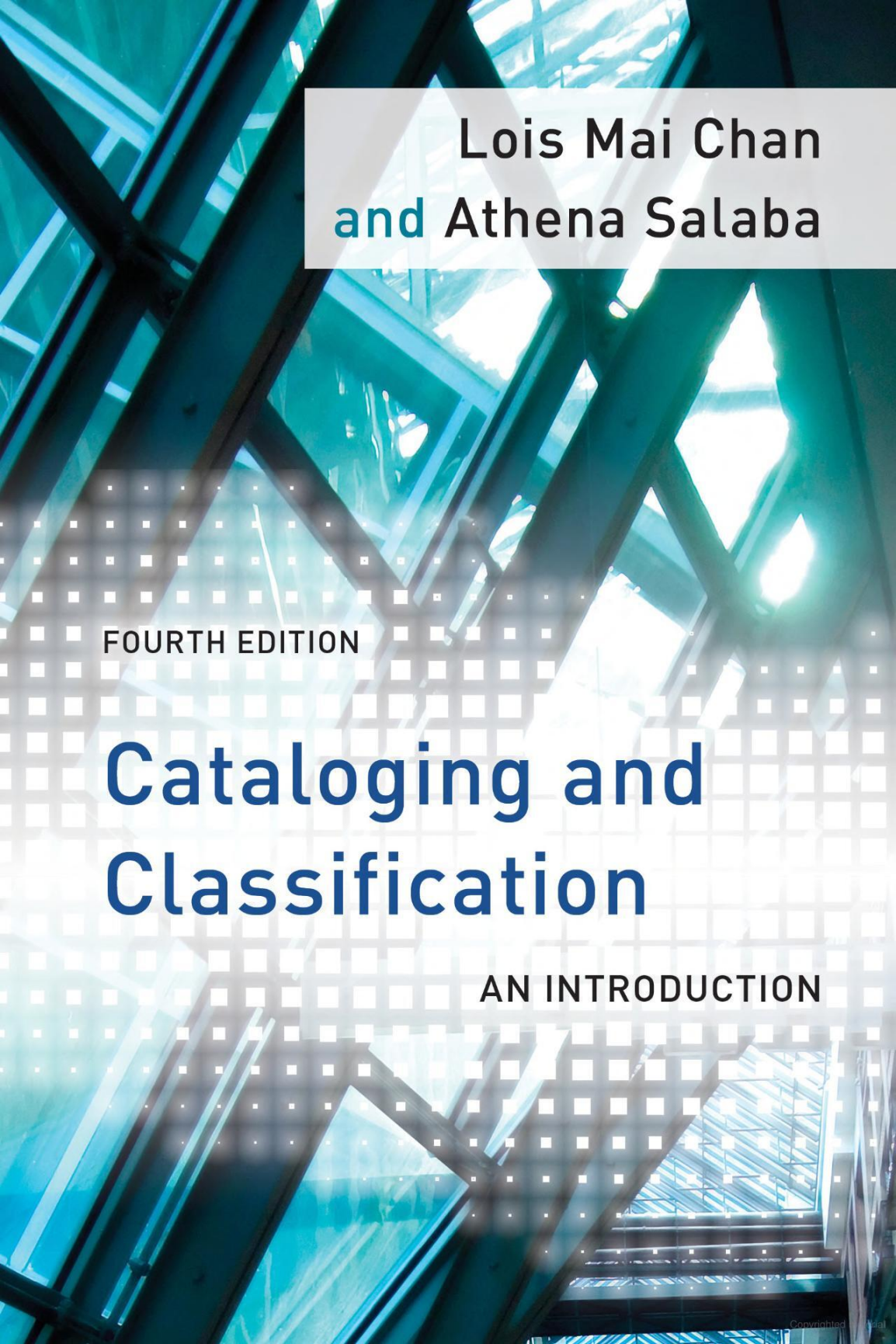
Lois Mai Chan
and Athena Salaba
FOURTH EDITION
Cataloging and Classification
AN INTRODUCTION

Cataloging and Classification

An Introduction

Fourth Edition

Lois Mai Chan and Athena Salaba

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Contents

Preface

Since the publication of the third edition of *Cataloging and Classification: An Introduction*, the landscape, scope, and nature of bibliographic control in libraries have undergone enormous changes. In addition to their own print and non-print sources, libraries now rely heavily on external or remote sources available on the Internet and the Web, which have become important milieus for knowledge discovery. Libraries offer access to a range of digitized resources. Web resources, in particular, possess characteristics that are a far cry from those found among traditional library resources. The field of information organization has seen major developments this past decade. New ways of modeling today's bibliographic environment have been developed and, as a result, new standards for organizing resources have been created to accommodate the new information environment. Most notably, the functional requirements family models have been completed and released, resulting in the development of a new standard for describing information resources, the *Resource Description and Access* (RDA).

The adoption of the first three editions of this book by many library and information science programs as an introductory text for beginner in cataloging and classification, and by many cataloging departments as a training tool, has encouraged the preparation of the fourth edition. As in the case of the first three editions, the primary intended audience of the new edition consists of students in library and information science programs, beginning professionals working in the areas of resource description and organization, and public service librarians seeking a fuller understanding of the bibliographic control apparatus. It may also be useful to professionals in related fields who are concerned with knowledge organization, for example, indexers, abstractors, bibliographers, publishers, and information system designers. Individual chapters within the book may also be used separately in training or review

classes dealing with information organization, storage, and retrieval. The scope of this new edition is the analysis and representation of methods used in describing, organizing, and providing access to resources made available in or through libraries, including both the materials owned by the library (mostly physical items such as books, journals, and nonprint materials) and external resources such as those in electronic form that are accessible through the library's portal. In other words, the frame of reference for the book is today's library environment and its emphasis is on the standards for bibliographic control that have been widely adopted in the library field. It reports on recent developments in the retrieval arena, but technical details, particularly with regard to online systems, have been excluded because they vary from system to system and are subject to rapid changes.

This edition retains the overall outline of the third edition, presenting the essence of library cataloging and classification in terms of three basic functions: descriptive cataloging, subject access, and classification. Many chapters have been reorganized internally to provide a more logical progression of ideas and factual details. Within this framework, all chapters have been rewritten to incorporate the changes that have occurred during the interval between the third and fourth editions. In each part, the historical development and underlying principles of the retrieval mechanism at issue are treated first, because these are considered essential to an understanding of cataloging and classification. Discussion and examples of provisions in the standards and tools are then presented in order to illustrate the operations covered in each chapter.

Recent decades have witnessed the tremendous impact that changes in technology have had on cataloging and classification. Because of the great variety and idiosyncrasies of various online systems, no attempt has been made to focus on any particular online catalog system. Thus, it is in broad and general terms that online catalogs are discussed in this edition, with cataloging examples taken from a number of online systems. In reference to the computer processing of cataloging information, it is the machine-readable cataloging (MARC) system that is illustrated in this book.

References to and discussion of MARC formats occur throughout the book. The MARC system and formats are introduced in chapter 1, and the development and architecture of MARC formats are discussed in more detail in chapter 3, with emphasis on their underlying structure and principles. In the chapters dealing with cataloging and classification operations, MARC tags and codes are given where appropriate.

Each part of the book begins with a list of the standards and tools used in the preparation and processing of that part of the cataloging record covered, followed by suggested background readings selected to help the reader gain an overview of the subject to be presented. The list includes many works

considered to be classics in the field. For those who wish to pursue the subject in greater depth, additional works are listed in the bibliography.

In this book, an attempt has been made to reflect current practice. Part one, which consists of chapters 1 and 2, provides a general overview of description, organization, and access relating to library resources within the context of the information environment in general, followed by a brief preview of the basic functions of cataloging and classification, and an introduction to principles, conceptual models, and a historical account of cataloging standards development. Part two, consisting of chapters 3 and 4, covers record structures, encoding formats, and metadata standards.

Part three, *Resources Description and Access* (RDA), consists of chapters 5–9 and offers new content first introduced with this fourth edition, replacing the detailed discussion of Anglo-American Cataloguing Rules (AACR2) rules of previous editions of this book. It covers the principles of and guidelines for identifying works, expressions, manifestations and items, identifying persons, families, and corporate bodies, creating authorized access points for each entity respectively, plus the recording of relationships between entities.

Part four, consisting of chapters 10–14 on subject representation and access, begins with a general chapter on subject access and controlled vocabularies followed by chapters discussing major subject access systems, including Library of Congress Subject Headings and Sears List of Subject Headings. A brief introduction of a specialized system, Medical Subject Headings and the newer FAST (Faceted Application of Subject Terminology) is also included.

Part five, Organization, covers the classification and categorization of library resources, with emphasis on the two major systems: the Dewey Decimal Classification and the Library of Congress Classification. The discussion and examples pertaining to the Dewey Decimal Classification in part five are based on Edition 23 of the DDC full version. The discussion of, and examples from, the Library of Congress Classification system are based on the most recent editions of classes in Library of Congress Classification. Part five also includes a discussion of the National Library of Medicine Classification as well as brief discussions of a number of other classification systems. Some of the systems that are seldom used or no longer in use but not necessarily inferior to those in use are included for the purpose of exposing students to ideas that challenge current practice and helping to illustrate the principles and theory embodied in different manifestations. The chapters on individual subject headings systems and classification schemes have been designed so that they may be used as a whole or selectively. For example, chapter 13, on Sears List of Subject Headings, may be used without first studying chapter 11, on Library of Congress Subject Headings; and in chapter 16, the sections on the abridged edition of the Dewey Decimal Classification can be used without first studying the section on the full edition. As a result, certain

over-lapping discussions or repetitions of similar points occurs in these chapters. This method of presentation is used because certain library science programs are designed for specific types of libraries (for example, school libraries and media centers) and generally do not cover all systems of subject cataloging or classification.

It should be pointed out that this text is intended to be an aid in the study of these operations and their attendant tools and not as a substitute for the tools themselves. In other words, one cannot prepare a bibliographic description of a resource without resorting to the *Resources Description and Access* (RDA) or classify an item without using a classification scheme. Therefore, the discussion concentrates on the essence of the rules and no attempt is made to replicate or reproduce the cataloging rules in the text.

A glossary containing common terms in cataloging and classification, updated to reflect recent developments and current literature, is included, as is a bibliography of cataloging tools and selected writings in the field.

Examples illustrating various cataloging operations consist of extracts mostly from Library of Congress cataloging records. Encoding-system-independent examples, based on standards of description RDA are given for a variety of resources and, in addition, complete records are included in the appendixes to show how the parts fit together in the final cataloging product using current practices in many libraries in the US. Throughout this edition, one set of examples, the authority record for G. Edward Evans and the bibliographic record for the third edition of his book on management basics, is used to illustrate the structure of and relationship between records and the various manifestations of the same records in different cataloging systems. Appendix A also contains a set of records showing the cataloging of different manifestations and expressions of a particular work, Jane Austen's *Pride and Prejudice*.

We wish to extend our gratitude to many individuals for their contributions to the contents of this book and assistance in the preparation of this edition. We also wish to extend our gratitude to those assisting with the previous editions on which this book builds. These include experts in the field, instructors of cataloging and classification, reviewers and editors of the manuscript, experts and graduate students assisting with editing, indexing, and proofreading. Last, our thanks goes to our families for their patience and support.

Part I

INTRODUCTION

Chapter 1

Information Resource Management

Description, Access, Organization

INTRODUCTION

The ways people look for information have changed enormously in the last fifty or sixty years. Up to the late 1940s, most people went to a library if they could not find what they wanted among their resources at home. There, besides finding a wealth of reference materials to consult, they could use the card catalog, whose brief, item-by-item records (organized by author, title, and subject) showed what the library had and where it could be found on the shelves. In those days, printed books made up the most substantial part of most library collections, with journals and their attendant abstracting and indexing vehicles making up a lesser part, except in special-subject libraries. As the last century wore on, however, more and more nonprint materials (sound recordings, visual materials, microforms, globes, dioramas, and so on) were gradually added. By late in the century, most library collections included a growing proportion of local-access electronic resources, and libraries began providing access to remote-access electronic resources as well.

Today, people have untold amounts of information available at their fingertips, whether at home, in school computer labs, in libraries, or anywhere else with Internet access. Collections, or the resources accessible to library users, are not necessarily housed in the library anymore. A large amount of information is digital. What has made the difference, fundamentally, is the use of computers in processing information for storage and retrieval. Technology has made a major difference to library operations, as it has in so many other sectors of today's world. One example is that card catalogs have morphed to online catalogs (previous called OPACs for "Online Public Access Catalogs") or electronic catalogs. Electronic catalogs offer access not only to local library holdings, but also to a wide range of distant information

sources; among the examples of this are the full catalogs of major research libraries, the offerings of abstracting and indexing journals and other catalog-like services, digital libraries, and all of the resources available through the Internet. Most modern catalogs allow quite sophisticated search options to users who are trying to hone in on material of interest.

There is no question that the Internet dominates today's information environment. With so many home computers, with computer labs in most schools, with Internet access offered by most libraries, and with Internet access outside the home and libraries almost worldwide, it is often the Internet that is first approached for information seeking. The Internet is a vast information store, so vast that a person submitting a query may well be told, on being given an initial response list of twenty or thirty "hits," that there are thousands more. For many users, this may be sufficient; however, for many others, this may not be a satisfactory response because there is no mechanism for them to efficiently select the best or most useful information that the Internet can offer. Thus, there is a downside in having easy access to what is apparently an unlimited supply of information.

The primary focus of this book is the mechanisms the library sector of the information community has worked out for identifying—and thereby enabling others to find—the materials for which its sector is responsible.

In this context, it should be noted that traditional library catalogs, in whatever form, provided access to information at the level of a book or separately published document. Journals and other serials were listed under their titles, with information noting what volumes and issues their respective institutions held. However, users had to consult other tools to locate individual journal articles. Indexes to periodicals and journals, as well as abstracting services, were developed outside the library community to fill this need. Early periodical indexes were manually prepared and published in print versions. Almost all are now online, and are referred to collectively as the online database industry. Most are proprietary, but are available to the public, free or for a fee.

In the library community access to information is two-pronged. First, some sort of topical labeling is provided to help those who are trying to zero in on a subject. Second, enough information is given about the item at hand that a searcher can tell whether the item is a fair match for what he or she had in mind when formulating the search. These can be represented by the two sorts of information in traditional catalog records: (1) content information, such as subject headings, classification numbers, and, in some cases, content summaries; and (2) identification information, such as author and other responsible agents, title, publisher, place and date of publication, series membership, various control numbers, and so on.

When the power of the computer for search and retrieval first became apparent, there was some speculation in the library environment that, with the right programs, computers could greatly simplify, perhaps even take over, the somewhat tedious job of preparing items for search and retrieval. This was a heady prospect because constructing catalog records is a labor-intensive process requiring highly trained personnel, and is thus very expensive. However, early expectations regarding how much could be done automatically proved overly optimistic. Searching by subject in full-text search systems delivered fairly satisfactory results when the amount of available information was relatively small, but led to overwhelming retrieval sets as the amount of available information became enormous.

The information world of the first couple of decades of the twenty-first century is complex, with many independent agencies and factors contributing to the overall picture. The situation is perhaps made more easily understandable through the realization that information resources and activities can be grouped into three different sectors. One is represented by the Internet and the designers of its components, another by libraries and other traditional information agencies such as archives and museums, and the third by online information service providers. Each of these sectors is constantly searching for improved and cost-effective means of making information available to those who seek it.

It is the library sector of the information community that has the longest history in respect to bibliographic access systems. The chapters of this book presents an account of what has been done in that sector from early on to the present day. Such an account has been considered essential preparation in the past for those entering the library-based profession and has also served as a helpful text for those in the profession who feel they would benefit from a systematic and analytic review. The account may even be of help to the information community at large.

Of particular interest, of course, are changes in all aspects of information retrieval that have come about since the beginning of the 1950s, in what we may call the online age. Since then, most developments in the library and online database industry have rested on theoretical and practical developments in information technology—of which the most well-known and possibly the most significant are the Internet and the World Wide Web (WWW). It may therefore be instructive here to present parallel accounts of the milestones that each of the three sectors has passed on the road to their current positions. The Internet is featured here because it plays such an important role in current information-gathering activities. Developments in the online database service industry are grouped with those in the library sector because their retrieval mechanisms are similar in many respects.[1]

TIMELINES IN INFORMATION ACCESS

Foundations, Both Environments

The first rumblings of the approaching tectonic shift in information processing and retrieval were heard in Vannevar Bush's 1945 "Atlantic Monthly" article,[2] in which he posited the future possibility of an online interactive information-retrieval system he called Memex. Large computers, the necessary vehicles for such a system, were then in development. ENIAC (Electronic Numerical Integrator and Computer), the country's first electronic computer, was operative the following year at the University of Pennsylvania, and in 1948, Bell Laboratories developed the transistor. In 1951, Remington-Rand built UNIVAC (UNIVersal Automatic Computer), the first commercial general-purpose electronic computer. The same year, Mortimer Taube presented a paper on (computer-based) coordinate indexing, and two years later, proposed an indexing system based on what he called "uniterms," a concept that underlay the future practice of keyword indexing. The Atlantic cable, a requirement for efficient communication between Europe and the United States, was laid in 1956. In the late 1950s, Hans Peter Luhn showed how the computer could be used to enable keyword searching, sorting, and content analysis of written texts,[3] and from that time on, computer technology was applied almost universally in the field. In September 1956, IBM began shipping RAMAC (Random Access Memory Accounting System), the first hard drive—its capacity was 5 megabytes, it weighed a little over a ton, and it cost $50,000 (an estimated $350,000 today)—to lease for a year. From then on, its capacity increased as dramatically as its cost declined. By 2006, a gigabyte of storage on a 320 gigabyte, 3.5-inch hard drive cost less than 50 cents, and in 2013, three terabytes of storage became available with an average cost of less than 4 cents per gigabyte.[4]

1957–1970, the Internet Environment

In October 1957, the Union of Soviet Socialist Republic launched Sputnik, the world's first artificial satellite, a device the size of a basketball. The next month, it launched Sputnik II, with a considerably bigger payload including a dog named Laika. These launches may be considered the beginning of the space age and also of the space race. The US government reacted by funding programs aimed at regaining its former leading position in science and technology. An immediate step was establishing the National Aeronautics and Space Administration (NASA) in October 1958. Another was setting up the Advanced Research Projects Agency (ARPA) in the Department of Defense. One of ARPA's projects was designing a computer "interface message" system. With its first IMP (Interface Message Processor) delivery, ARPANET,[5] the progenitor of the Internet, became operable in August 1969.

1957–1970, the Library and Online Database Industry Environment

In the early 1960s, the Library of Congress (LC) began working on developing a coding system to enable computer manipulation of library catalog records. The result was MARC, an encoding language whose name is based on the words Machine-Readable Cataloging. LC began using it, and trial distribution of MARC tapes began in October 1966; by June 1968, approximately 50,000 coded records had been distributed to participating libraries. Libraries nationwide embarked on programs to convert their old catalog records in card form to ones that were machine-readable. Worldwide, many countries began developing their own MARC formats and cataloging-record conversion programs. In most libraries, early use of MARC was confined to printing catalog cards.

The early 1960s saw the emergence of various information databases run by corporations such as Lockheed Information Systems and the System Development Corporation (SDC) with support from government agencies such as NASA and the National Library of Medicine (NLM). Lockheed's RECON (later to become DIALOG) surfaced in 1965, and ERIC (Educational Resources Information Clearinghouse) in 1969. Throughout the 1960s, batch-processing of data was the rule for most of these systems.

Another important trend in the 1960s was growth in international cooperation on bibliographical matters. In 1961, the International Conference on Cataloguing Principles, a conference that resolved many country-to-country cataloging differences, was held in Paris. *Anglo-American Cataloging Rules* (AACR) was published in 1967, providing a set of rules that were drafted according to the Paris Principles and that governed how works were described and entered into a bibliographic database. In 1969, an international group began work on a standard order and content for describing monographic material, which led to the family of International Standard Bibliographic Descriptions known as ISBDs.

The 1960s also saw developments in indexing theory and practice. In 1961, Chemical Abstracts began regular publication of a KWIC (Key Word In Context) index to its *Chemical Titles*, and in 1964, the Institute for Scientific Information began producing a citation index for publications in science and technology.

