirement.

8.10 REFERENCES AND FURTHER READING

Avram, H.D. (1976). International standard for interchange of bibliographic records. *Library Resources and Technical Services*, 20(1), 25-35.

Devadasan, F.G. (1980). Proposal for a common exchange/communication format: opinion paper on standardization on machine-readable bibliographic record. *Journal of Library and Information Science*, 5(1), 52-75.

Dierick, H. and Hopkinson, Alan. (1981). *Reference manual for machine-readable bibliographic descriptions*. 2nd ed. Paris: UNESCO.

Gopinath, MA. (1999). *Bibliographic description for non-print materials*. In: MLIS-03, Block 2, Unit 7 course material. New Delhi: Indira Gandhi National Open University.

Gopinath, MA. (1999). *Bibliographic description; an overview*. In: MLIS-03, Block 2, Unit 5 course material. New Delhi: Indira Gandhi National Open University.

Gopinath, MA. (1999). *Standards for bibliographic record format*. In: MLIS-03, Block 2, Unit 6 course material. New Delhi: Indira Gandhi National Open University.

Hopkinson, Alan. (1984). International access to bibliographic data: MARC and MARC related activities. *Journal of Documentation*, 40(1), 13-24.

Hopkinson, Alan. (2003). MARC developments in United Kingdom. *Infotheca*, March 2003. <http://www.unilib.bg.ac.yu/en/e-sources/infotheca/1-2003/hopkinson2.php>

IFLA International Office for UBC. (1977). *Documentation: format for bibliographic information interchange on magnetic tape*. In: *General international standard bibliographic description: annotated text*. London: IFLA International Office for UBC.

IFLA. (1977). *UNIMARC: Universal MARC format*. prepared by Working Group on Content Designators. London: International Federation of Library Associations and Institutions (IFLA).

International Organization for Standardization. (1983). *Standardization and documentation: an introduction for documentalists and librarians*. Geneva: International Organization for Standardization.

International transfer. (1982). 2nd ed. Geneva: ISO/UNESCO.

IS:11370: 1985. *Guide for data elements and records format for computerized bibliographical database for bibliographic description of different kinds of documentations*. New Delhi: Indian Standards Institution.

IS:2381: 1978. *Recommendation for bibliographical references: essential and supplementary elements*. New Delhi: Indian Standards Institution.

ISBD(ER). (1997). *ISBD(ER): International Standard Bibliographic Description for Electronic Resources*. <http://www.ifla.org/VII/s13/pubs/isbd.htm>

ISO 2709: 1973. *Documentation: format for bibliographic information interchange on magnetic tape*. Geneva: International Organization for Standardization.

Kaltwasser, F.G. (1971). Universal Bibliographic Control (UBC). *UNESCO Bulletin for Library*, 25(5), 252-259.

Library of Congress. (1968). *The MARC II format: a communication format for bibliographic data*. Washington D.C.: Library of Congress.

Library of Congress. *Understanding MARC bibliographic format: Parts 1 to 6*. <http://www.loc.gov/marc/umb/um01to06.html>. (Browsed on February 2003).

Long, A. (1984). UKMARC: A brief history and comparison. *Journal of Documentation*, 40(1) 1-12.

Machine-Readable Bibliographic Information Committee (MARBI). (1996). *The MARC21 formats: background and principles*. Revised. <http://www.loc.gov/marc/96principl.html#one> (Browsed on February 2003).

MARC21: Harmonized USMARC and CAN/MARC <http://lcweb.loc.gov/marc/annmarc21.html>

Mccallum, S.H. (1989*)*. IFLA's role in international bibliographic data exchange: UNIMARC. *IFLA Journal*, 15(1), 50-56.

Mortaza, Kokabi. (1996). The internationalization of MARC. Part II: some MARC formats based on USMARC. *Library Review*, 12 (1), 21-45.

Simmons, P. and Hopkinson, Alan. (eds) (1988). *CCF: the common communication format*. 2nd Ed. Paris: UNESCO General Information Programme and the UNISIST.

Tate, E.L. (1976). International standards: the road to universal bibliographic control. *Library Resources and Technical Services*, 20(1), 16-23.

UNIMARC Manual: Bibliographic Format. (1994). 2nd ed. Munchen, London, Paris: K.G. Saur, 1994.

Appendix 1
Detailed MARC Records Structure

Appendix 2
Diagramatic Representation of the CCF Record Format

Appendix 3
Layout of the IS : 11370–1985 Record Format

Appendix 4
CCF List of Data Elements