1971–1980, the Internet Environment

1971 saw the first e-mail on ARPANET. University College of London connected with ARPANET in 1973 to make ARPANET's first international connection. In 1974, Vinton Cerf developed the basic architecture—TCP/IP (Transmission Control Protocol/Internet Protocol)—for a large complex

network, and the same year saw the first published appearance of the term "Internet."

1971–1980, the Library and Online Database Industry Environment

One of the major developments in the 1970s was the emergence of shared library cataloging systems. Prominent examples include RLIN (Research Libraries Information Network), OCLC (Ohio Colleges Library Center, later named Online Computer Library Center), and WLN (Washington Library Network, later named Western Library Network).

Another important development was the emergence of dial-up access to specialized informational databases: MEDLINE, for the medical community, was the first, in 1971. Not to be ignored in this context is the importance of the development and subsequent wide availability of personal computers. Radio Shack's TRS-80 personal computer was first marketed in 1976, and Apple II in 1977.

Interest in indexing languages continued during the decade, with PRECIS (Preserved Context Index System) coming into use in England in 1974.

The MARC formats for encoding cataloging data were adopted as a national standard (American National Standards Institute [ANSI] Z39.2) in 1971, and as an international standard (International Organization for Standardization [ISO] 2709) in 1973. On the international front, the 1973 International Federation of Library Associations (IFLA) Conference adopted the goal of Universal Bibliographic Control, under which a publication would be cataloged at the time and place of issue, with cataloging data available worldwide.

Finally, a second edition of the cataloging code AACR, noted above, was published in 1978. The new edition reflected the fact that library collections had by that time come to include many types of items—computer files being one example—for which earlier rules for description and access were inadequate.

1981–1990, the Internet Environment

MS-DOS surfaced in 1981, and 1982 saw the first use of the term "cyberspace." The first domain name was registered in 1985, and the entity that was to become America Online also was founded that year. In 1986, The National Science Foundation's NSFNET merged with, and then replaced, ARPANET. 1989 saw the rise of Compuserve and also AOL's debut. In 1990, a new system was being developed at CERN (originally the Center for European Nuclear Research). It combined hypertext and Internet technologies, and was called the World Wide Web (WWW, as noted earlier).

1981–1990, the Library and Online Database Industry Environment

The 1980s saw the rounding-out of a trend that had begun somewhat earlier: the transformation of library catalogs from banks of catalog-card drawers to bibliographic databases accessed through personal computer screens. The new catalogs were known as OPACs. The first OPACs, now referred to as "first generation," allowed faster and easier searching, but were limited to on-site collections with search options not much beyond those of card or microfiche catalogs. Gradually, OPACs offered more and more sophisticated search options. By the late 1980s, OPACs had shown many improvements (including keyword searching with Boolean operations), which resulted in significantly improved access points. There were also provisions for truncation, index browsing, and more display options for search results. OPACs at this stage are generally referred to as the "second-generation" OPACs.

The online database industry also made great strides during this decade, with the creation of more databases and with search options becoming ever more sophisticated. There were also increasing efforts to provide additional end-user searching features.

1991–2000, the Internet Environment

In 1991, CERN released the WWW or Web, or W3, which began as a networked information project at CERN under the direction of Tim Berners-Lee, now Director of the World Wide Web Consortium [W3C].[6] The Web became immediately popular, with the potential offered by hyperlinks capturing the imagination of the information community. In 1993, MOSAIC, the first graphical Web browser, developed by the National Center for Supercomputing Applications (NCSA) at the University of Illinois, was released.

The United Nations went online in the same year. WebCrawler, the first full-text search engine, became operational in 1994, enabling the harvesting of Web content and the creation of searchable indexes.[7] Yahoo!, Netscape Navigator, and Lycos also emerged in 1994, all offering full-text searching on the content of their databases. In the same year, Cambridge (Massachusetts) and Lexington (Massachusetts) became the nation's first wired communities. In 1995, Amazon.com, the programming language JAVA, and eBay appeared; in addition, AOL and Compuserve began offering Internet access. AOL bought Netscape in 1998, the same year that Google surfaced. For a year or two before the turn of the century, there was widespread anxiety that there would be a massive disruption of computer systems worldwide at midnight on December 31, 1999, due to the century date change. Nothing happened. Nupedia, ancestor of Wikipedia, appeared in 2000.

1991–2000, the Library and Online Database Industry Environment

The 1990s saw several major developments. Those responsible for MARC made gains in expansion and consolidation. USMARC merged with CANMARC to become MARC 21 in 1999 and 2000.

Library OPACs continued improving, with many commercial companies being set up to develop and maintain them. With the development of the Web browsers, OPACs moved to the WWW and were sometimes called WebPACs. Web features such as hyperlinks and hypertext enabled many sophisticated features to be introduced into the Web-based OPACs, further enhancing search capabilities, access points, and display options.

On the theoretical front, an IFLA committee began work on developing a new base for determining the necessary factors for achieving optimum bibliographic retrieval: a study titled *Functional Requirements for Bibliographic Records* (FRBR) was published in 1998, its final report having been approved by the IFLA Section on Cataloguing in 1997.[8] Many new metadata schemas—special-purpose coding systems designed to cover different types of materials not well-served by existing schemas—appeared during this decade. A prominent and fairly general one is the Dublin Core (DC), developed at OCLC and aimed especially at Web materials. Work began on it in 1995.[9]

The DC schema calls for subject indicators, but traditional LC subject headings under their current rules for application are too cumbersome for that purpose. Accordingly, in 1998, OCLC began work on a subject-heading system called FAST, the initials standing for Faceted Application of Subject Terminology.[10] FAST is based on the terminology of Library of Congress Subject Headings (LCSH) but uses simpler application rules. It is designed to be easier to apply, to offer more access points, to be flexible, and to be interoperable across disciplines and access environments.

2000 on, the Internet Environment

In 2001, Wikipedia superseded Nupedia. The same year, the *New York Times* went on the Web, and Skype (an Internet phone service) was introduced. Google expanded over the next few years, offering Google Print, Google Earth, Google Scholar, and Google Knowledge Graph. In 2011, Google Art Project allowed users to take a virtual tour of the world's best museums and explore more than 1,000 works of art. In 2004, Google not only announced an IPO (Initial Public Offering) of stock in its company, but also began scanning, and making searchable, the contents of five major research libraries. In 2005, Yahoo! counted three million visitors a month, and the one-billionth Internet user went online. In April 2006, a Google-Earthlink team and the city of San Francisco agreed to sign a contract to install a WiFi (wireless

fidelity) network for the whole city, to be free, or at very low cost, to users. At the same time, Earthlink was negotiating similar contracts with Philadelphia, Pennsylvania, Anaheim, California, New Orleans, Louisiana, and won several contracts, launching its first citywide WiFi network in Anaheim. In 2012, the company upgraded its network infrastructure by adding next-generation optical transport capabilities and significantly expanding its nationwide IP footprint.

2000 on, the Library Environment

By 2002, AACR2 had undergone yet another revision. The consensus of the information community was that a new code was called for, a code that would include provisions for rapidly developing information items and packages and that would incorporate the conceptual framework set forth in the document, FRBR.[11] The Joint Steering Committee for the Revision of AACR (JSC) began work on such a code in 2005; their work was initially released in June 2010 as "*RDA: Resource Description and Access*" in the RDA Toolkit,[12] which was meant to replace AACR2. In March 2013, the LC started full implementation of RDA cataloging, and several other national libraries announced their plans to implement RDA in 2013, including the British Library, Library and Archives Canada, National Library of Australia, and Deutsche Nationalbibliothek.

By 2013, OCLC's WorldCat contained over 290 million bibliographic records and more than two billion holding records for items from more than 170 countries and in 470 languages.

As time progresses, online database providers continue to increase the contents of their databases and improve searching capabilities, with Web interfaces providing multiple options for users of differing degrees of skill and sophistication. Attempts are also being made to link search results to holdings of particular libraries.

Future Prospects

In 2006, OCLC made a bold move to provide free access to its vast WorldCat database (hitherto accessible to OCLC members only) through its Open WorldCat program.[13] This program enables Web users of popular Internet search, bibliographic, and bookselling sites such as Google, Yahoo! and Bing to identify and locate library materials. For example, through Google Books,[14] a partner site in the OCLC Open WorldCat program, users can search for all sorts of library materials, retrieve bibliographic data based on cataloging records, and locate copies in OCLC libraries by city, region, and country. Google Books has partnered with publishers through the Partner

Project and with libraries through the Library Project to connect Web users to books.

By 2013, Linked Open Data (LOD) initiatives were starting to publish data on the Web. Information providers such as OCLC and the LC have made data available as linked data, and many libraries and other information agencies publish their data, including resource metadata as linked data. Linked data provide a set of simple rules that allow representation of any conceptual thing on the Web, using unique resource identifiers (URIs). Linked data provide information that describes conceptual things and also indicate explicit relationships to other conceptual things that also have URIs. Linked data will allow library systems and library users to explore data related to a resource not only based on library metadata, but on many other sources of data as well. Other Web search engines already use linked data to connect searchers to many authoritative sources, including library catalogs.

Because most people start their information searches on the Web, the result of these initiatives is a convergence of access to both library and Web resources. Libraries are thus much more visible on the Web than they were before. These recent developments represent the first steps toward the vision of integrating library catalogs with open Web discovery tools.[15]

LIBRARY AND INTERNET ACCESS PROVISIONS

The trends revealed in the accounts above can be summarized as follows:

The Internet environment shows an accelerating increase in technological advances, coverage, and services, with no sign of slackening on any front. It has been international in scope and participation since the beginning. Services offered are mainly proprietary, a fact that means that little or no information is available about what methods the various search services use to produce their results.

The library environment, with a much longer history, took steps to enter the online age at its beginning, through its development of MARC and MARC-like coding systems. The online age continued the trends that had previously been in effect, working toward consistency on the one hand and expanded coverage on the other. The latter, in particular, focused on the types of materials that cataloging rules and coding systems are designed to handle. International cooperation on all fronts increased steadily over the fifty-year period at issue. Control mechanisms for names, for surrogate design and content, and for topic designators are still strong. OPACs, and more recently WebPACs, with their increasingly sophisticated access provisions and search options, have replaced card and book catalogs in almost all libraries.

It is appropriate here to consider information-retrieval results from Internet and library or library-like search systems. At the end of a subject search on the Internet using full-text searching—the most common Internet search mode—the user is presented with a list of the leading documents within a much longer list of links to information sources that contain his or her query term. There is no mechanism to inform that user of other documents on the same topic whose authors use a synonym for the submitted term. Furthermore, the number of these other documents in a list of all retrieved documents is often at least in the thousands. Internet name searches may deliver many matches with little or nothing to differentiate them, with many in the list being the wrong fit for the wanted entity or individual.

Searches in bibliographic databases designed on the pattern of library catalogs result in a smaller number of hits and a higher on-target rate. There are two main reasons for such precision. One is that such databases store brief representations of documents, representations drawn up by trained catalogers who have studied the documents to which the representations apply. The other is that modern systems such as OPACs are likely to have embedded synonym control, ensuring that a user wanting material about eyeglasses will get all the system has to offer even if his or her query term is "spectacles." If a given system lacks embedded controls, it at least presents users with *see* and *see also* references. Modern systems do the same thing for names, so that users searching for an author's works will get all the material that author wrote, whether they search on the author's real name or a pseudonym. Synonym control also acts as a filter, using qualifiers for distinguishing ambiguous terms. Thus, users are not presented with material on both submitted terms and on their homographs, for example, on both waterfalls and eye-lens conditions in response to a search on "cataracts."

Why do the two systems deliver such different results? The key concept is "bibliographic control," a term in use for decades among librarians. Behind the phrase "bibliographic control" lie two other concepts: *recall* and *precision*. A system is said to have good recall if a search delivers almost everything in its collection or database that matches a submitted query. And it is said to have good precision if the search delivers almost nothing else. Although very few library systems rate a perfect score on these two measures, many come close.

BIBLIOGRAPHIC CONTROL

As a prelude to discussing the concept of bibliographic control with all its ramifications, it is useful to describe the role that adherence to standards has played in the library sector of the information community. Even late in the nineteenth century, librarians began to realize the advantages of standardizing

practice and fostering cooperation among libraries. The need for codification of cataloging practice became particularly apparent as the use of cooperative or shared cataloging increased. Economically, shared cataloging is a boon for libraries, greatly reducing cataloging costs. However, libraries can benefit from shared cataloging only if the records in the catalogs of different libraries are compatible. One reason for aiming for a high level of compatibility was the observation that user searches are more successful when document surrogates are consistent with others in the same system. Another is the fact that many practical aspects of library management are more efficient if records are consistent. Such consistency is especially important among records in a union catalog (i.e., a catalog of multiple collections) or in a union database with records coming from different sources. Only if participating libraries follow the same cataloging rules and practices can optimum compatibility of records be obtained.

Particularly since the late nineteenth century, numerous standards for bibliographic control have been developed. There are separate standards for bibliographic description, for subject and nonsubject access, and for classification. For bibliographic description, the primary standard used in library catalogs in English-speaking countries until 2013 has been the AACR, first published in 1967 and revised every few years since until 2005. RDA is expected to replace AACR. For specific types of materials, such as archives and electronic resources, additional standards—called metadata schema—including Encoded Archival Description (EAD) and DC have emerged. For access, AACR and RDA include rules for designating and formulating nonsubject access points through names of persons, corporate bodies, families, titles, etc. Subject access points are determined by other standards such as LCSH, *Sears List of Subject Headings*, and *Medical Subject Headings* (MeSH). For organization, the most commonly used schemes are the *Library of Congress Classification* (LCC) and the *Dewey Decimal Classification* (DDC). These standards are discussed in detail in the following chapters.

A library or other information system can keep its collection under bibliographic control when it follows these standards appropriately for the situation at hand. To understand why the provisions of various standards were designed as they are, one needs to consider the functions of bibliographic control mechanisms—in other words, what bibliographic control is supposed to achieve. Various thinkers over the years have written on this subject. A synopsis of the most influential statements follows.

FUNCTIONS OF BIBLIOGRAPHIC CONTROL

Among the earliest articulation of the functions of bibliographic control was Charles A. Cutter's statement of the "objects of the catalog" and the means

for attaining them, as found in his cataloging code, *Rules for a Dictionary Catalog*; these functions are[16]

Objects

1. To enable a person to find a book of which any of the following is known:
   a. the author
   b. the title
   c. the subject
2. To show what the library has in terms of the following:
   d. a given author
   e. a given subject
   f. a given kind of literature
3. To assist in the choice of a book with respect to the following:
   g. its edition (bibliographically)
   h. its character (literary or topical)

Means

1. Author entry with the necessary references (for 1a and 2d)
2. Title entry or title reference (for 1b)
3. Subject entry, crossreferences, and classed subject table (for 1c and 2e)
4. Form entry and language entry (for 2f)
5. Giving edition and imprint, with notes when necessary (for 3g)
6. Notes (for 3h)

In the mid-twentieth century, the notable articulation of cataloging principles and theory came from Seymour Lubetsky. Lubetsky was a librarian at the LC and later a professor at the School of Library Services at the University of California, Los Angeles. His primary interest was descriptive cataloging, the functions of which he posited as the following:[17]

1. To describe the significant features of the book that will serve (a) to distinguish it from other books and other editions of the book, and (b) characterize its contents, scope, and bibliographical relations; and
2. To present the data in an entry that will (a) fit well with the entries of other books and other editions of this book in the catalog, and (b) respond best to the interests of the majority of readers.

Lubetsky was a prolific writer. His work underlay the deliberations of the International Conference on Cataloguing held in Paris in 1961. The Statement

of Principles, also known as the Paris Principles, adopted by the Conference includes the following "Functions of the Catalogue":[18]

> The catalogue should be an efficient instrument for ascertaining
>
> 2.1 whether the library contains a particular book specified by
> (a) its author and title, *or*
> (b) if the author is not named in the book, its title alone, *or*
> (c) if author and title are inappropriate or insufficient for identification, a suitable substitute for the title; and
> 2.2 (a) which works by a particular author and
> (b) which editions of a particular work are in the library.

This statement in turn laid the basis for the code that dominated the second half of the century: AACR.

In 1998, FRBR redefined the requirements for bibliographic records in relation to the following generic tasks that are performed by users when searching and making use of national bibliographies and library catalogs:[19]

- using the data to find materials that correspond to the user's stated search criteria (e.g., in the context of a search for all documents on a given subject, or a search for a recording issued under a particular title);
- using the data retrieved to identify an entity (e.g., to confirm that the document described in a record corresponds to the document sought by the user, or to distinguish between two texts or recordings that have the same title);
- using the data to select an entity that is appropriate to the user's needs (e.g., to select a text in a language the user understands, or to choose a version of a computer program that is compatible with the hardware and operating system available to the user);
- using the data in order to acquire or obtain access to the entity described (e.g., to place a purchase order for a publication, to submit a request for the loan of a copy of a book in a library's collection, or to access online an electronic document stored on a remote computer).

As a follow-up on the development of FRBR, IFLA published the *International Cataloguing Principles* in 2009, with its main focus being to guide the development of cataloging codes. Section 4 of the statement includes the revised objectives and functions of a catalog, which should enable the user[20]

> 1. to find bibliographic resources in a collection as the result of a search using attributes or relationships of the resources:
> 1.1. to find a single resource
> 1.2. to find sets of resources representing
> all resources belonging to the same work

all resources embodying the same expression
all resources exemplifying the same manifestation
all resources associated with a given person, family, or corporate body
all resources on a given subject
all resources defined by other criteria

2. to identify a bibliographic resource or agent
3. to select a bibliographic resource that is appropriate to the user's needs
4. to acquire or obtain access to an item described or to access, acquire, or obtain authority data or bibliographic data;
5. to navigate within a catalogue and beyond.

Similarly, RDA states that its objectives for responsiveness to user needs are to guide data creation that will enable users to[21]

- *find* resources that correspond to the user's stated search criteria;
- *find* all resources that embody a particular work or a particular expression of that work;
- *find* all resources associated with a particular person, family, or corporate body;
- *find* all resources on a given subject;
- *find* works, expressions, manifestations, and items that are related to those retrieved in response to the user's search;
- *find* persons, families, and corporate bodies that correspond to the user's stated search criteria;
- *find* persons, families, or corporate bodies that are related to the person, family, or corporate body represented by the data retrieved in response to the user's search;
- *identify* the resource described (i.e., confirm that the resource described corresponds to the resource sought, or distinguish between two or more resources with the same or similar characteristics);
- *identify* the person, family, or corporate body represented by the data (i.e., confirm that the entity described corresponds to the entity sought, or distinguish between two or more entities with the same or similar names, etc.);
- *select* a resource that is appropriate to the user's requirements with respect to the physical characteristics of the carrier and the formatting and encoding of information stored on the carrier;
- *select* a resource appropriate to the user's requirements with respect to form, intended audience, language, etc.;
- *obtain* a resource (i.e., acquire a resource through purchase, loan, etc., or access a resource electronically through an online connection to a remote computer);
- *understand* the relationship between two or more entities;
- *understand* the relationship between the entity described and a name by which that entity is known (e.g., a different language form of the name); and
- *understand* why a particular name or title has been chosen as the preferred name or title for the entity.

BIBLIOGRAPHIC CONTROL THROUGH SURROGATES

We now turn to a discussion of the various ways those in charge of different types of bibliographic systems operate their databases. Managers of large bibliographic systems, for the most part, employ two different ways of setting up items of database content for efficient storage and retrieval. One is to store the full text of whatever is posted or submitted and conduct searches of that. Most Internet and Web searches are on full text, and search engines such as Google and Bing apparently base their results on calculations involving term frequencies and links. (As noted above, the retrieval mechanisms most search engines use are trade secrets, so outsiders cannot know just how they work. Informal surveys, however, indicate that user satisfaction is high.) The other way to manage storage and retrieval for a collection of documents or other book-like materials is to construct and store *brief representations* of what is in the collection. This is what has been done for centuries, and is still being done, in the library environment. There, before the advent of computers, the only way to go directly to the full text of books or journals was to go to library or bookstore shelves, scan for a promising item, then pick it up and flip through its pages. Such a process was neither efficient nor ultimately satisfying for those who wanted to do systematic searches for information. Accordingly, throughout the history of bibliographic lists or catalogs, those in charge of a collection have created brief descriptions conveying the salient facts about the items they hold. Booksellers at the medieval Frankfurt book fairs drew up such descriptions, mostly in the form of brief-title listings. Librarians have done the same since the early days of the field, drawing up (and setting up for searching) descriptions that are referred to either as document surrogates or as bibliographic records—terms that are used interchangeably in the paragraphs that follow.

Surrogates present essential information about documents and other cataloged items: in brief, the responsible agent's name, title of work, publisher, date, content, and so on, to the extent that those elements apply. Surrogates are constructed by human catalogers or indexers based on the actual content of the resource, and now follow a standard, internationally recognized pattern for at least part of their content. (Internationally, the pattern for description is the ISBD[22]; in the Anglo-American cataloging environment, it is AACR[23] and RDA.)

A more comprehensive account of surrogates is that they carry information on authors or other responsible agents, on coauthors if any, on other contributors such as illustrators or translators, on title (and subtitle if any), on edition, and on publisher, place of publication, and copyright. They also show series membership, if any, and provide notes on anything unusual about the edition. Furthermore, they carry subject headings reflecting topical coverage, and

classification numbers showing where the item can be located in a physical collection as well as how the item's topic fits into a hierarchical portrayal of human knowledge. In the United States, most subject headings are chosen from LCSH, a huge list of continuously updated headings that incorporates synonym control and suggests related, broader, and narrower terms as well. (In some situations, catalogers use headings from a smaller, somewhat simplified, subject-headings list known as the *Sears List of Subject Headings*.) Again in the United States, most records carry classification numbers from both DDC and LCC. In individual library collections, class numbers are followed by *book numbers,* or *item numbers*, to sequence the item to which the record pertains among others in the same class position (and therefore in the same area of the shelves). Finally, records also carry other control numbers, such as the item's International Standard Book Number (ISBN) and its LC control number. (It should be noted here that surrogates carrying all the information detailed above are not appropriate to all storage and retrieval situations. A bookstore with a stock of a few thousand titles does not need surrogates to carry all the information that a library of millions or many hundreds of thousands requires in its surrogates.)

Another, and older, term for a document surrogate is a bibliographic record. Bibliographic records are the building blocks of a bibliographic file. Each bibliographic record pertains to an item in the collection represented in the file, and contains two primary kinds of information: first, enough data for the item to be identifiable in the context of the file, and, second, at least one assigned "access point." Names of authors are access points, as are titles and subject terms, as well as other entities, such as performers. In addition, there may be any number of computer-extracted words that also serve as access points. Broadly defined, a bibliographic record could be an entry in an index, in a bibliography, in a library catalog, or in any other text-based file. The amount and nature of information included in a record depend on the purposes for which the file is prepared. In some bibliographic files, such as scientific periodical indexes or catalogs of highly specialized libraries, it is appropriate that records provide extensive subject and/or descriptive information; in others, such as a short-title catalog of items published at a given place and time, very little information per item is often sufficient. Creating records of the kind just described requires highly trained personnel if the work is to be done well. One of the issues facing library-oriented information professionals at the present time is to determine whether current practice is cost-effective, and if not, how it might be made so.

An important factor in the cost of surrogate production stems from a long-held library-world tenet: name and synonym control. One of the principles behind the design of library-oriented retrieval mechanisms is that material on the same topic should be tagged with the same subject heading, not disbursed

in an alphabetical array, as happens if some materials on timekeeping devices are labeled clocks, some watches, some timepieces, some chronographs, and so on. The same principle holds for names, whether personal, geographic, corporate, or named entities such as the Flatiron Building or a work such as the *Iliad*. To achieve a system reflecting the one-term-per-entity principle, catalogers had to work out a mechanism to show what terms or names should be preferred. The result for topical terms, built over more than a century, is LCSH, a list of preferred terms with directions on what references should be made to broader terms, to narrower terms, and to related terms at the same hierarchical level, such as near-synonyms. The list also carries alternates to preferred terms called lead-in terms with references to the preferred term. (Lead-in terms are words searchers might use in looking for the topics denoted by the preferred term.) A similar mechanism exists for names, and a preferred-term list exists for them also. Constructing such lists, called authority lists because they are lists of authorized terms, is a highly labor-intensive undertaking because it takes extensive checking into both popular and professional or scientific literature to ascertain the most effective term to authorize or establish. The procedure involved is called authority work; it must be done whenever new terms or names are added to preferred lists and also whenever terms or names already in the list are changed. Authority work, needed in keeping subject and name lists up to date as well as in dealing with new terms and names, is therefore the most costly aspect of the cataloging operation.

Another part of the cataloging operation, ubiquitous since computers first became an important factor in library work, is coding surrogates for computer manipulation; in other words, making them machine-readable. The LC began work on a workable coding system when it first became apparent that computers would be playing a significant role in library matters. The resulting system was MARC, which went into use in the late 1960s. Its current version, called the MARC 21 formats, is the standard encoding system for library materials, and is widely used all over the world.

In recent years, a new concept and product has entered the information-retrieval arena, the *metadata schema.* A rigorous definition of metadata is "structured data about data." Thus, a metadata schema provides a structure or standard format for recording data that bring out the essential characteristics of an information item or object. Although, in a broad sense, the term *metadata records* includes what are traditionally called catalogs and indexes, the term is used primarily for files designed to accommodate material that is not suited to standard cataloging rules and coding systems. Examples include archeological relics as well as various types of electronic resources.

Bibliographic files exist in many forms and, within each form, one file may differ considerably from another in type of bibliographical material

covered, the pattern followed in drawing up its records, amount of information provided per record, how records are organized, and how records may be retrieved. Bibliographic databases, which are bibliographic files in electronic form, show even more variation than manually prepared files because of the versatility and power of today's computers in handling bibliographic data and allowing different designs of online systems. It is through this power that bibliographic databases are able to offer users many more search and display options than were available in static systems.

Later chapters in this book discuss these various operations and tools in some detail, with copious examples.

SURROGATE PRODUCTION

The bibliographic control methods used for centuries to help library users find information consist of three distinct but related operations: description, access-point provision, and arrangement. *Description* refers to the preparation of a surrogate or a brief representation containing essential elements of the original resources, thereby creating a bibliographic or metadata record. *Access-point provision* refers to designating selected elements in the representation that the user can use as means to gain "entry" to the representation. (In a card catalog or online or static browsing list, access points are the headings under which records appear.) Both of these operations are carried out in accordance with established standards, AACR and RDA in English-speaking countries. *Arrangement* or *organization* refers to the method of arranging both surrogates and physical resources, also according to established orders, alphabetic (in most browsing lists or files), alpha-numeric (in LC classification order), or numeric (DDC order).

Description

In a broad sense, *resource description* refers to the process and the product of presenting, in a record, the essential facts concerning an information item, which are drawn up according to established standards. The resulting record in turn serves as the surrogate in the file or catalog for the full item itself. The purpose of resource description is to tell what the resource is, in enough detail to distinguish it from other items with similar descriptions, such as other editions or versions of the same work.

Different levels of description are appropriate for different situations. For some books, for instance, the title, the name of the author, and the location of the item are all that is needed in a description. On the other hand, descriptions in a rare-book dealer's sales list or catalog must be extensive

and detailed. Furthermore, the sorts of information needed in descriptions vary according to what is being cataloged: the descriptions of museum items and other realia must include different elements than descriptions of books. The same is true for descriptions of most nonbook items (including films and sound recordings) and especially for electronic resources.

Various user communities have drawn up metadata schemas that provide frameworks for resource description in which the details of the content elements are defined according to the needs of their communities. Therefore, metadata descriptions vary in content and in extent. When such factors apply, the most common elements of a metadata description include most of the elements specified in standard rules for description in addition to the community-specific elements for which the schemas were designed.

Conventions for bibliographic description have remained relatively steady, but not static, over the past several decades. To accommodate changes in the information environment, description standards have been revised on an ongoing basis. The unusually rapid proliferation of electronic resources, especially those available on the Web, has necessitated a reexamination of the way individual items are described for the discovery and retrieval of information. Standards for description are changing considerably. The many new metadata schemas that have already emerged are part of this change.

Methods of displaying bibliographic records have also varied over the years, from early manuscript (handwritten) catalogs to OPACs. To enable the display of records electronically, the elements within the records are encoded according to one or another encoding scheme, such as the MARC formats, HTML (Hypertext Markup Language), XML (Extensible Markup Language), and so on. MARC, the coding system widely used in the library environment—and in many others—is first presented at the end of this chapter and is discussed in detail in chapter 3 of this book. Many other encoding schemes, including those just mentioned, either are or can be made compatible with MARC.

Access

A catalog or a bibliographic database contains a collection of bibliographic records. Sizes of catalogs or databases vary greatly from hundreds to thousands to millions. To aid retrieval in *surrogate-based databases*, the record elements that are most frequently used by users to identify resources have traditionally been designated as access points. Typical access points include subject terms and nonsubject elements such as the title and the name of the author(s), editors, translators, and suchlike. To ensure consistency, standards concerning the designation or assignment of access points are followed.

Arrangement

The growing volumes of a library collection or a virtual collection of electronic resources require efficient methods of organization. Early on, for library collections, elaborate classification schemes were devised for shelf arrangement, with the aim of enabling easy browsing and retrieval. Many such schemes are still in use, particularly, in the United States, the DDC and the LCC. The same schemes also are often used for listing entries in a catalog or bibliography. A case can be made that electronic resources must also be organized in some logical and easy-to-navigate fashion if search and retrieval are to be made easier and more efficient. To date, for resources on the Web, relatively simple classification or categorical schemes are being used in some systems to guide users to desired subjects. In fact, the name of the search engine Yahoo! is said to reflect the phrase "Yet Another Hierarchically Organized Operating system." Hierarchical schemes have also been used in Web directories to display search results or to organize the links between and among retrieved items. These links are typically URIs.

Methods of displaying bibliographic records may or may not reflect how they are organized or sequenced *within* a bibliographic database. In manually maintained systems and in the early OPACs, what users saw reflected the internal organization of the system. In fully electronic systems, internal organization is hidden from users; however, in most modern systems, users are offered many options for how they want search results displayed.

LIBRARY CATALOGS

General Characteristics

A library catalog is a kind of bibliographic file. It differs from a bibliography or a periodical index in that all of its records pertain to items in one or more libraries and carry information on where the items can be found. Most library catalogs represent a single institution's holdings (which may be distributed in many branches). Other catalogs show the holdings of several libraries or collections; these are called *union catalogs*.

A library catalog consists of a set of records that, like the records in other bibliographic files, provide data about the items in the collection or collections the catalog represents. The data on each record include, at least (1) a bibliographic description giving the identification, publication, and physical characteristics of the resource; and, (2) for a physical item, a call number (consisting of the classification number, based on the subject content, and an item number, based on the author, the title, or both) that indicates the physical

location of the item in the collection. Most records also include subject terms, which state succinctly the subject content of the resource.

Almost all library catalogs are *multiple-access* files. This means that they offer many ways, or *access points*, to retrieve a particular record. In most card catalogs, there were often several cards for the same item, each filed under a heading that represented a different access point. This way of providing information about items in a collection—multiple-access points to records that provide sufficient details for identification plus characterization of content—helps users locate particular items or select items they judge to be relevant to the subject they are pursuing.

In library cataloging, it has long been the practice to designate one of the access points as the chief access point, or *main entry*. In most cases, the main entry is based on the author if such can be determined. Otherwise, the main entry is based on either the title or the corporate body responsible for the content or the title. There are two reasons for main entry practice. First, it is the most efficient way to manage lists that are maintained manually. In the days of manually prepared cards, it was the convention to record all needed information on one card and to include only brief descriptions on other cards (called added entries) for the same item. In online situations, the original justification for designating a main entry no longer holds. But even for computer-stored lists, it remains helpful to have a standard convention for the way a bibliographic item should be cited. The main entry pattern (in other words, author/title) is the usual way of referring to a work, a fact that adds to its effectiveness as a consistent citation standard. The terminology has changed with RDA, which instructs catalogers to record relationships between a resource and persons, families, or corporate bodies, at a minimum, as elements for the *creator* and *other person, family,* or *corporate body* associated with the resource. RDA does not use the term primary access point or main entry, but its use of MARC to encode RDA data carries the MARC 1XX field definitions as main entry fields.

Forms of Catalogs

When catalog records were manually produced—handwritten, typed, or typeset—there were only a few options for physical form: books, cards, and, to a limited extent, microforms. Within these forms, considerations of cost and bulk placed a severe limit on the amount of information that could be included in a given record and on the number of access points that could be provided for it. As it did with access points, the advent of catalog automation made a major difference in the potential forms catalogs could take and in the variety of features an individual catalog could exhibit. In particular,

automation removed the limits on record length that had prevailed in the manual environment.

The following brief account treats major catalog forms both historically and as they exist today.

Book Catalogs

The book catalog is a list in book form of the holdings of a particular library collection or group of collections, with the cataloging records displayed in page format. This is the oldest form of library catalog. Its items may be recorded by handwriting as in a manuscript catalog, by typing, or by a printing process. The oldest manuscript catalog goes back as far as the Pinakes compiled by Callimachus for the ancient Alexandrian library. The book form catalog was the predominant form of library catalog until the late nineteenth century, when use of the card catalog began to spread. Even so, manually prepared book catalogs continued to be issued in small numbers for many years. Also, for a period around the middle of the last century, several major libraries published their whole catalogs in book form, with their pages made up of photographs of their catalog cards, sequenced as they appeared in the catalog. Online catalogs, accessible from anywhere, eliminated the market for such publications.

Card Catalogs

In card catalogs, cataloging entries were recorded on 3" by 5" cards, one entry per card or set of cards. Each entry could then be revised, inserted, or deleted without affecting other entries. Before the card catalog, most library catalogs were in book form, either printed or looseleaf. When the card catalog was first introduced in the latter part of the nineteenth century, its advantage in ease of updating was immediately perceived, and libraries throughout the United States began adopting this form. The fact that, in 1901, readymade sets of card catalogs were being distributed by the LC to subscribing libraries contributed significantly to the widespread use of card catalogs. For nearly a century, the card catalog was the predominant form of catalog in the United States. It was catalog automation that eventually changed the picture, but not for well over a decade after its introduction: early catalog databases were used primarily to print sets of catalog cards.

Microform Catalogs

The microform catalog was a variant of the book catalog, and served in many situations as an interim device between card and online catalogs. It contained cataloging records in microimage and required the use of a

microform reader for viewing. The prevalent form of microform catalog was on microfiche, updated (that is, replaced by a new set of fiche showing additions and changes) on a regular basis, usually quarterly. The need for a microform reader, the handling of the fiche or film, and the display image all proved major psychological barriers for many users. For the early, not-always-dependable online catalogs, however, the microform catalog provided a viable backup.

Online Catalogs

When a library's users can retrieve catalog records directly from a computer database, the library is said to have an online catalog, usually called an OPAC. The usual mode of display in an online catalog is through a computer terminal. In this mode, individual cataloging records or parts thereof are retrieved by means of access points or search keys and are displayed instantly on a monitor. Many OPAC terminals are accompanied by printers. Users gain numerous advantages from online catalogs, including instant feedback during the retrieval process and the availability of more access points than any manual catalog can offer. Furthermore, OPACs allow remote access so that the user does not have to be physically present in a library in order to search its catalog. Modern OPACs, sometimes called WebPACs, allow users to get to the Web and Internet and avail themselves of many of the features that search engines offer.

An online catalog can be integrated with other library operations such as cataloging, acquisitions, and circulation, resulting in an integrated online system. With an integrated system, the user is able not only to identify an item but also to ascertain whether the item is currently available for browsing or circulation. In some integrated systems, it is also possible to find out whether a particular item is on order.

MARC records form the basic units of an online catalog. For a cataloging record to be machine-readable, it must not only be input into a computer, but also its various elements must be tagged or labeled in such a way that they can be stored, manipulated, and eventually retrieved in all the ways that are appropriate for technical and reference services in libraries. In the early 1960s, in consultation with other major libraries, the LC began work on developing a protocol for coding bibliographic records. The emerging protocol was called the MARC format. Although there are other protocols for coding various kinds of records for computer storage and retrieval, MARC is the system that has prevailed for library records in the United States and in many other countries. As noted earlier, the MARC format is briefly explained at the end of this chapter and is presented in greater detail in chapter 3.

Compact Disk-Read Only Memory (CD-ROM) Catalogs

A related catalog form is sometimes referred to as an online catalog, although it is much less flexible. This is the CD-ROM catalog. For CD-ROM catalogs, a catalog database is periodically—usually quarterly—copied onto compact disks, which can be accessed through stand-alone microcomputers.

Displaying Cataloging Records

In a manually prepared book or card catalog, how the records or entries were arranged determined how they could be retrieved and displayed. There were two primary ways in which individual bibliographic entries could be assembled to form a coherent file: alphabetic and classified (or systematic). In a classified catalog, the entries were arranged according to a chosen system of classification, resulting in subject collocation. This is a form of catalog arrangement that was popular in the nineteenth century but which, as a public tool, has become all but extinct in American libraries. In an alphabetical catalog or dictionary catalog, entries are organized in alphabetical sequence, with author, title, and subject headings interfiled. This form was introduced in the latter part of the nineteenth century and soon became predominant in the United States.

How records in an online catalog are arranged internally is a matter of system design, and affects end users only in the sense that one system may be easier to use and may apparently deliver more satisfactory results than another. But how retrieved items appear on the screen also depends on system design, and here, end users should be aware that many more options are open to them when compared to a manual catalog. Results of a search are usually displayed in a default order, by date or by name, but in most systems the list may be re-sorted according to users' preferences.

CATALOGING OPERATIONS

One cannot discuss cataloging in today's library environment without acknowledging that catalogers in local libraries make heavy use of bibliographic records prepared elsewhere, a practice called *copy cataloging*. Sources of such records are the LC and, for those that are members of shared-cataloging networks or consortia, records prepared by other members. A *network* or *consortium* is an association of libraries with the main purpose of sharing resources including cataloging information. It maintains a cataloging database of contributed records that also includes records from the LC MARC database. Member libraries have direct online access to the database,

and may use its records for verification of items to be purchased, for identification of items for interlibrary loan purposes, or for producing records for the local catalog. The largest network in this country is OCLC, which has absorbed two other major networks, WLN and RLIN. OCLC's WorldCat, containing over 290 million bibliographic records, is now the largest cataloging database in the world.

Despite the large role that copy cataloging plays in local libraries today, all professional catalogers have to be able to do full cataloging for an item—a process that is called *original cataloging*. During a cataloging department workday, many items may show up for which no cataloging copy exists. For these, after a reasonable wait, one must rely on original cataloging.

Cataloging Files

The catalog consists of two major files: the bibliographic file and the authority file. The bibliographic file contains cataloging records. This is the file that a library user interacts with. The authority file, on the other hand, is a cataloging tool that records the standardized forms of names and topical terms that have been authorized as headings, that is, as access points, along with their associated cross-references. The need for an authority file and the work that goes into building one are described briefly below under the section "Authority work," as well as in greater detail in chapters 7 and 8. In manual systems, authority files were often maintained separately, one authority file for names and another for subject headings. In online catalog systems, they may either be one or two separate files; either way, they may or may not be integrally linked to the bibliographic file.

Cataloging Procedures

Several distinct cataloging procedures are part of preparing an individual bibliographic record for a library: (1) resource description, the preparation of bibliographic descriptions and the determination of bibliographic access points; (2) subject analysis (often referred to as subject cataloging), the operation of assigning subject headings; (3) classification, the assignment of classification numbers and book numbers; and (4) authority work, the determination of the standardized forms of subject terms and names. For those doing online cataloging, an additional procedure is MARC tagging. Each of these activities is the focus of one or more later chapters in this book. Only a brief account of these activities is given in this introductory chapter.

The record resulting from the first three steps is called a *bibliographic record*. The result of authority work is referred to as the *authority record*.

Resource Description

Resource description, also called descriptive cataloging, consists of:

(1) drafting information that includes the resource title, the agent responsible for the content (most often the author), the edition, the place and date of publication, the publisher, a physical description, series membership if any, and any appropriate notes (such as "Includes index" or "Sequel to . . ."); (2) deciding what elements in the description should be the basis for access points, and including relationships linking to other entities; and (3) determining the proper form for the names and titles selected as authorized access points. (This last component is called authority work, which is described below.)

Descriptive cataloging in the United States, and indeed in much of the world, is carried out according to accepted standards. The standards that have prevailed over the years are described in part 2 of this book. AACR was the standard used in most English-speaking countries for descriptive cataloging until 2013, when it was replaced by its successor, RDA.

Subject Analysis

For each bibliographic record, appropriate subject headings representing the "aboutness" of a resource's intellectual content are chosen from an authorized list. Most general libraries in this country use one of two authorized lists, the LCSH for large libraries, and the *Sears List of Subject Headings* for smaller ones. For specialized libraries, special subject-headings lists, such as MeSH, may be used. In some libraries, subject headings under which there are local listings are registered in a local subject authority file.

Traditionally, subject headings have been assigned from authorized lists only. In online catalogs, subject terms not derived from an authorized list are sometimes assigned to augment, or to take the place of, the authorized terms.

Classification

Classification requires fitting the primary topic of a work to the provisions of whatever classification scheme is being used. Most American libraries use either the LCC or the DDC. Specialized libraries often use subject-oriented systems such as the NLM classification. After the appropriate class number has been chosen, an item number is added to form a call number. This too is done according to standard patterns, somewhat different for each system. The act of classifying also calls for adjusting the numbers indicated in the standards to fit the new item into the shelf array of existing items in each collection.

Authority Work

Authority work entails a procedure that spans both descriptive and subject cataloging. In order to fulfill the objective of the catalog as a tool for retrieving all works by a given author or all works on a given subject, the access points to bibliographic records are normalized and standardized. In other words, all works by a given author or on a given subject are listed under a uniform access point for that author or subject. To this end, each author's name or each subject's name is "established" when used for the first time, and the decision is recorded in a record called the *authority record*. Furthermore, to allow access through variant names and different forms of a name or a subject, cross-references to a given heading are provided in the catalog and also recorded in the authority record for that heading. The same is true for references between related headings. A fact worth noting is that while each bibliographic record represents a physical item or group of items in a collection, each authority record represents a person, corporate body, common title, or subject that may appear in any number of bibliographic records. The activities of authority control include both integrating standardized authority records into the local system and preparing authority records for those names and subjects not available from standard authority files.

When a new authority record must be made, considerable checking in references and other sources, as well as considerable consultation, is often required to arrive at the decisions that are ultimately registered in it. Authority work, therefore, has long been regarded as the most time-consuming and costly aspect of cataloging.

MARC Tagging

In an automated cataloging environment, the cataloger also must supply the codes and other information needed for computer processing. In MARC records, for instance, there is considerably more information relating to the item than is called for in a standard bibliographic description. This added information includes various computer tags as well as codes for language, type of publication, and other attributes of the item being cataloged. Records are set up according to the various MARC formats, the most common being the MARC 21 formats, a set of related standards for handling different kinds of bibliographic and authority data records developed and maintained by the LC in cooperation with other libraries and organizations. For a more detailed discussion of the MARC 21 formats, see chapter 3 of this book.

A MARC record is made up of three parts. The first two, called *leader* and *directory*, contain information that aids in processing the record and are not the direct responsibility of catalogers; in modern installations, this information is "system supplied." It is the data in the main part of a MARC

record that catalogers must learn how to create. This part of a MARC record is organized into fields and, for most fields, into component subfields. Each field is identified by a three-digit numerical code called a *field tag*, and each subfield is identified by an alphabetic or numeric *subfield code*. Certain fields contain two *indicators* bearing values (in the form of numeric characters or blanks) that interpret or supplement the data in the field, for example, whether a personal name includes a surname or what kind of title is presented.

In more recent years, there have been numerous discussions about moving from MARC to using an XML-based encoding system for cataloging records. This may be necessary for the exchange of library cataloging information with nonlibrary environments such as Web search engines, the publishing industry, and other information agencies that create non-MARC metadata.

In 2012, the LC announced that it had contracted with Zepeira to help launch the Bibliographic Framework Initiative (BIBFRAME). The initiative's goal is to create a Linked Data model to translate MARC21 data into linked data.

Examples of Cataloging Records

Introduction

The following examples of cataloging and authority records present an overview of the cataloging procedures and their overall structures. The remaining chapters in the book provide details regarding individual components of the records.

The Bibliographic Record

The record shown below (Figure 1.1), pertaining to a one-volume monographic work by William A. Evans, illustrates the creation of bibliographic records.

A Coded Bibliographic Record

To make the cataloging data machine-readable, each of the elements shown above must be coded. The example below (Figure 1.2) shows the bibliographic record for the Evans book from the OCLC WorldCat, with codes for the variable fields as defined in the MARC bibliographic format. (Examples in this chapter carry the codes for the fields only; for a detailed discussion of other details relating to the MARC 21 formats, see chapter 3.)

To understand this MARC record, it is necessary to look at it in conjunction with Table 1.1 and its accompanying explanation. Table 1.1 shows the major MARC field tags for a bibliographic record. Individual fields are illustrated by a coded record example, which is also explained in turn.

(1) Classification data:	
Class number and item number:	Z678 .E9 2013 (*based on Library of Congress Classification*)
Class number:	**025.1** (*based on Dewey Decimal Classification*)
(2) Descriptive data:	
(A) Bibliographic description:	
Title:	Management basics for information professionals
Statement of responsibility:	G. Edward Evans, Camila A. Alire
Edition statement:	Third edition
Publication:	Chicago: Neal-Schuman, an imprint of the American Library Association, 2013
Physical description:	xvii, 577 pages ; 23 cm
Note:	Contents: Operating environment—Legal issues and library management—The planning process—Power, accountability, and responsibility—Delegating—Decision making—Communicating—Changing and innovating—Assessment, quality control, and operations—Marketing—Motivating—Leading—Building teams—Addressing diversity—Staffing—Managing money—Managing technology—Managing and planning physical facilities—Ethics—Planning your career.
Note:	Includes bibliographical references and index.
Standard numbers:	9781555709099 (acid-free paper) 1555709095 (acid-free paper)
(B) Bibliographic access points:	
Creator(s):	Evans, G. Edward, $d 1937- Alire, Camila A.
Title:	Management basics for information professionals
(3) Subject cataloging data:	
Subject heading:	Library administration—United States (*based on Library of Congress Subject Headings*)
Subject heading:	Information services—United States—Management (*based on Library of Congress Subject Headings*)

Figure 1.1 Labeled bibliographic record.

Explanation of Table 1.1

In a MARC record, all of the field tags are three digits long. The various kinds of fields are often referred to as the 00X fields, the 0XX fields, the 1XX, 2XX fields, etc.

The information ordinarily thought of as cataloging data is recorded in that part of the MARC structure called the variable fields. The variable fields, in turn, comprise two additional types: (1) control fields and (2) data fields.

The control fields (00X) contain either a single-data element or a series of fixed-length data elements. Such data play an important role in computer processing of MARC records.

000	01795cam a22003618i 450
001	841199101
005	20140306113219.0
008	130422s2013 ilu b 001 0 eng
010	2013010868
040	DLC $b eng $e rda $c DLC
020	9781555709099 $q acid-free paper
020	1555709095 $q acid-free paper
043	n-us---
050 00	Z678 $b .E9 2013
082 00	025.1 $2 23
100 1	Evans, G. Edward, $d 1937-
245 10	Management basics for information professionals / $c G. Edward Evans, Camila A. Alire.
250	Third edition.
264 1	Chicago : $b Neal-Schuman, an imprint of the American Library Association, $c 2013.
300	xvii, 577 pages ; $b 23 cm
336	text $b txt $2 rdacontent
337	unmediated $b n $2 rdamedia
338	volume $b nc $2 rdacarrier
504	Includes bibliographical references and index.
505 0	Operating environment—Legal issues and library management—The planning process—Power, accountability, and responsibility—Delegating—Decision making—Communicating—Changing and innovating—Assessment, quality control, and operations—Marketing—Motivating—Leading—Building teams—Addressing diversity—Staffing—Managing money—Managing technology— Managing and planning physical facilities—Ethics—Planning your career.
650 0	Library administration $z United States.
650 0	Information services $z United States $x Management.
700 1	Alire, Camila A.

Figure 1.2 MARC-coded bibliographic record.

The data fields (01X-8XX) contain cataloging data. (These are shown line by line in Figure 1.1.) Fields 010–082 contain numbers and codes, such as standard book number, LC control number, and call numbers. Fields 100-8XX contain bibliographic and subject cataloging data: elements of a bibliographic description, main and added access points, and subject headings.

We can see that some of the field tags fall into groups. The 1XX fields are for different categories of main entry. The 490 and 8XX fields pertain to series. The 5XX fields are for notes. The 6XX and 7XX fields are for subject added entries and name and title added entries, respectively. Field 856, a field added since the advent of electronic resources, holds information relating to electronic location and access.

Most fields are divided into subfields, identified by alphabetic or numeric codes preceded by a delimiter (represented by the symbol ǂ [a dagger], | [a vertical bar], or $ [a dollar sign, as used in this text], e.g., $b, $2, etc.).

Table 1.1 MARC Tags for Frequently Occurring Data Fields in a Bibliographic Record

Tag	*Name*
008	Coded control information
010	Library of Congress Control Number
020	International Standard Book Number
040	Cataloging Source
043	Geographic Area Code
050	Library of Congress Call Number
082	Dewey Decimal Classification Number
090	Local call numbers
100	Main Entry—Personal Name
110	Main Entry—Corporate Name
111	Main Entry—Meeting Name
130	Main Entry—Uniform Title
245	Title Statement
246	Variant title
250	Edition Statement
264	Publication, Production, Distribution, Manufacture, & Copyright
300	Physical Description
336	Content Type
337	Media Type
338	Carrier Type
490	Series Statement
500	General Note
504	Bibliography, etc. Note
505	Formatted Contents Note
600	Subject Added Entry—Personal Name
610	Subject Added Entry—Corporate Name
611	Subject Added Entry—Meeting Name
650	Subject Added Entry—Topical Term
651	Subject Added Entry—Geographical Name
653	Index Term—Uncontrolled
655	Index Term—Genre/Form
700	Added Entry—Personal Name
710	Added Entry—Corporate Name
730	Added Entry—Uniform Title
740	Added Entry—Uncontrolled Related/Analytical Title
800	Series Added Entry—Personal Name
810	Series Added Entry—Corporate Name
811	Series Added Entry—Meeting Name
830	Series Added Entry—Uniform Title
856	Electronic Location and Access

Generally, the first element in a field is subfield "$a," followed by other subfields. For instance, in the publication details field (264), "$a" is for place of publication, "$b" is for publisher, and "$c" is for date; in the DDC number field (082), "$a" is for classification number, "$b" is for item number, and "$2" is for edition number (i.e., the number of the edition of DDC from which

the classification number is taken). Some subfield codes have mnemonic value, for instance, "$d" in fields 100, 700, and 800, for personal name entry, is for date of birth or birth/death dates, and "$*l*" in fields 1XX, 4XX, and 7XX is for language of work. Table 1.1 does not show subfield codes, but some are shown in Figure 1.1, the coded Evans record. (In some systems, the "$a" subfield code is often implicit and does not show in the record display.)

Explanation of Figure 1.2

Figure 1.2 shows the "full" MARC record for the Evans book. "Full" here refers to the fact that virtually all elements and codes contained in the record are displayed. It is primarily library personnel who need to see coded records; in most cases, users of online catalogs are offered abbreviated or full but noncoded displays. Although some of what appears in the Evans MARC record has no obvious relation to what the user normally finds in the library catalog, most of what is shown in the MARC record is simply a different manner of displaying standard catalog information, with each element showing the codes that enable the data to be processed by the computer. The following explanation goes through the Evans MARC record element by element.

The first four lines (000–008) contain control data, such as the length, status, and type of the record, date of publication, illustrations, language, and so on. Although most of the control data are of no direct interest to end users and often not displayed in the public catalog, this coded information is essential to efficient record processing, especially in systems that allow searchers to specify such things as "English language material only," or "only if there are illustrations," or "only if published since 2010."

The remaining lines of the record (data fields 010–700) present what many would call the heart of the MARC record. The three-digit number at the beginning of each line is its MARC field tag. Field by field, the Evans MARC record shows the following:

010	LC control number
040	Cataloging sources, for example, DLC for the LC
020	ISBN, 13-digit
020	ISBN, 10-digit
043	Geographic area associated with the resource, in this case based on the subjects
050	LC call number (class number is first subfield; subfield b is for the item number)
082	Dewey class number
100	Personal name primary access point for Evans (subfield d is for date of birth)

245 Title and statement of responsibility (the latter is subfield c; if there were a subtitle, it would be subfield b)
250 Edition statement
264 Place of publication, publisher (subfield b), and date of publication (subfield c)
300 Number of volumes or pages (for a one-volume work) and size (subfield c)
336 Type of content, text in this case
337 Medium required to access the content, none required (unmediated) in this case
338 Type of carrier where the content is stored, volume in this case
504 Bibliography and index note
505 Contents note for the titles of each of the chapters
650 First topical subject heading
650 Second topical subject heading
700 Personal name added access point for Alire, the second author

The numerals 0 and 1 that appear between some field tags and the first subfield are *indicators*, the meanings of which are defined uniquely for each field. They are not shown in the analysis above; for details, consult chapter 3 of this book and *MARC 21 Concise Formats*.[24]

Once coded, the information contained in the MARC record can be manipulated by the computer to produce various cataloging products such as online catalog records, acquisitions lists, and suchlike. While the layout of a catalog card is standardized, online display of records varies from system to system. Within a particular system, records may also be displayed in long or short formats.

Further examples of bibliographic records are shown in appendix A.

The Authority Record

An authority record contains essentially the following elements: the preferred form for the name of a person, a corporate body, a place, or a preferred title of a resource (i.e., the standardized title for a work that has appeared under different titles; for a fuller discussion see chapter 7 of this book), or a subject authorized for use as access points in bibliographic records; cross-references from other names, titles, or terms not used for the preferred access points, and to and from related headings; information associated with the person, for example, affiliation, occupation, associated language, and so on; and, the sources used in establishing the heading.

For example, the name authority record for G. Edward Evans includes the following data:

Authorized access point:	**Evans, G. Edward, 1937-**
Variant access point:	Evans, Gayle Edward, 1937-
Sources used:	Introduction to technical services for library technicians,1971: (G. Edward Evans)
	The influence of book selection agents upon book collection . . . 1969: t.p. (Gayle Edward Evans, B.A., Univ. of Minnesota, 1959; M.A. (Anthro.), Univ. of Minnesota, 1961; M.A. (Lib.Sc.), Univ. of Minnesota, 1963) vita (b. Jan. 5, 1937 in Huntington, Pa.)
	Management basics for information professionals, 2013: ECIP t.p. (G. Edward Evans) data view (b. 1937; G. Edward Evans is an administrator, researcher, teacher, and writer; he holds several graduate degrees in anthropology and library and information science; as a researcher he has published in both fields, and held a Fulbright (librarianship) and National Science Foundation (anthropology) Fellowship; his teaching experience has also been in both fields in the U.S. and the Nordic countries; most of his administrative experience has been in private academic libraries--Harvard and Loyola Marymount Universities; retired from full-time work as Associate Academic Vice president for Libraries and Information Resources; author of numerous books, he consults for and volunteers at the Museum of Northern Arizona library and archives and Flagstaff City, Coconino Country Library System)

A Coded Authority Record

In the MARC 21 formats, the codes used vary according to the type of headings and on whether the heading appears in the authority record or is used as a main or added entry or a subject access point in the bibliographic record. Table 1.2 lists the tags for frequently occurring variable data fields in an

authority record in the MARC 21 format (for details regarding the structure of MARC 21 formats, see chapter 3).

Figure 1.3 shows the name authority record, coded with the field tags based on the MARC 21 format, for the heading for G. Edward Evans.

Table 1.2 MARC Tags for Frequently Occurring Data Fields in an Authority Record

Tag	*Name*
008	Coded control information
010	Library of Congress Control Number
040	Cataloging Source
046	Special Coded Dates
050	Library of Congress Call Number
100	Heading—Personal Name
110	Heading—Corporate Name
111	Heading—Meeting Name
130	Heading—Uniform Title
150	Heading—Topical Term
151	Heading—Geographic Name
155	Heading—Genre/Form Term
336	Content Type
368	Other Attributes of Person or Corporate Body
370	Associated Place
372	Field of Activity
374	Occupation
375	Gender
377	Associated Language
380	Form of Work
400	See From Tracing—Personal Name
410	See From Tracing—Corporate Name
411	See From Tracing—Meeting Name
430	See From Tracing—Uniform Title
450	See From Tracing—Topical Term
451	See From Tracing—Geographic Name
455	See From Tracing—Genre/Term
500	See Also From Tracing—Personal Name
510	See Also From Tracing—Corporate Name
511	See Also From Tracing—Meeting Name
530	See Also From Tracing—Uniform Title
550	See Also From Tracing—Topical Term
551	See Also From Tracing—Geographic Name
555	See Also From Tracing—Genre/Term
663	Complex See Also Reference—Name
664	Complex See Reference—Name
670	Source Data Found
675	Source Data Not Found
678	Biographical or Historical Data
680	Public General Note

Figure 1.3 Coded authority record.

In Figure 1.3, the first four lines (numbered 000–008) show control data. The remaining lines, containing data fields, are analyzed below:

010	LC name authority control number
040	Record originated with LC and modified by other libraries
046	Coded Date for Evans' birth date
100	Authorized personal name access point for G. Edward Evans, with his birth date
400	Form of name not used as an authorized access point for Evans, from which a *see* reference would be made to the preferred access point
670	One of the sources in which the chosen form of Evans' name was found
670	A second source used in establishing Evans' name
670	A third source used in establishing Evans' name

The authority record shows the standardized heading to be used as an access point in the catalog and also provides data for generating cross-references that link variant names and forms to the authorized heading. The cross-references may be displayed in different ways in the online catalog.

Further examples of name authority records are shown in appendix B.

As was the case with the coded Evans bibliographic record shown in Figure 1.1 and the table of MARC 21 bibliographic tags (see Table 1.1 above), the coded Evans authority record can be best understood in conjunction with Table 1.2, which shows the major fields and field tags in the MARC 21 Format for Authority Data. Some of the fields in the authority format parallel those in the format for bibliographic data: the control fields and 1XX fields (with the authorized headings reflecting different types of names: 100 personal, 110 corporate, 111 meeting, etc.). Others are quite different: the 4XX fields show *see* references; the 5XX fields are for *see also* references; and the 6XX fields are variously defined, including complex references, history notes, source for name choice, and notes identifying other sources used in establishing the heading.

In **authority** records (NR = not repeatable; R = repeatable):

100 Heading—Personal name (NR)
110 Heading—Corporate name (NR)
111 Heading—Meeting name (NR)
130 Heading—Uniform title (NR)
151 Heading—Geographic name (NR)

400 *See from* tracing—Personal name (R)
410 *See from* tracing—Corporate name (R)
411 *See from* tracing—Meeting name (R)
430 *See from* tracing—Uniform title (R)
451 *See from* tracing—Geographic name (R)

500 *See also from* tracing—Personal name (R)
510 *See also from* tracing—Corporate name (R)
511 *See also from* tracing—Meeting name (R)
530 *See also from* tracing—Uniform title (R)
551 *See also from* tracing—Geographic name (R)

In **bibliographic** records:

100 Main entry—Personal name (NR)
110 Main entry—Corporate name (NR)
111 Main entry—Meeting name (NR)
130 Main entry—Uniform title (NR)

600 Subject added entry—Personal name (R)
610 Subject added entry—Corporate name (R)
611 Subject added entry—Meeting name (R)

630 Subject added entry—Uniform title (R)
651 Subject added entry—Geographic name (NR)

700 Added entry—Personal name (R)
710 Added entry—Corporate name (R)
711 Added entry—Meeting name (R)
730 Added entry—Uniform title (R)

800 Series added entry—Personal name (R)
810 Series added entry—Corporate name (R)
811 Series added entry—Meeting name (R)
830 Series added entry—Uniform title (R)

Record Display

The same MARC record can be displayed in various formats and in different degrees of fullness in the catalog for users, depending on the type of library and user needs. The following examples show a typical full-record display and a typical brief-record display of the Evans book from a library catalog. In the public display, the MARC tags are replaced by labels that are easily recognized.

Full-record display:

Type of Material:	**Book (Print)**
Personal Name:	**Evans, G. Edward, $d 1937-** **Alire, Camila A.**
Main Title:	**Management basics for information professionals**
Edition Information:	**Third edition**
Published/Created:	**Chicago : Neal-Schuman, an imprint of the American Library Association, 2013.**
Description:	**xvii, 577 pages ; 23 cm**
ISBN:	**9781555709099 (acid-free paper)** **1555709095 (acid-free paper)**
Contents:	**Operating environment—Legal issues and library management—The planning process—Power, accountability, and responsibility—Delegating—Decision making—Communicating—Changing and innovating—Assessment, quality control, and operations—Marketing—Motivating—Leading—Building teams—Addressing**

	diversity—Staffing—Managing money—Managing technology—Managing and planning physical facilities—Ethics—Planning your career
Notes:	**Includes bibliographical references and index.**
Subjects:	**Library administration—United States Informationservices—UnitedStates—Management**
LC Classification:	**Z678 .E9 2013**
Dewey Class No.:	**025.1**

Brief-record display:

Type of Material:	**Book (Print)**
Personal Name:	**Evans, G. Edward, $d 1937-**
Main Title:	**Management basics for information professionals**
Edition Information:	**Third edition.**
Published/Created:	**Chicago : Neal-Schuman, an imprint of the American Library Association, 2013.**
Description:	**xvii, 577 pages ; 23 cm**
ISBN:	**9781555709099 (acid-free paper) 1555709095 (acid-free paper)**

CONCLUSION

This chapter has attempted to set the framework for a study of bibliographic control in the library environment, particularly in a general library. It began with an account of the difference between today's information world and that of two generations ago, briefly describing advances in the Internet along with parallel advances in the library environment and in the online database industry. It proceeded with discussions of the devices the library world has used to provide the best information services within its resources, taking into account how much impact technology has had on all phases of library and library-like operations. It attempted to show the general picture, defining bibliographic control and noting the various ways of achieving it in all environments where it is used—showing, at the same time, how its demands vary according to the nature of the material to be brought under control.

The discussion then turned to library catalogs. It proceeded to the major operations entailed in producing and maintaining a library catalog and its subsidiary files: description, access, and organization. All of these topics are treated in extensive detail in subsequent chapters. Their order reflects the

order of activities in producing a bibliographic record: drafting a description, deciding on access points and forms of names, assigning subject headings, and classifying. Emphasis is on standard North American cataloging practice, but along the way alternative means and tools are also discussed. Examples showing a bibliographic record and an authority record are included and briefly explained in order to present a comprehensive picture of the cataloging process. The MARC structure is also introduced; in-depth considerations of the MARC formats and other encoding schemes are discussed in chapter 3.

NOTES

1. Major sources used in drafting the following timelines include the following:

Bourne, C. P., and Hahn, T. B. (2003). *A History of Online Information Services, 1963–1976.* Cambridge, MA: MIT Press.

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Chapter 2

Foundations, Principles, Conceptual Models, and Standards of Resource Description

BIBLIOGRAPHIC DESCRIPTION AND SURROGATE RECORDS

In the print environment, keyword searching of texts was not an option; to help identify and choose relevant information items, users relied on brief descriptions of books and other library materials for indications of their characteristics and content. Each brief description contained what were considered to be essential attributes of a given item and served as its surrogate in the library's catalog.

In the early days of library service, cataloging was largely an individual activity for each library. Different libraries developed their own policies and practices in formulating surrogate records and in organizing them to form the catalogs they deemed most suitable for their purposes. Thus, cataloging records were presented in forms and styles that varied from library to library. Chapter 1 described how American librarians in the early part of the twentieth century came to value standardization of cataloging practice, and how various schemes and sets of rules merged to facilitate standardization. This chapter discusses the principles underlying the standards that emerged.

CONTRIBUTIONS TO CATALOGING THEORY

Over the past hundred years or so, many individuals and organizations have contributed to the development of standards and codes for bibliographic description, particularly by articulating basic tenets or principles and by setting standards. Early efforts at codifying cataloging practice were often the results of individual labors. As time went on, such efforts became more communal. Some of the most influential cataloging concepts and principles, along with their proponents and their impacts, are discussed briefly below.

Panizzi's Principles

Sir Anthony Panizzi (1797–1879), who worked as a cataloger and later became the Principal Librarian of the British Museum Department of Printed Books, was responsible for formulating ninety-one rules to be used in compiling the catalog of the British Museum. These rules are hailed as "the ancestor of all modern library cataloging codes."[1] Some of the underlying principles of the rules were articulated in a letter, "Mr. Panizzi to the Right Hon. the Earl of Ellesmere. —British Museum, January 29, 1848."[2] Although some of the ideas and principles embodied in the rules and in his letter do not seem relevant to the current environment, many others, such as the objectives of a library catalog, the requirement for normalization of names (personal and corporate), the status of works modified or adapted from differing originals, and the requirement for uniformity in application of cataloging rules still resonate in today's cataloging codes and practices.[3]

Jewett's Principles

Charles C. Jewett (1816–1868) was appointed Librarian and Assistant Secretary at the Smithsonian Institution soon after its establishment in Washington, DC, in 1846. He embarked on an effort to establish a great national library, one that would incorporate within it a union catalog of the holdings of all public libraries in the United States. He envisioned the union catalog as the first step in a course that would lead eventually to a "universal catalog."[4] To realize this vision, Jewett proposed two courses of action. The first was the use of entries embossed on separate stereotype plates in order to facilitate the production of such a catalog and, in addition, to drastically reduce the cost of catalog production and maintenance—particularly in preparing new editions of the book catalog that was the predominant catalog form in his time. Jewett's second proposal was cooperative cataloging, a development he saw as necessary to building a universal catalog. Jewett's union catalog and cooperative cataloging ideas reverberated in later developments in library practice.

Cutter's Principles

Charles Ammi Cutter (1837–1903), a librarian at Harvard College who was later appointed as the librarian of the Boston Athenaeum, was responsible for compiling *Rules for a Dictionary Catalog*, in which he claimed to "set forth rules in a systematic way or to investigate what might be called the first principles of cataloging."[5] These rules first appeared in 1976 as an adjunct to a government publication on the state of American libraries. Two statements from Cutter's *Rules* that have been widely quoted in the literature and later

cataloging codes are worthy of particular note. The first, "The convenience of the public is always to be set before the ease of the cataloger,"[6] placed the focus of catalog design squarely on the user. The second is the statement cited in chapter 1 of this book concerning the objectives of the catalog and the means for attaining them.[7]

Lubetzky's Principles

During the mid-twentieth century, Seymour Lubetzky (1898–2003), a librarian at the Library of Congress and later a faculty member of the School of Library Services at the University of California, Los Angeles, played an important role throughout his career in shaping the future direction of cataloging codes. He was a prolific writer and produced many publications about cataloging. Particularly influential are the following:

Studies of Descriptive Cataloging (1946)[8]
Cataloging Rules and Principles (1953)[9]
Code of Cataloging Rules (1960)[10]
Principles of Cataloging (1969)[11]

Paris Principles

In 1961, one of the most important events in the evolution of cataloging codes took place. The International Conference on Cataloguing Principles was held in Paris, from October 9 to October 18, 1961, under the auspices of the IFLA. There were delegations from fifty-three countries and twelve international organizations. The discussion of cataloging principles was based on a draft statement circulated before the meeting. As a result of the conference, a statement of principles that has become known as the "Paris Statement" or the "Paris Principles" was issued. It drew heavily upon Seymour Lubetzky's 1960 draft cataloging code, although its scope was limited to choice of entry and forms of headings. The work opens with a statement of the functions of the catalog, which in essence is a restatement of Lubetzky's and Cutter's objectives. The principles that follow rest logically on these objectives and are stated in specific terms and in considerable detail.

The Paris Statement represented a great step forward toward international agreement. One frequently cited feature of this document is its endorsement of corporate entry and natural, rather than grammatical, arrangement of titles, which removes the major differences between the Anglo-American and the Germanic traditions of cataloging. (In German catalogs, titles were filed under their first substantive word.)

Since its appearance, the Paris Principles has served as a set of principles for the development of cataloging standards, and many such codes have been revised or developed according to its provisions, notably the AACR, the German Code (*Regeln für die alphabetische Katalogisierung* [RAK]), and the Swedish and Danish codes. The RAK represented a major revolution in Germanic cataloging in that the concept of corporate entry was introduced and use of the literal title (rather than the grammatical title) was accepted.

International Cataloguing Principles Statement

In early 2000s, IFLA held a series of meetings of international cataloging experts to develop a new set of cataloging principles that would guide the development of cataloging standards or content standards, which include guidelines and rules for the content of resource descriptions. The series of meetings, called IFLA Meetings of Experts on an International Cataloguing Code, took place between 2003 and 2007, and resulted in the statement of International Cataloguing Principles, published in 2009.[12]

As principles for the development of cataloging standards, the International Cataloguing Principles place highest emphasis on the convenience of the user and aim at being defensible and not arbitrary, which means that in cases where the principles contradict each other, one should find a defensible and practical solution. These international cataloging principles are the following:

1. Convenience of the user. Decisions taken in the making of descriptions and controlled forms of names for access should be made with the user in mind.
2. Common usage. Vocabulary used in descriptions and access should be in accord with that of the majority of users.
3. Representation. Descriptions and controlled forms of names should be based on the way an entity describes itself.
4. Accuracy. The entity described should be faithfully portrayed.
5. Sufficiency and necessity. Only those data elements in descriptions and controlled forms of names for access that are required to fulfill user tasks and are essential to uniquely identify an entity should be included.
6. Significance. Data elements should be bibliographically significant.
7. Economy. When alternative ways exist to achieve a goal, preference should be given to the way that best furthers overall economy (i.e., the least costly or the simplest approach).
8. Consistency and standardization. Descriptions and construction of access points should be standardized as far as possible. This enables greater consistency, which in turn increases the ability to share bibliographic and authority data.

9. Integration. The descriptions for all types of materials and controlled forms of names of all types of entities should be based on a common set of rules, insofar as it is relevant.

International Standard Bibliographic Description (ISBD)

After the Paris Conference, the next step toward greater international agreement was taken at the International Meeting of Cataloguing Experts, which was held in Copenhagen in 1969. At this meeting, an international working group was established for the purpose of developing a standard order and content for describing monographic material. The objectives of the new format for bibliographic description were defined as follows:

> First, that records produced in one country or by the users of one language can be easily understood in other countries and by the users of other languages; second, that the records produced in each country can be integrated into files or lists of various kinds containing also records from other countries; and third, that records in written or printed form can be converted into machinereadable form with the minimum of editing.[13]

To fulfill these requirements, the order of bibliographic elements in a record was standardized and a special punctuation pattern distinguishing these elements was prescribed.

A document entitled *ISBD (M): International Standard Bibliographic Description (for Single Volume and Multi-Volume Monographic Publications)* was issued in 1971. In the following years, this format was accepted and adopted by many national bibliographies. As often happens, the course of its application revealed many ambiguities and a need for more details in some areas. These deficiencies were discussed at the IFLA conference held in Grenoble, France, in 1973. After this conference, two documents were published: the first standard edition of ISBD(M) and a set of recommendations for ISBD(S) (for serial publications). The first standard edition of ISBD(S) was published in 1977.

After the development of ISBD(M) and ISBD(S), it was considered desirable to develop a general ISBD that could serve as the framework for specific ISBDs. *ISBD(G): International Standard Bibliographic Description (General)* was published in 1977. Since then, other ISBDs have also been developed. The family of ISBDs now includes the following:

ISBD (A): International Standard Bibliographic Description for Older Monographic Publications (Antiquarian).

ISBD (CF): International Standard Bibliographic Description for Computer Files.

ISBD (CM): International Standard Bibliographic Description for Cartographic Materials.

ISBD(CR): International Standard Bibliographic Description for Serials and Other Continuing Resources.

ISBD (ER): International Standard Bibliographic Description for Electronic Resources.

ISBD (G): General International Standard Bibliographic Description.

ISBD (M): International Standard Bibliographic Description for Monographic Publications.

ISBD (NBM): International Standard Bibliographic Description for Non-Book Materials.

ISBD (PM): International Standard Bibliographic Description for Printed Music.

ISBD (S): International Standard Bibliographic Description for Serials.

After the publication of the Final FRBR Report, it was decided to merge the format-specific ISBDs. The consolidated edition merges specialized ISBDs into a single document. The preliminary consolidated edition was published in 2007 and the completed consolidated edition was published in 2011. The ISBD (2007 consolidation) was incorporated into RDA (Appendix D) as one of the options for data presentation.

Universal Bibliographic Control (UBC)

The theme of the thirty-ninth IFLA meeting in 1973 was the ideal of UBC; this concept was adopted as a goal for ultimate international cooperation.

The ideal of UBC was first articulated at the International Meeting of Cataloguing Experts:

> Efforts should be directed towards creating a system for the international exchange of information by which the standard bibliographic description of each publication would be established and distributed by a national agency in the country of origin.[14]

The basic idea of UBC is having each document cataloged only once, as near to the source of publication as possible, and making basic bibliographic data on all publications, issued in all countries, universally and promptly available in a form that is internationally acceptable.[15]

The fact that such a dream was even conceivable was due to the many encouraging developments toward international cooperation and standardization that had occurred in the field of cataloging in the preceding decades. The Paris Conference and the International Meeting of Cataloguing Experts in Copenhagen were two milestones on the road toward achieving the goal of

UBC. The standards and agreements produced by these conferences played an important role in the revision of cataloging rules around the world.

Functional Requirements for Bibliographic Records (FRBR)

Another important occurrence was the development of FRBR by an IFLA study group in the mid-1990s. FRBR is a conceptual model for viewing the entities and relationships of bibliographic and authority records. Based on the four tasks performed by users when using catalogs or bibliographies—to find, to identify, to select, and to obtain a bibliographic entity—the study group formulated a model consisting of three groups of entities[16]:

- Group 1 entities consist of rigorous definitions and relationships among bibliographic entities called *work, expression, manifestation*, and *item*.
- Group 2 entities consist of *person* and *corporate body* that are related to Group 1 entities in terms of their roles with respect to *work, expression, manifestation*, and *item*.
- Group 3 entities concern the subjects of works, including concepts, objects, events, places, and any of the Group 1 or Group 2 entities.

Group 1 entities are defined as follows:

- *Work* is a distinct intellectual or artistic creation.
- *Expression* is the intellectual or artistic realization of a *work* in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms.
- *Manifestation* is the physical embodiment of an *expression* of a *work* and
- *Item* is a single exemplar of a *manifestation.*

Group 2 entities relate to bibliographic access points (discussed in part 3 of this book), and Group 3 entities relate to subject access points (discussed in part 4 of this book).

Work on Group 1 entities has been completed and has resulted in the publication *Functional Requirements for Bibliographic Records, Final Report*.[17] Work on Group 2 and Group 3 entities has been completed and has resulted in the publications *Functional Requirements for Authority Data (FRAD): A Conceptual Model*[18] and *Functional Requirements for Subject Authority Data (FRSAD): A Conceptual Model*,[19] respectively. IFLA groups are continuing to work on the review and harmonization of the three conceptual models and, in addition, are collaborating to bridge conceptual models from different environments for more effective and interoperable information sharing.

Concepts brought forward in FRBR continue to provide an important approach to the development of cataloging codes and practice. A more detailed discussion of FRBR, FRAD, and FRSAD is included in later chapters of this book.

METADATA SCHEMAS

The rapid growth of the Internet and the proliferation of electronic resources have created a crushing need for better methods of describing and organizing these resources for efficient retrieval. Interest in such methods extends beyond the library community. Outside of the library community, cataloging standards are not well understood or widely applied. Even within the library profession, many feel that current cataloging rules are not only too complex for coping with electronic resources, but may also be inadequate in other ways. In addition, current cataloging standards are not always suitable for describing and representing various types of resources such as archival, geospatial, or visual resources, nor are they attuned to the needs of different user communities, such as those in the educational, publishing, government, and commercial sectors.

Over the course of ten years, beginning in the mid-1990s, numerous metadata schemas were developed by various communities and groups concerned with managing electronic resources. Chapter 4 of this book contains a brief discussion of some of the more widely used metadata schemas.

DEVELOPMENT OF STANDARDS

Since the middle of the nineteenth century, many cataloging codes, reflecting the principles discussed above, have been developed and published. Most of the earlier codes represented the efforts of individuals, but later ones result from corporate undertakings. The following is a brief discussion of the development of standards for library resource description.

British Museum Cataloguing Rules (BM; 1839)

> British Museum, Department of Printed Books. (1936). *Rules for Compiling the Catalogues of Printed Books, Maps and Music in the British Museum* (rev. ed.). London, England: British Museum.

The BM, also known as Panizzi's ninety-one rules, was drafted as a guide for the compilation of the British Museum catalogs. The rules, published in

1841 as part of the introductory matter for the British Museum's printed book catalog, with a revised edition published in 1936, reflect the functions of the catalog as an inventory list and finding list.

This set of rules is considered to be the first major cataloging code ever produced and is recognized as having had a substantial influence on later codes.

Jewett's Rules (1853)

> Jewett, C. C. (1853). *Smithsonian Report on the Construction of Catalogues of Libraries, and their Publication by Means of Separate, Stereotyped Titles, with Rules and Examples* (2nd ed.). Washington, DC: Smithsonian Institution.

Charles C. Jewett was responsible for developing the code for the catalog of the Smithsonian Institution. The code contains thirty-three rules,[20] which were largely based on Panizzi's rules. Jewett advocated stringent and detailed rules that left little to the individual judgment of the cataloger.

A matter of particular interest is that Jewett's discussion of subject headings represents the earliest call for the codifying of subject-heading practice.

Cutter's Rules (1876)

> Cutter, C. A. (1953). *Rules for a Dictionary Catalog* (4th ed. rewritten). London, England: Library Association.

The first edition of this work appeared in 1876 with the title *Rules for a Printed Dictionary Catalogue*, which formed Part II of the US Bureau of Education Publication, *Public Libraries in the United States*. It contains 369 rules covering descriptive cataloging, subject headings, and filing.

Cutter's purpose was to "investigate what might be called the first principles of cataloging." His code has had enormous influence on subsequent codes and cataloging practice in the United States. It became the basis for the dictionary catalog, which was to emerge as the predominant form of catalogs in general libraries in the United States.

AA (1908)

> American Library Association. (1908). *Catalog Rules: Author and Title Entries* (American ed.). Chicago, IL: American Library Association.

AA (1908) represented the first joint effort between American and British librarians in developing a cataloging code. However, the two groups did not

reach full agreement on all details and the code was published in two editions (English and American).

AA (1908) reflected the influence of previous codes—British Museum and Cutter—and, to a large extent, the then-current practice of the LC, which had begun distributing printed cards in 1902. It owed a great deal to Cutter's rules; however, it did not include Cutter's statements of objects and means, and also omitted any rules for subject headings. The major aim of the code was to meet the requirements of larger academic and research libraries. To a considerable extent, this focus has set the tone of subsequent codes, which have been drawn up primarily to respond to the needs of such libraries. In AA (1908), the particular needs of smaller libraries are only occasionally recognized through alternative rules.

Prussian Instructions (PI)

> *The Prussian Instructions: Rules for the Alphabetical Catalogs of the Prussian Libraries* (translated from the 2nd ed., authorized August 10, 1908, with an introduction and notes by A. D. Osborn). (1938). Ann Arbor, MI: University of Michigan Press.

Originally developed as a standardized system of cataloging for Prussian libraries, the PI was adopted by many libraries in Germanic and Scandinavian countries.

The rules reflected two major differences in cataloging between the Germanic and the Anglo-American traditions. PI preferred entry under title instead of corporate entry. The second major difference was that grammatical arrangement of title is preferred over natural or mechanical arrangement.[21]

Vatican Code

> Vatican Library (Biblioteca Apostolica Vaticana). (1948). *Rules for the Catalog of Printed Books* (translated from the 2nd Italian ed. by the Very Rev. T. J. Shanahan, V. A. Schaefer, and C. T. Vesselowsky). W. E. Wright (Ed.). Chicago, IL: American Library Association.

The Vatican rules were developed for the purpose of compiling a general catalog of the printed books in the Vatican Library after its reorganization in the 1920s. The persons responsible were either Americans or American-trained local librarians. Therefore, American influence is evident, to the extent that it has been called an "international code with a definite American bias."[22] Its significance for American librarians lies in the fact that, for many years, the Vatican code was, as Wyllis Wright states in the Foreword to the

English translation, "the most complete statement of American cataloging practice."[23]

Probably the most comprehensive and best-structured code at the time, the Vatican code contained rules for entry, description, subject headings, and filing, with ample examples throughout.

American Library Association (ALA; 1941 Draft)

> American Library Association. (1941). *ALA Catalog Rules: Author and Title Entries* (preliminary American 2nd ed.). Chicago, IL: American Library Association.

During the early 1930s, there was a general feeling that the Anglo-American cataloging code needed revision. A Catalog Code Revision Committee under the ALA was established for this purpose. Although the plan was to cooperate with the Library Association of Great Britain and other national library associations, this intention was not fully realized because of the eruption of World War II.

The draft code was completed in 1941. The 88-page pamphlet AA (1908) had blossomed into a 408-page document. The reason for the elaboration, as stated in the Preface, was the need for standardization required by centralized and cooperative cataloging. The committee felt that elaborate and precise detail was the means to accomplish this end. The code consists of two parts, one dealing with entry and headings and the other with description. Again, the rules for subject headings were omitted.

The 1941 draft code was dealt a heavy blow in June 1941 by Andrew D. Osborn's article entitled "The Crisis in Cataloging."[24] Osborn criticized the code for attempting to provide a rule for every situation or question that might come up, an approach he referred to as "legalistic." The consequence, Osborn maintained, was unnecessary multiplication of rules.

Library of Congress (LC; 1949)

> Library of Congress. (1949). *Rules for Descriptive Cataloging in the Library of Congress Adopted by the American Library Association*. Washington, DC: Library of Congress.

Because of the extensive use of LC-printed catalog cards by libraries in the United States, the LC decided to publish its descriptive cataloging rules, which were not fully compatible with the AA rules.

In 1946, the LC published its *Studies of Descriptive Cataloging: A Report to the Librarian of Congress by the Director of the Processing Department*, which advocated simplification of cataloging details. As noted earlier, it was

Lubetzky who was responsible for the studies. The LC responded favorably to the report and took its tenets into consideration as it proceeded to complete the work on the rules for description. A preliminary edition appeared in 1947, and the final edition in 1949 (LC 1949).

The rules cover bibliographic description only, excluding choice of entries (i.e., of access points) and forms of headings. Many types of materials are considered: monographs, serials, maps, relief models, globes and atlases, music, facsimiles, photocopies and microfilms, and incunabula.

American Library Association (ALA; 1949)

> American Library Association. (1949). *ALA Cataloging Rules for Author and Title Entries* (2nd ed.) C. Beetle (Ed.). Chicago, IL: American Library Association.

Because the LC was revising its rules for description at the time, the ALA decided, in revising the 1908 ALA code, to omit the descriptive portion of the rules from the 1941 draft and include only the provisions for entry and heading in the new ALA rules. This decision was made partly because individual libraries had been following LC practice (due to the availability of LC-printed cards) and partly because that portion of ALA (1941) had not been very well received. As a result, the rules in ALA (1949) covered entry and headings only, and had to be used in conjunction with LC (1949). Osborn's criticism of the 1941 draft code did not seem to have much effect on ALA (1949). The rules in this code, in the opinion of many, were as pedantic, elaborate, and often arbitrary as those in the preliminary edition of 1941. Together, ALA (1949) and LC (1949) served as the standards for descriptive cataloging for American libraries until the appearance of the AACR in 1967.

Anglo-American Cataloging Rules (AACR; 1967)

> American Library Association, Library of Congress, Library Association, & Canadian Library Association. (1967). *Anglo-American Cataloging Rules* (North American text). Chicago, IL: American Library Association.

The strongest criticism of ALA (1949) was voiced in Lubetzky's *Cataloging Rules and Principles*,[25] which included a thorough and penetrating analysis of ALA (1949). Lubetzky criticized ALA (1949) for being unnecessarily long and confusing because it provided duplicate and overlapping rules to meet identical conditions. Related rules were scattered, he maintained, and there was a lack of logical arrangement and organization.

Lubetzky's report was received favorably, and another ALA Catalog Code Revision Committee, with Wyllis Wright as the chair, was established for the purpose of drafting a new code. In 1956, Lubetzky was appointed the editor of the new code.

In 1960, Lubetzky's *Code of Cataloging Rules, Author and Title Entry: An Unfinished Draft*[26] appeared. It begins with a statement of objectives, followed by specific rules developed on the basis of these objectives. Although not completed, the draft code gives an indication of what can be accomplished by basing specific rules on basic principles. One major departure from previous codes is the determination of entry based on conditions of authorship rather than on types of work.

Lubetzky's work was exciting but also raised concerns among those involved in cataloging. It presaged a new era for cataloging, yet many were concerned about the costs that its drastic changes would incur. This concern was to become a major factor in ensuing code revision work.

Lubetzky resigned as editor of the new code in 1962 and was succeeded by C. Sumner Spalding. Code revision proceeded on the basis of the work already done under Lubetzky and the Paris Principles. Cooperation between the American and British Library associations was also initiated. The new code AACR appeared in 1967. Because the British and the American communities failed to reach complete agreement on some of the details, two texts of the code were published: British Text and North American Text.

It was decided that the new code should include rules for both entry and description. Since the Paris Principles dealt with the problems of entry and headings only, and since there were yet no international guidelines for the development of the rules for description, LC (1949) was used as the basis for description of monographs and serials, as well as for the rules for cataloging nonprint materials in the North American text.

AACR (1967) was received with mixed feelings. Its logical arrangement and its emphasis on the conditions of authorship rather than on types of work were considered to be great improvements over previous codes. However, some critics lamented the compromises made in the face of practical considerations as well as the code's inadequate handling of nonprint materials.

Anglo-American Cataloging Rules, 2nd Edition (AACR2; 1978)

American Library Association, British Library, Canadian Committee on Cataloguing, Library Association, & Library of Congress. (1978). *Anglo-American Cataloguing Rules* (2nd ed.). M. Gorman and P. W. Winkler (Eds.). Chicago, IL: American Library Association.

By 1973, it was felt that the appropriate time had come for an overhaul of the Anglo-American cataloging code. Certain significant developments since the publication of AACR in 1967 pointed to the desirability of a revision.[27] First, rapid progress toward the formulation of international standards for the description of monographs, serials, and other media indicated the need to redraft the AACR provisions for bibliographic description so that the code would facilitate the effort to promote international exchange of bibliographic data. Second, the rules for nonprint materials in AACR (1967) had been considered inadequate from the beginning, which resulted in the proliferation of various cataloging codes for such materials. Only a complete revision of the rules for nonprint media could provide the standardization needed in this area. Third, the points of divergence between the separate North American and British texts of AACR had been gradually reconciled, leading to the prospect of a unified code. Furthermore, because there had been numerous piecemeal revisions and changes in the rules since 1967, the code had become rather inconvenient to use. Finally, the ideal of UBC and the development of the ISBDs were further important forces behind the revision of AACR (1967).

Michael Gorman and Paul W. Winkler were appointed editors of the second edition of AACR. In the revision, the JSC decided to conform to international agreements and standards, particularly the Paris Principles and the ISBD. As a result, in the second edition of AACR, the ISBDs formed the basis for Part I, which covers the rules for bibliographic description, and the Paris Principles underlie Part II, which contains the rules for access points. For the first time, rules for both description and access rested on international agreement. Furthermore, differences between the North American and the British texts of the first edition were reconciled, resulting in a single text.

Anglo-American Cataloging Rules, 2nd Edition, 1988 Revision (AACR2R; 1988)

> Joint Steering Committee for Revision of AACR (American Library Association, Australian Committee on Cataloguing, British Library, Canadian Committee on Cataloguing, Library Association, & Library of Congress.) (1988). *Anglo-American Cataloguing Rules* (2nd ed., 1988 revision). M. Gorman and P. W. Winkler (Eds.). Chicago, IL: American Library Association.

In the early 1980s, three supplements containing revisions to AACR2 (1978) were issued. In addition, revisions that had yet to be published were also approved by the JSC. Furthermore, a draft revision of the rules for computer files was prepared and published in 1986 in response to the ever-changing nature of computer files. With these changes, it was considered appropriate

to issue a revised edition of AACR2. The JSC decided to call the new version *Second Edition 1988 Revision* instead of the "third edition," perhaps because of the "anguished howls and monumental upheaval that greeted the advent of the original *AACR2* in 1978,"[28] or the fact that "the rules have not been radically recast [nor was there] basic rethinking."[29]

Michael Gorman and Paul W. Winkler again served as the editors of the revised edition, which was published in 1988.

Anglo-American Cataloging Rules, 2nd Edition, 1998 Revision (AACR2R; 1998)

> Joint Steering Committee for Revision of AACR (American Library Association, Australian Committee on Cataloguing, British Library, Canadian Committee on Cataloguing, Library Association, & Library of Congress). (1998). *Anglo-American Cataloguing Rules* (2nd ed., 1998 revision). M. Gorman and P. W. Winkler (Eds.). Chicago, IL: American Library Association.

By the late 1990s, sufficient additions, deletions, and changes had accumulated since the 1988 revision to warrant a new issue of the second edition. A new revision of AACR2R containing the rules of the 1988 revision and subsequent updates was issued in 1998.

Anglo-American Cataloging Rules, 2nd Edition, 2002 Revision (AACR2R; 2002)

> Joint Steering Committee for Revision of AACR (American Library Association, Australian Committee on Cataloguing, British Library, Canadian Committee on Cataloguing, Chartered Institute of Library and Information Professionals, & Library of Congress). (2002). *Anglo-American Cataloguing Rules (*2nd ed., 2002 revision). Chicago, IL: American Library Association.

AACR2R (2002) contains changes and additions since 1998, particularly with regard to the treatment of electronic resources.

Anglo-American Cataloging Rules, 2nd Edition, 2005 Revision (AACR2R; 2005)

> Joint Steering Committee for Revision of AACR (American Library Association, Australian Committee on Cataloguing, British Library, Canadian Committee on Cataloguing, Chartered Institute of Library and Information Professionals, & Library of Congress). *(*2005).

*Anglo-American Cataloguing Rules (*2nd ed., 2005 revision). Chicago, IL: American Library Association.

AACR2R (2005) contains changes and additions since the 2002 revisions, particularly with regard to cataloging of cartographic materials. The JSC is no longer maintaining AACR2, due to its replacement by RDA.

The Concise AACR2 (2004)

Gorman, M. (2004). *The Concise AACR2* (4th ed.). Chicago, IL: American Library Association.

For libraries that do not need the details embodied in the full edition of AACR, a concise version prepared by Michael Gorman (one of the editors of AACR) has been published at appropriate intervals since 1981. The current edition accompanies AACR2R (2002). The intent of the concise version, as stated in the General Introduction to the latest edition, is "to convey the essence and basic principles of the second edition of the *Anglo-American Cataloguing Rules* (*AACR2*) without many of that comprehensive work's rules for out-of-the-way and complex materials."

Resource Description and Access (RDA)

American Library Association, Canadian Library Association, & CILIP: Chartered Institute of Library and Information Professionals. (2010–). *RDA Toolkit: Resource Description and Access*. Available from www.rdatoolkit.org

Joint Steering Committee for Development of RDA (American Library Association, Australian Committee on Cataloguing, British Library, Canadian Committee on Cataloguing, CILIP: Chartered Institute of Library and Information Professionals, & Library of Congress). (2010–). *RDA: Resource Description and Access*. Chicago, IL: American Library Association.

In the early 2000s, discussion began on a new edition of AACR. In 2004, work on the new edition started, and Tom Delsey was appointed as the editor. In 2005, a new title was adopted, "RDA: Resource Description and Access," along with a new approach for the standard. RDA is based on the conceptual models FRBR and FRAD, provides a flexible framework to describe all bibliographic resources (with special attention to digital resources), and allows for better efficiency for organizations that use emerging database technologies. A full draft of RDA was first made available in November 2008, and the new standard was released in 2010 in the RDA Toolkit as an integrated online

resource. The RDA content standard is regularly updated with new releases of the RDA Toolkit. Print versions of RDA are also available. RDA has been translated into other languages, among them Chinese, French, German, and Spanish. The French, German, and Spanish translations have been integrated into the RDA Toolkit.

The Joint Steering Committee for Development of RDA is responsible for overseeing revision work. This is an international organization, with representatives from ALA, Australian Committee on Cataloguing, The British Library, Canadian Committee on Cataloguing, CILIP: Chartered Institute of Library and Information Professionals, Deutsche Nationalbibliothek, and the LC.

Chapter 5 of this book offers an overview of FRBR, FRAD, and ISBN, as well as an introduction to RDA. Chapter 6 discusses and gives examples of the guidelines and instructions for description contained in RDA. Descriptive—that is, nonsubject—access points based on the RDA guidelines and instructions are discussed in chapters 7 through 9 of this book.

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Part II

RECORD PRODUCTION AND STRUCTURE, ENCODING FORMATS, AND METADATA RECORDS

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Chapter 3

Records and Encoding Schemas

INTRODUCTION

Resource descriptions and other metadata—such as information regarding a controlled subject term or a person's name, including the preferred form of, and variations of, that name—have always been stored in some type of records, physical or digital. Records can be produced in-house or can be copied from another agency that produced them. To set up such records for computer manipulation, for printing or browsing, or for any of the myriad other things a computer can do with its data, elements in or pertaining to the records must be coded according to a standard format or markup language. The one markup language commonly used in the library community is MARC. In the Web environment, other encoding schemas based on SGML (Standard Generalized Markup Language) and XML also come into play. More recently, libraries have been exploring ways to encode their library data for the semantic Web and linked-data environment. A new model for expressing and connecting bibliographic data has been developed for these purposes, the BIBFRAME.

CATALOGING RECORDS

In cataloging any given item, there are two ways to proceed. The first, called *copy cataloging,* is to make the fullest possible use of records prepared elsewhere—records that are called *cataloging copy*. The second, called *original cataloging*, is to do the cataloging in-house, from scratch. In any given library with a general collection, it is typical to find a mix of both, with fully original cataloging restricted to items for which no outside record is available.

The more specialized the library or indexing agency, of course, the fewer outside records are likely to be suitable, if any can be found at all.

In strict copy cataloging, a local cataloging record is based on an outside record with minimum modification to fit the item being cataloged. Nonetheless, in many cases of copy cataloging, a high level of professional judgment may be needed once a candidate outside record is found: first, to be sure that the record in question matches the item at hand; second (if it does match), to determine whether the item was adequately cataloged by the originating agency; and third, to alter, add, or delete cataloging elements to suit local needs. Thus, there are elements of original cataloging even in what is usually considered copy cataloging. In general libraries, nevertheless, most local cataloging departments stay as close as possible to strict copy cataloging because doing so has been found to bring about a large increase in the productivity of cataloging staff.

Where do outside records come from? Where can they be found? Two facets of the cataloging process come into play here: *centralized cataloging* and *shared cataloging*. Centralized cataloging describes the situation in which cataloging records are prepared by one agency and made available to subscribers; shared cataloging describes the situation in which cataloging records are contributed by two or more libraries or agencies to a central database and made generally available.

In the history of cataloging in the United States, the LC has played a major role in both centralized and shared cataloging. Beginning with the Library's printed card service in 1902 (which, for many years, simply amounted to distributing duplicates of catalog cards prepared by its own staff for its own use), libraries around the country have made use of LC cataloging records or data in their own catalogs.

By the middle of the 1950s, even LC could not keep up with its current cataloging load, so it began welcoming cataloging records prepared by other major libraries. It used these records to supplement its own cataloging and also made them available to other libraries. Shared cataloging has been a major force in American cataloging ever since.

Besides shared bibliographic records, there is another kind of cataloging information that the library community benefits from sharing. The LC has been making its subject authority list available since early in the twentieth century, publishing it as LCSH. In 1986, LCSH became available in machine-readable form, first on magnetic tape as the *Subject Authorities*, and later on CD-ROM as *CDMARC Subjects*. In 1974, the LC began issuing its name authority records, first serially in book form,[1] then on microfiche, and finally on magnetic tape as the *Name Authorities* and on CD-ROM as *CDMARC Names*. Currently, the authorities' databases are accessible from the library's web site (http://authorities.loc.gov), and as

part of Cataloger's Desktop and Classification Web, both of which are online tools developed and maintained by the LC.

At first, LC was effectively the only agency involved in the large-scale collection and distribution of cataloging records. Now, spurred by the use of computer technology to facilitate library operations, there are many others, particularly the cooperatives called *bibliographic networks* or *bibliographic utilities*.

Bibliographic utilities are agencies with large cataloging databases that provide a wide range of bibliographic services to members or subscribers. Some are networks in which members contribute their original cataloging records to be shared with other members. There are also many commercial and government-supported processing centers that provide precataloged books and other resources to libraries. Some of them create their own cataloging records; others adapt cataloging copy and either make it directly available to libraries or use it in their own products. Such processing centers offer a variety of services often tailored to individual libraries' needs. Many provide cataloging data to be integrated into online catalogs of member libraries, along with library materials ready to circulate.

MAJOR SOURCES OF CATALOGING COPY

Cataloging records—both bibliographic records and authority records—are available through subscriptions offered by the LC, and through bibliographic utilities. These records are also searchable for free on LC's web sites: Library of Congress Online Catalog (http://catalog.loc.gov) for bibliographic records and *Library of Congress Authorities* (http://authorities.loc.gov) for authority records.

The Library of Congress (LC)

The LC has a long history of making cataloging data available (through several different vehicles) under the direction of the Cataloging Distribution Service (CDS; formerly the Card Distribution Service). In 1942, LC began publishing *The Library of Congress Catalog: A Cumulative Catalog of Books Represented by Library of Congress Printed Cards*, which made available, en masse, the author- or main-entry cataloging records of the vast holdings of the Library. In 1953, the title was changed to *National Union Catalog* (NUC), and the scope was enlarged to include cataloging records of contributing North American libraries with holdings information for many items. In 1983, the LC discontinued the print version of NUC and began issuing it on microfiche.

union catalog and services has been extended to libraries in states outside of Ohio and eventually abroad, an important step toward making OCLC the largest online bibliographic network in the world. To reflect its expanded scope, the name Ohio College Library Center was changed to OCLC Online Computer Library Center in 1977. OCLC Pacific was formed in 1976 to provide training and support to West Coast OCLC members, and in 1999 OCLC Pacific merged with WLN. The result was the OCLC/WLN Pacific Northwest Service Center, now called OCLC Western.

OCLC's cataloging subsystem consists of an online union catalog set up as a shared cataloging operation. Early use of the network leaned heavily toward off-line catalog card production using MARC tapes from the LC. Now, libraries with proper equipment can download or import OCLC records directly to their own online catalog.

Since 1985, United Kingdom's MARC records have also been incorporated into WorldCat. The LC Name Authority File was loaded as a separate file in 1984; and in 1987, the LC Subject Authority File was also added. These authority files are kept current as new and corrected data are received. With millions of bibliographic records and a large number of authority records available online, member libraries have been able to reduce cataloging costs considerably.

An important feature of WorldCat is that each bibliographic record has corresponding holdings records, giving each library's holdings information. As of 2014, WorldCat contains more than 330 million bibliographic records, with over two billion holdings records in hundreds of languages, for a wide variety of library materials, ranging from stone tablets to electronic books, wax recordings to MP3s, DVDs, and web sites.

In 2005, OCLC launched its OCLC Open WorldCat program, making the records in WorldCat visible and freely accessible to Web users through popular Internet search sites such as Yahoo! and Google, and through its worldcat.org interface. In early 2006, OCLC incorporated the RLG Union Catalog (discussed in the next section) containing more than 48 million titles and more than 150 million holdings records. Early OCLC cataloging systems allowed retrieval of records by only a limited number of search keys, none of which afforded subject access.

Over the years, OCLC has implemented very sophisticated searching options as well as a number of progressively effective systems with enhanced features and capabilities for online cataloging operations. The current cataloging interface is called Connexion, which is based on an Oracle platform for its databases and which uses the Web as its communications platform. In addition to online cataloging services, OCLC provides a number of metadata services, including open bibliographic data, discovery services, and resource-sharing services.

Other Networks and Services

There are a number of other networks and agencies that provide bibliographic services to libraries. Some networks are nationwide or regional. Some serve special types of libraries. A prominent example is Research Libraries Group (RLG),[4] which, like OCLC, was a not-for-profit organization. Its membership consisted of over 150 research libraries, archives, museums, and other cultural memory institutions. RLG was founded in 1974 by Columbia, Harvard, and Yale universities and the New York Public Library. One of its products was the RLG Union Catalog, a database containing bibliographic records covering a wide range of subjects and material types in almost 400 languages. Its major clientele consisted of academic and research libraries. Its RLIN21 Web interface offered sophisticated search and navigation capabilities supported by Web browsers. On July 1, 2006, RLG merged with OCLC, and RLG's programs continue to operate as a new unit of OCLC.

In addition to networks such as OCLC, many commercial companies also offer bibliographic services, supplying completely processed library materials, both print and nonprint, with bibliographic records ready to be downloaded to local library systems. It is a fairly common practice among libraries, particularly small libraries, to outsource their cataloging operations to commercial companies. For example, Yankee Book Peddler, Inc. (YPB) is a participant of the OCLC WorldCat Cataloging Partners (formerly PromptCat) service, whereby libraries receive complete MARC records from OCLC's WorldCat along with materials purchased from the vendor.[5]

ONLINE CATALOGING

In working with online catalogs, reference librarians as well as catalogers and collection development and acquisitions personnel need to know about how cataloging records are coded. For reference librarians, such knowledge is an important factor in effectiveness when using the catalog as a retrieval tool.

Even with the computer playing a significant role in the cataloging operations, the intellectual part of the cataloging process is still largely performed by human catalogers and is completed before the computer plays its part. This is true no matter how little fully original cataloging is done, because cataloging copy has to be screened and often altered before it can be used.

Online Cataloging Activities

The availability of facilities for the online processing of cataloging records has proven to be extremely helpful to libraries, not only in terms of catalog

cost savings but also in terms of reducing the time between an order request and the appearance of the purchased item on the shelves. The following discussion describes some of the processes involved in online cataloging.

Searching

For catalogers, the main purpose of searching is to ascertain whether there is a record in the database that can serve as cataloging copy. The most common search keys used in this regard are name, title, name-title, subject heading, LC control number, ISBN, ISSN (International Standard Serial Number), and a special control number in the database. These are elements that appear in cataloging records. The last, the special control number, is unique to a given record, barring keying mistakes. Using the others will frequently call up more than one record, because the computer will respond with all the records containing the same search key. In such a case, the system displays brief descriptions, and the searcher then decides which particular record is to be displayed in full.

Once it is ascertained that a particular record is in the database, that record can then be used as needed. For cataloging, the next step is to compare the record with the item being cataloged. If their descriptions are a full match, the record then can be processed and downloaded for local use. However, if the record varies in certain details from what fits the item being cataloged, or if it differs from local cataloging norms, it can be modified to suit the item. The modifying process is called *editing*.

Editing

Editing can be performed online. One great advantage of online cataloging is its instant feedback. In editing, changes are made directly on the screen and the modified or edited record will be shown instantly, allowing the cataloger to ensure that all necessary modifications have been made.

Deriving Records

Frequently, there may be a record in the database for the same work but in a different format from the item being catalogued. For example, the searcher may locate a record created for a book in the database that matches the item being cataloged, but that is in microform or electronic form. The source record can then be adapted by editing the details with regard to physical description and adding appropriate notes to fit the item in hand.

Inputting Cataloging Records

To store original cataloging data in machine-readable form in a database, records must be input in coded form. When there is no record in the database

that can be used as a cataloging copy for the item in hand, the cataloger creates an original cataloging record, adding all additional data and tags called for in the MARC format. This newly created record is then input into the database. The inputting process is made relatively easy in online cataloging systems because a MARC worksheet or workform, showing the most frequently used field tags needed in a typical record, is displayed on the screen. Cataloging data are then entered in the appropriate fields.

Downloading and Transporting Records

After records have been created and verified, the next step is to transport them to the local system. For members of a cooperative such as OCLC, records can be efficiently exported to local systems via the Internet. Because the online systems in different libraries are likely to differ in system requirements and needed protocols, some adjustments may be needed before imported records can be used. Downloading of records can be done on a one-by-one or multiple/batch basis.

Retrospective Conversion

Before online catalogs came into being, the catalogs of most libraries were in card form, with some card sets produced in-house and some imported. With the advent of the online age, it was naturally considered desirable that the information on those cards be made machine-readable. The term *retrospective conversion* refers to the process of converting manually produced records to MARC records, a necessary step in a library's transition from the manual to the automated cataloging environment and in the implementation of an online catalog. It is a time-consuming task, in part because, during conversion, it is desirable to update old records, particularly their access points, to reflect current practice. Fortunately, most libraries have completed the conversion process; some may still have small portions of the catalog not completely converted. Many bibliographic utilities and commercial companies offer retrospective conversion services. Use of such services is often the most cost-effective means for a library to effect its transition to an online catalog.

Catalog Maintenance

Maintenance refers to the process of correcting errors and updating cataloging records to keep them compatible with current standards. Maintenance is an ongoing and highly labor-intensive process. For example, when a subject heading is revised, the authority record and all bibliographic records bearing the heading should be revised to conform to the current heading.

Maintenance is a never-ending process because a catalog is dynamic; it not only grows but changes as cataloging standards are refined and as the technology of cataloging is improved. The most important objective in catalog maintenance is ensuring the quality of the catalog so that it can best serve the needs of its users. A secondary goal is to contain cataloging costs.

RECORD STRUCTURE

In computer science and database design, a record is a structure that holds data. A record includes a set of elements (also known as fields), which describe one or more units that are treated as an entity.[6] In other words, a record is a collection of fields that constitute a complete set of information about an entity (e.g., a set of fields that provide complete information about an author). Each record is typically identified by a serial number or an identifier (ID number). A collection of records constitutes a file. A system may have one or more files. Figure 3.1 shows a record structure in relation to the larger context of a system.

In MARC formats, the terms *record structure* and *record format* are sometimes used interchangeably, although record format is a broader concept representing record structure, record designation, and record content.[7] Following is a discussion of MARC formats for data on resources in library collections, with the record structures defined for different types of records.

Figure 3.1 Record structure in system file context.

electronic resources, and mixed materials. Initially, separate formats were prepared for different media—books, serials, etc.—and there were differences in the provisions for each medium, differences that were soon seen to cause problems in application.[14] For example, bibliographic items that fall into more than one category, such as nonprint materials in serial form, could not fit adequately into one format. Although bibliographic items in many media may be issued in serial form, provisions for serial publications or products were inconsistent among the various formats. Furthermore, comparable elements in different formats were not always handled consistently. In practice, the multiplicity of formats made maintenance and systems support difficult and cumbersome. As a result, in the early 1990s, the various medium-specific formats were rationalized and integrated into a single format.

(2) *MARC 21 Format for Authority Data*[15] is intended for use by persons who create and maintain authority records. It contains specifications for encoding and identifying data elements in authority records, including those for name headings, name/title headings, uniform or preferred title headings, topical term headings, extended headings (i.e., headings with subdivisions), and references to headings.

(3) *MARC 21 Format for Classification Data*[16] is designed for identifying data elements in classification records. In effect, a classification record is an "authority record" for a class number. It is intended for use by persons who (a) create and maintain classification records, (b) arrange the publication of classification schemes from machine-readable data, and (c) design and maintain systems for processing classification records and entering them into the appropriate database.

(4) *MARC 21 Format for Holdings Data*[17] is designed for identifying the data elements in MARC holdings reports (i.e., reports indicating the holdings of individual libraries). As such, it contains provisions for recording copy-specific information of any particular resource, plus information that is peculiar to the holding library. It is designed to allow the potential use of the format to interface with automated control systems such as union catalogs, automatic serials claiming, and interlibrary loan systems. It is intended for use by those who create and maintain MARC 21 holdings information.

Levels of MARC 21 Formats

To accommodate the needs of different types and sizes of libraries and different levels of use, MARC 21 is issued in three levels according to fullness of detail: full, concise, and "LITE." The full and concise versions contain all format types, while MARC 21 LITE is limited to the bibliographic format

only. MARC 21 Concise has all data elements contained in the full version but with less explanatory detail. MARC 21 LITE, on the other hand, contains fewer data elements and even fewer explanatory details. The LITE format is extensible; if more details are needed than defined in each format, details from the full format may be added selectively.

MARC 21 Full

The full versions are the most inclusive in respect to details.

MARC 21 Concise

For those who do not need the elaborate explanatory details in the individual formats, a concise version including all formats, entitled *MARC 21 Concise Formats,* has also been published.[18] The nature and purpose of this version are stated as the following:

The *MARC 21 Concise Formats* contains abridged descriptions of every data element, along with examples. Descriptions of subfield codes and coded values are given only when their names may not be sufficiently descriptive. Examples are included for each field. (www.loc.gov/marc/concise/concise.html)

MARC 21 LITE

In 2001, an even simpler version for bibliographic data, called *MARC LITE*, was developed for use in simple cataloging and metadata records. The nature and purpose of this version are stated as the following:

"The *MARC 21 LITE Bibliographic Format* is a subset of the markup defined in the full MARC 21 Bibliographic Format. It includes all essential data elements to create bibliographic records." The created records using only the elements in this MARC 21 LITE format, are valid MARC records and may be integrated with fuller records without changes later on. If needed, elements from the full format can be added to LITE records. (http://www.loc.gov/marc/bibliographic/lite/genintro.html)

Availability of MARC 21 Formats

The MARC 21 formats are available in various publication types and are also found in many cataloging tool packages. The formats are also available on the LC web site (www.loc.gov/marc/), along with other MARC-related documents and tools.

The full version of MARC 21 is also included in Cataloger's Desktop, which is available by subscription from the Cataloging Distribution Service of the Library of Congress.

Architecture of MARC 21 Formats

The general architecture of the various formats is much the same for all formats. The separately published formats, which include instructions on application as well as the format definitions and provisions themselves, are enormously complex and detailed. For beginners and those interested in an overview of the formats, the concise version offers essential details sufficient for an understanding of MARC architecture.

It is helpful to consider the basic structure of the MARC 21 formats in three perspectives: what is the overall structure, what is included, and how is all the content organized? One should bear in mind that a MARC record in the communications format consists of a sequential string of characters, with a blank space counting as a character. For example, the sequence "MARC format" equals eleven characters. A typical coded bibliographic record consists of hundreds of such sequences. (The MARC records taken from the LC online catalog and from OCLC's WorldCat shown throughout this book have been reformatted for easy reading.)

Certain control characters used in the MARC record are given arbitrary graphic representation in various displays of MARC records. For example, in different contexts or systems, the subfield limiting character may be represented by the dollar sign ($), the vertical bar (|), or by the dagger (‡). The field and record terminators are often omitted from record displays, but never from the actual record.

In this text, the following graphics are used:

blank (indicating a positive or fixed value, e.g., in the indicator)
$ subfield limiting character
@ field terminator
% record terminator

Figure 3.2 shows a cataloging record in the MARC communications format (along with a field-by-field analysis) as it stands before individual elements are formatted for display.

Structural Components of the MARC 21 Format

Three elements form the basis of the MARC 21 format: record structure, content designators, and data content:

(1) The record structure is the overall framework for the MARC record.
(2) The content designators are a set of symbols by which data in the record are identified and manipulated; these include field tags, indicators, and subfield codes (see explanation below).

(a)

01795cam#a22003618i#4500001001300000003000400013005001700017008004100034010001
5000750200037000900200034001270400023001610430012001840500020001960 8
20014002161000029002302450094002592500019003532640086004393000030004
69336002600499337002800525338002700553504005100580505047200631650004
30110365000530114670000220119 9###841199101#@DLC@20140306113219.0@
130422s2013#ilu#b#001#0#eng##@ ##$a2013010868@ ##$a9781555709099#$q#acid-free
paper@ ##$a1555709095#$q#acid-free paper@ ##$aDLC$beng$erda$cDLC@ ##$an-us---@
00$aZ678#$b.E9#2013@ 00$a025.1$223@ 1#$aEvans, G.#Edward,$d1937@ 10$aManag
ement#basics#for#information#professionals#/#$cG.#Edward#Evans,# Camila#A.#Alire.@
##$aThird#edition.@ #1$aChicago#:#$bNeal-Schuman,#an#imprint#of#the#American#Libra
ry#Association,#$c2013.@ ##$axvii,#577#pages#;#$c23#cm@ ##$atext$btxt$2rdacontent@
##$aunmediated$bn$2rdamedia@ ##$avolumebnc2rdacarrier@ ##$aIncludes bibliographical
references and index.@ ##$aOperating#environment#--#Legal#issues#and#library#managem
ent#-- #The#planning#process#--#Power,#accountability,#and#responsibility#--#Delegating#-
-#Decision#making#--#Communicating#--#Changing#and#innovating#--#Assessment,#quali
ty#control,#and#operations#--#Marketing#--#Motivating#--#Leading#--#Building #teams#--
#Addressing#diversity#--#Staffing#--#Managing#money#--#Managing#technology#--#Managi
ng#and#planning#physical#facilities#--#Ethics#--#Planning#your#career.@#0$aLibrary#admi
nistration$zUnited#States.@ #0$aInformation#services$zUnited#States$xManagement.@ 1#$a
Alire,#Camila#A.@

(b)

Leader	01795cam#a22003618i#4500
Directory entries	001001300000
	003000400013
	005001700017
	008004100034
	010001500075
	020003700090
	020003400127
	040002300161
	043001200184
	050002000196
	082001400216
	100002900230
	245009400259
	250001900353
	264008600439
	300003000469
	336002600499
	337002800525
	338002700553
	504005100580
	505047200631
	650004301103

Figure 3.2 MARC record in the communications format for Evans, G. Edward. (2013). *Management Basics for Information Professionals*. 3rd ed.: a bibliographic record (a) and a field-by-field analysis (b), with $ = delimiter, @ = field terminator, % = record terminator, and # = blank.

```
                650005301146
                700002201199
Data fields     ###841199101#@DLC@20140306113219.0@
                130422s2013#ilu#b#001#0#eng##@
                ##$a2013010868@
                ##$a9781555709099#$q#acid-free paper@
                ##$a1555709095#$q#acid-free paper@
                ##$aDLC$beng$erda$cDLC@
                ##$an-us---@
                00$aZ678#$b.E9#2013@
                00$a025.1$223@
                1#$aEvans,@G.#Edward,$d1937-@
                10$aManagement#basics#for#information#professionals#/#$cG.#Edward#Evans,#
                   Camila#A.#Alire.@
                ##$aThird#edition.@
                #1$aChicago#:#$bNeal-Schuman,#an#imprint#of#the#American#Library
                   #Association,#$c2013.@
                ##$axvii,#577#pages#;#$c23#cm@
                ##$atext$btxt$2rdacontent@
                ##$aunmediated$bn$2rdamedia@
                ##$avolume$bnc$2rdacarrier@
                ##$aIncludes bibliographical references and index.@
                ##$aOperating#environment#--#Legal#issues#and#library#management#--
                   #The#planning#process#--#Power,#accountability,#and#responsi
                   bility#--#Delegating#--#Decision#making#--#Communicating#--
                   #Changing#and#innovating#--#Assessment,#quality#control,#and
                   #operations#--#Marketing#--#Motivating#--#Leading#--#Building
                   #teams#--#Addressing#diversity#--#Staffing#--#Managing#money#--
                   #Managing#technology#--#Managing#and#planning#physical#facilities#--
                   #Ethics#--#Planning#your#career.@
                #0$aLibrary#administration$zUnited#States.@
                #0$aInformation#services$zUnited#States$xManagement.@
                1#$a Alire,#Camila#A.@
```

Figure 3.2 *Continued*

(3) The data content is field-by-field record-specific information (bibliographic data, authority data, classification data, etc.). Data content is what is usually thought of as "catalog information," and is usually defined by standards outside the formats, such as cataloging rules, classification schemes, subject vocabularies, code lists, and so on.

Units in a MARC 21 Record

Another way to look at what constitutes a MARC record is in terms of units. The term "unit" here refers to an item of MARC-tagged information. Any MARC record consists of the following units:

Tables 3.3 and 3.4 show an example of a data field and its corresponding directory entry in a bibliographic record. Some fields, such as the 100 (main entry), occur only once in each record. Others, such as those for subject headings or index terms, may be repeated. Similarly, some subfields are also repeatable. The repeatability (R) or nonrepeatability (NR) of each field and subfield is indicated in the MARC 21 formats.

(a)

Table 3.3 A Variable Data Field in a Bibliographic Record

Indicators		*Subfield Code*	*Data*	*Subfield Code*	*Data*	*Field Terminator*
1	#	$a	Evans, G. Edward,	$d	1937–	@

(b)

Table 3.4 The Corresponding Directory Entry for the Variable Data Field in Table 3.3

Field Tag	*Field Length*	*Starting Character Position*
100	0029	230

What a given content designator means varies considerably from one MARC 21 format to another. This is shown in the contrast between the two tables included in the first chapter for bibliographic and authority data, respectively. Nevertheless, there are similar patterns. The schemas below, for bibliographic data, illustrate the sort of things that may be found in other formats. Fields in the *bibliographic record* are grouped into blocks identified by the first character of the tag, which normally indicates the function of the data within the record.

0XX Control information, identification and classification numbers, etc.
1XX Main entry fields
2XX Titles and title-related fields (title, edition, imprint)
3XX Physical description, etc. fields
4XX Series statement fields
5XX Note fields
6XX Subject access fields
7XX Added entry fields other than subject or series; linking fields
8XX Series added entry fields, holdings, location, etc. fields
9XX Reserved for local implementation

Within the 100, 400, 600, 700, and 800 blocks, the type of information (e.g., personal name, corporate name, uniform title, and geographic name) is often identified by the second and third characters of the tag.

X00 Personal names
X10 Corporate names
X11 Meeting names
X30 Uniform titles
X40 Bibliographic titles
X50 Topical terms
X51 Geographic names

Indicators and subfield codes are defined individually for each field. For example, the main entry personal name field (tag 100) in a bibliographic record uses the first indicator position to specify the type of personal name according to the following codes:

0—Forename
1—Surname
3—Family name

The second indicator, left as a blank, is undefined. If the main entry is in the form of a personal name, the most commonly used subfield codes are the following:

Code	*Subfield*
$a	Personal name
$b	Numeration
$c	Titles and other words associated with a name
$d	Dates associated with a name

For example, see Table 3.3. Wherever feasible, parallel content designation is used in the various formats. For example, the same subfield codes shown above are used in fields containing personal names in both the bibliographic and authority formats.

It is the coding in a MARC record that allows it to be processed by the computer for various uses and various types of display. There are many circumstances when library personnel need to see and work with fully coded records. Catalog maintenance is one, but other sectors of the library often need them too. OPAC records can be displayed in various formats and levels of detail. They do not show MARC coding, but it is the codes that make such variety possible. It is also the codes that enable many of the sophisticated search options available in today's OPACs. Thus, it can be seen that the same cataloging information, once coded, can be tailored for use in different environments and for different purposes—online catalogs, acquisitions lists, circulation records, etc. The flexibility is great: the design of each online catalog system determines what can be done with the coded catalog data.

MARC-RELATED FORMATS

In addition to the three levels of MARC 21 formats, a number of other formats have been developed by the LC to facilitate the use of MARC records in different environments. All of these standards have been developed and are maintained by the Network Development and MARC Standards Office of the Library of Congress with input from MARC and from users.

Three of these standards—MARCXML, Metadata Object Description Schema (MODS), and Metadata Authority Description Schema (MADS)—are discussed below. Because these standards are encoded in XML, a brief introduction to the markup languages used to process electronic data is in order.

Standard Generalized Markup Language (SGML)

A markup language is used to indicate how a document or text has to be structured and presented. The term has its origin in the publishing field. Before a book or journal is published, a copyeditor or "markup" person goes through the manuscript and writes instructions on the margins regarding the font, type, size, etc. for the typesetter. SGML was developed to process digital data. SGML is derived from IBM's Generalized Markup Language (GML), developed in the 1960s by Charles Goldfarb, Edward Mosher, and Raymond Lorie. By 1986, GML had been adopted by the ISO and was promulgated as "ISO 8879:1986 Information Processing—Text and office systems—Standard Generalized Markup Language (SGML)." The standard, which is rather complex, was adopted by agencies that require tremendous amounts of data to be processed from text files, notably the US Department of Defense and the Association of American Publishers. SGML is not a markup language itself but it is a meta-language that is used to define markup languages. By 1992, experiences in using markup had led researchers at the Centre européen pour la recherché nucléaire (or European Organization for Nuclear Research, now commonly referred to as the European Laboratory for Particle Physics, or just "CERN") to create the HTML, an application of SGML. HTML is a markup language designed for displaying documents on Web browsers.

SGML also serves as a meta-meta-language, which means that meta-languages can be created based on SGML. XML is an example of such an implementation of SGML.

Extensible Markup Language (XML)

XML, an instantiation or implementation of part of SGML, was developed and maintained by the W3C.[19] An important feature of XML is that it allows documents to contain data about themselves *within* the document, the same

way that MARC records contain the directory. This means the data carry with them specifications that guide their processing, independent of any specific software application. XML was initiated mainly to serve as a simpler and easier-to-implement meta-markup language than SGML, with all of the necessary concepts embodied within it. The first version of XML specification was published in 1996. The current version of XML specification is version 1.1. The XML Recommendation (http://www.w3.org/TR/xmlschema11-1/) contains a set of specifications that guide the creation of XML-tagged records of information resources.

Today, XML has grown into an all-purpose and all-pervasive way to insert structure into text documents and to create flexible surrogates, or metadata, for text and other objects. The use of XML has become so pervasive that it led Catherine Ebenezer to declare: "Every serious Web technology is now expected to define its relationship to XML."[20] The characteristics of XML can be summarized briefly as follows:

- XML is a simplified implementation of SGML;
- XML consists of a subset of SGML specifications;
- Like SGML, XML is a meta-markup language for text documents;
- Unlike HTML, XML is not a markup language for indicating display options.

In other words, XML tags assign meaning to the data (e.g., <title>**Paradise Lost** </title>), while HTML tags indicate how the data are to be displayed (e.g., <b>**Paradise Lost**). Elliotte Rusty Harold and W. Scott Means summarize the purposes and benefits of XML as follows[21]:

Flexibility: XML allows users to invent the elements based on their needs.

Syntax: The XML Recommendation defines a grammar for XML documents that indicates where tags may be placed, what they must look like, which element names are legal, how attributes are attached to elements, etc.

Semantics: The markup in an XML document describes the structure of the document, that is, the document's semantics. That is, XML supports a structural and semantic markup language.

Extensibility: XML can be extended and adapted to meet many different needs.

Interoperability: Individuals or organizations may agree to use only certain tags, forming tag sets called XML applications. As a result, XML documents based on the same XML application are interoperable.

Portability: XML is a simple, well-documented, straightforward data format, offering the possibility of cross-platform, long-term data formats. XML documents are text-based and can be read with any tool that can read a text file.

Similar to HTML tags, XML tags are indicated by angled brackets "<"and ">." Tags are case sensitive (e.g., <B> is not the same as <b>), and each starting tag (e.g., <b>) must have a corresponding ending tag (e.g.,).

Document-Type Definition and XML Schema

As mentioned earlier, XML is a meta-language. The application of XML in a particular domain, such as in libraries, is called an XML application; similarly, an XML document is a realization of an XML application. An XML application is a formal definition for a document type that conforms to the XML specification. In each XML application, the elements (tags), attributes, and structural rules that are permitted in an XML document must be specified.

There are several ways of creating an XML application. The languages for creating such applications are Document-Type Definitions (DTDs) and the XML Schema. The terms DTD or XML Schema are often used to refer to XML applications as well as to the schemas themselves. In general, the XML Schema Language provides a more precise grammar than does the DTD format. Thus, using the XML Schema is preferred in situations that require quite sophisticated rules or controls governing the elements and attributes of what is being coded. In an XML application, a formal grammar specifies which elements can be used, how those elements can be used, and what contents and attributes are valid.

Details regarding XML applications are beyond the scope of this book. Rather, the primary focus here is on XML *documents*, in other words, on instances of XML applications. By definition, an XML document is a document combining content data and an XML grammar specified in a particular XML application.

Two simple examples of XML documents are shown below. These documents contain the same content, but the first illustrates the use of a DTD, while the second shows the use of an XML Schema. The following is an example of an XML document using a DTD:

```
1 <?xml version "1.0" encoding "ISO-8859-1"?>
2 <!DOCTYPE record SYSTEM "simpleRecord.dtd">
3 <record>
4 <title> Cataloging and classification </title>
5 <author>
6 <first_name> Lois </first_name>
7 <middle_name> Mai </middle_name>
8 <last_name> Chan </last_name>
9 <edition> third edition </edition>
```

documents to be encoded in unlimited ways. There is no reason why, for instance, an XML Schema for literature could not have both a tag called "<protagonist>" for adult readers and a tag called "<main_character>" for young adult readers. XML provides a flexible and adaptive means of storing, structuring, and identifying information, without prescribing how the information is displayed or used. Additional tools, such as eXtensible Stylesheet Language (XSL) and Cascading Style Sheets (CSS), are used for processing and manipulating XML data and for handling the proper display of XML-tagged data.

The main features of XML include the following:

- XML is hierarchical, with a root element and parent and child elements.
- An XML Schema is usually stored in a separate file and then is associated with XML documents by references to namespaces.
- There is no fixed or standard set of valid elements and attributes for an XML application; the developer can create them.
- XML is an open standard (nonproprietary), sharable by all.
- Data to be encoded in an XML document can be of any type.
- Data encoded in XML are valid and well-formed.
- The syntax of XML is easily processed by software and machines, because many programming languages, especially Java, include resources (called "libraries") for computer programs to parse XML records.
- Natural language tags make XML understandable to humans.
- Record content data are completely separate from presentation or display instructions.
- Creating and using shared XML Schemas increases interoperability (sharing) of the data.

XML in Library Applications

XML makes it possible to update legacy XML-based cataloging and metadata records and to create new XML-based text records that can be searched across various database systems. Furthermore, the well-structured text in XML-coded records makes catalog and metadata records amenable to full-text parsing and other techniques found in information-retrieval systems.

Integrated Library Systems (ILS) can integrate access to all sorts of materials and resource types. Since the record structure of an XML-coded record is open and available (i.e., the schema itself is available along with any records that have been tagged following its provisions), it is possible to create metasearch systems and to incorporate data based on multiple metadata schemes within a single record. For instance, OCLC's WorldCat accepts both MARC and DC tags.

In the end, the power of XML enables librarians to convert MARC data to be used in an XML environment and to adjust document content to adapt to new devices and new user needs. Use of XML also facilitates the easy transfer of data between systems.

The following sections discuss the application of SGML and XML to standards for structuring and processing catalog and metadata records.

MARCXML

XML, originally designed to meet the challenges of large-scale electronic publishing, is now also playing an important role in the exchange of a wide variety of cataloging data and metadata on the Web. To enable MARC users to work with MARC data in the Web environment and in ways specific to their needs, the Network Development and MARC Standards Office of the Library of Congress has developed a framework called MARCXML, by casting MARC data in an XML framework. Based on XML, MARCXML enables the representation of MARC 21 data in an XML environment. It allows users to work with MARC data in ways specific to their needs. The framework itself includes many components such as schemas, stylesheets, and software tools. Along with the MARCXML schema, LC also provides a variety of XML tools, including stylesheets for transforming and displaying the data.[22] The tools LC provides also permit libraries to convert their old MARC records to MARCXML, to MODS, or to DC or other metadata records.

The MARCXML schema retains the semantics of MARC 21. However, some structural elements in MARC 21, such as the length of field and starting position of field data in directory entries, are not needed in an XML record. MARC's leader and the control fields are treated as data strings, and its fields are treated as subelements. Nevertheless, all of the essential data in a MARC record can be converted and expressed in XML. Figure 3.3 shows the same work encoded in the MARC 21 bibliographic format and in MARCXML. Figure 3.3(a) is the complete MARC 21 record for Evans' *Management Basics for Information Professionals*. Figure 3.3(b) is the MARCXML record for the same work. (As all XML records are required to do, the first line of the XML record, <?xml version "1.0" encoding "UTF-8" ?>, declares the XML version and the encoding schema. Line 2 indicates that the root of this record is "record." The second part of this line gives information about the XML Namespace: http://www.loc.gov/MARC21/slim.)

Metadata Object Description Schema (MODS)

The MODS[23] is a metadata schema for creating original resource description records that consist of selected data from the MARC 21 Bibliographic Format. For encoding, it uses XML.

(a)

000	01795cam a22003618i 450
001	841199101
005	20140306113219.0
008	130422s2013 ilu b 001 0 eng
010	2013010868
040	DLC $b eng $e rda $c DLC
020	9781555709099 $q acid-free paper
020	1555709095 $q acid-free paper
043	n-us---
050 00	Z678 $b .E9 2013
082 00	025.1 $2 23
100 1	Evans, G. Edward, $d 1937-
245 10	Management basics for information professionals / $c G. Edward Evans, Camila A. Alire.
250	Third edition.
264 1	Chicago : $b Neal-Schuman, an imprint of the American Library Association, $c 2013.
300	xvii, 577 pages ; $b 23 cm
336	text $b txt $2 rdacontent
337	unmediated $b n $2 rdamedia
338	volume $b nc $2 rdacarrier
504	Includes bibliographical references and index.
505 0	Operating environment -- Legal issues and library management -- The planning process -- Power, accountability, and responsibility -- Delegating -- Decision making -- Communicating -- Changing and innovating -- Assessment, quality control, and operations -- Marketing -- Motivating -- Leading -- Building teams -- Addressing diversity -- Staffing -- Managing money -- Managing technology -- Managing and planning physical facilities -- Ethics -- Planning your career.
650 0	Library administration $z United States.
650 0	Information services $z United States $x Management.
700 1	Alire, Camila A.

(b)

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<record xmlns="http://www.loc.gov/MARC21/slim">
<leader>00000cam a2200000 i 4500</leader>
<controlfield tag="001">841199101</controlfield>
<controlfield tag="008">130422s2013 ilua b 001 0 eng </controlfield>
<datafield ind1=" " ind2=" " tag="010">
<subfield code="a"> 2013010868</subfield>
</datafield>
<datafield ind1=" " ind2=" " tag="020">
<subfield code="a">9781555709099 (alk. paper)</subfield>
</datafield>
<datafield ind1=" " ind2=" " tag="020">
<subfield code="a">1555709095 (alk. paper)</subfield>
</datafield>
```

Figure 3.3 Evans, G. Edward. (2013). *Management Basics for Information Professionals*. 3rd ed.: a MARC 21 record (a) and MARCXML record (b).

```
<datafield ind1="1" ind2=" " tag="100">
<subfield code="a">Evans, G. Edward,</subfield>
<subfield code="d">1937-</subfield>
</datafield>
<datafield ind1="1" ind2="0" tag="245">
<subfield code="a">Management basics for information professionals /</subfield>
<subfield code="c">G. Edward Evans, Camila A. Alire.</subfield>
</datafield>
<datafield ind1=" " ind2=" " tag="250">
<subfield code="a">Third edition.</subfield>
</datafield>
<datafield ind1=" " ind2="1" tag="264">
<subfield code="a">Chicago :</subfield>
<subfield code="b">Neal-Schuman, an imprint of the American Library Association,</subfield>
<subfield code="c">2013.</subfield>
</datafield>
<datafield ind1=" " ind2=" " tag="300">
<subfield code="a">xvii, 577 pages :</subfield>
<subfield code="b">illustrations ;</subfield>
<subfield code="c">23 cm</subfield>
</datafield>
<datafield ind1="0" ind2=" " tag="505">
<subfield code="a">Operating environment -- Legal issues and library management -- The planning process -- Power, accountability, and responsibility -- Delegating -- Decision making -- Communicating -- Changing and innovating -- Assessment, quality control, and operations -- Marketing -- Motivating -- Leading -- Building teams -- Addressing diversity -- Staffing -- Managing money -- Managing technology -- Managing and planning physical facilities -- Ethics -- Planning your career.</subfield>
</datafield>
<datafield ind1=" " ind2="0" tag="650">
<subfield code="a">Library administration</subfield>
<subfield code="z">United States.</subfield>
</datafield>
<datafield ind1=" " ind2="0" tag="650">
<subfield code="a">Information services</subfield>
<subfield code="z">United States</subfield>
<subfield code="x">Management.</subfield>
</datafield>
<datafield ind1="1" ind2=" " tag="700">
<subfield code="a">Alire, Camila A.</subfield>
</datafield>
</record>
```

Figure 3.3 *Continued*

MODS consists of a subset of twenty bibliographic elements based on the MARC 21 Format for Bibliographic Data, selected specifically for supporting the description of electronic resources and objects. As such, it is a rich,

library-oriented XML metadata schema. Yet, although it is a simpler schema than the MARC 21 Bibliographic Format, it retains compatibility with MARC 21. It also provides multiple linking functions.

For encoding, MODS uses language-based tags rather than numeric ones. The top-level MODS elements include the following:

titleInfo
name
typeOfResource
genre
originInfo
language
physicalDescription
abstract
tableOfContents
targetAudience
note
subject
classification
relatedItem
identifier
location
accessCondition
part
extension
recordInfo

There are a great number of subelements and attributes for MODS listed on the LC' web site (www.loc.gov/standards/mods/). Figure 3.4 contains the MODS record for Evans' *Management Basics for Information Profes sionals*.

The following example, based on the title field (MARC tag 245) only, shows the parallel and coordination among MARC, MARCXML, and MODS:

MARC

245 14$a**The heart of Midlothian /** $c **Sir Walter Scott**

MARCXML

<datafield tag "'245" ind1 "1" ind2 "'4">
  <subfield code "a">**The heart of Midlothian**</subfield>
  <subfield code "c">**Sir Walter Scott**</subfield>
</datafield>

```
<mads:mads xmlns:mads="http://www.loc.gov/mads/v2" xmlns:xlink="http://www.
w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"version="2.0"
xsi:schemaLocation="http://www.loc.gov/mads/v2 http://www.loc.gov/standards/mads/mads-2-
0.xsd">
<mads:authority geographicSubdivision="not applicable">
<mads:name type="personal" authority="naf">
<mads:namePart> Evans, Edward G.</mads:namePart>
<mads:namePart type="date">1916</mads:namePart>
</mads:name>
</mads:authority>
<mads:note type="source">nuc86-76260: Reimer, B. Teaching the experience of music, 1973 $b
(hdg. on OOxM rept.: Evans, Edward G., 1916- ; usage: Edward G. Evans, Jr.)</mads:note>
<mads:note type="source">Washington post, 6/7/91 (Stan Getz, 64; b. 2/2/27, Philadelphia; d.
6/6/91, Los Angeles)
</mads:note>
<mads:note type="source">LC data base, 3/4/87 $b (hdg.: Evans, Edward G., 1916- ; usage:
Edward G. Evans, Jr.)</mads:note>
<mads:identifier type="lccn">n 87812300</mads:identifier>
<mads:gender>
<mads:genderTerm>male</mads:genderTerm>
</mads:gender>
</mads:extension>
<mads:recordInfo>
<mads:recordContentSource authority="marcorg">DLC</mads:recordContentSource>
<mads:recordChangeDate encoding="iso8601"> 19870319120758.3</mads:recordChangeDate>
<mads:recordIdentifier source="DLC">n87812300</mads:recordIdentifier>
<mads:languageOfCataloging>
<mads:languageTerm authority="iso639-2b" type="code">eng</mads:languageTerm>
</mads:languageOfCataloging>
<mads:descriptionStandard>aacr2</mads:descriptionStandard>
</mads:recordInfo>
</mads:mads>
```

Figure 3.5 MADS record for a personal name heading.

consistent and compatible with MODS as possible. The relationship between MADS and MARC 21 Authorities parallels that between MODS and MARC 21 Bibliographic.

MADS also uses language-based tags. A MADS record contains the same basic components as found in a MARC authority record:

Authorized heading
Related heading(s) (see also reference(s))—attributes:
- earlier
- later
- parentOrg
- broader

```
<mads:mads xmlns:mads="http://www.loc.gov/mads/v2" xmlns:xlink="http://www.
w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"version="2.0"
xsi:schemaLocation="http://www.loc.gov/mads/v2 http://www.loc.gov/standards/mads/mads-2-
0.xsd">
<mads:authority>
<mads:topic authority="lcsh">Management</mads:topic>
</mads:authority>
<mads:related type="other">
<mads:topic>Industrial relations</mads:topic>
</mads:related>
<mads:related type="other">
<mads:topic> Organization</mads:topic>
</mads:related>
<mads:variant type="other">
<mads:topic> Administration</mads:topic>
</mads:variant>
<note>subdivision Management under types of industries, industrial plants and processes,
special activities, resources, etc. and under names of corporate bodies, including individual gov-
ernment agencies, galleries, museums, parks, etc.; also subdivision Administration under types of
institutions and names of individual institutions, especially libraries, health and social services,
etc.; also subdivision Politics and government under names of countries, cities, etc.; and phrase
headings for specific types of management or administration, e.g. Industrial management; Police
administration</note>
<note>Here are entered works on the principles of management as a discipline. Works on the
application of systematic, logical, and mathematical methods and techniques to the solution of
problems of management are entered under Management science.</note>
<note>Note under Management science</note>
<mads:identifier type="lccn">sh 85080336</mads:identifier>
<mads:recordInfo>
<mads:recordContentSource authority="marcorg">DLC</mads:recordContentSource>
<mads:recordChangeDate encoding="iso8601">19890524110202.3</mads:recordChangeDate>
<mads:recordIdentifier source="DLC">sh85080336</mads:recordIdentifier>
</mads:recordInfo>
</mads:mads>
```

Figure 3.6 MADS record for a subject heading.

narrower
etc.

Variant heading(s) (see reference(s))—attributes:
equivalent
acronym
abbreviation
translation
etc.

Other elements (e.g., notes, affiliation, url, identifier, etc.)

Examples of MADS records are shown in Figures 3.5 and 3.6.

Bibliographic Framework (BIBFRAME)

With the implementation of FRBR family models and the new RDA description standard, many saw several limitations in MARC 21, and discussions on the future of MARC called for the development of a new way to represent and exchange bibliographic data. The new way would have to be oriented toward the Web and linked-data environment, use enhanced linking and semantic Web standards, allow for easy integration of catalog data into Web tools (including Web search engines), and allow the use and reuse of bibliographic data by other applications that use Web technologies. As a response to this call, the Network Development and MARC Standards Office of the Library of Congress launched the Bibliographic Framework Initiative in May 2011; a year later, it contracted Zepheira, an independent company, to review other related initiatives, explore the translation of bibliographic data into linked data, develop tools and services, and design a model that will allow alternative approaches to bibliographic data representation. The proposed new model, BIBFRAME goes beyond a simple replacement of the MARC format or an alternative encoding system.[25] It is designed to differentiate between conceptual content and physical/digital manifestations, identify entities without ambiguity, and place emphasis on relationships between and among entities.

Four high-level classes or entities are defined in the BIBFRAME Model: Work, Instance, Authority, and Annotation. The BIBFRAME Vocabulary is a set of defined classes and properties that function like the defined elements and attributes of MARC. Classes identify types of BIBFRAME resources, similar to a MARC field. Properties allow further description of a resource, like MARC subfields, and more specifically identify aspects of the concept described in a field. As of this writing, BIBFRAME is still in the experimental phase of development and testing, with a small group of libraries joining the Early Experimenters group to test and provide feedback on the BIBFRAME Implementation Testbed initiative.[26]

Figure 3.7 is a BIBFRAME transformation of the MARCXML record for Evans' *Management Basics for Information Professionals* (see Figure 3.3[b]), using the MARC to BIBFRAME Transformation Service.[27]

Figure 3.7 BIBFRAME resource.

```
    <bf:creator rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101person6"/>
    <bf:contributor rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101per
    son7"/>
    <bf:language rdf:resource="http://id.loc.gov/vocabulary/languages/eng"/>
    <bf:subject rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101topic9"/>
    <bf:subject rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101topic10"/>
    <bf:derivedFrom rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101.
    marcxml.xml"/>
    <bf:authorizedAccessPoint xml:lang="x-bf-hash">alirecamilaaevansgedward1937managem
    entbasicsforinformationprofessionalsengworktext</bf:authorizedAccessPoint>
</bf:Work>
<bf:Instance rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101instance14">
    <bf:title>Management basics for information professionals (alk. paper)</bf:title>
    <bf:isbn10 rdf:resource="http://isbn.example.org/1555709095"/>
    <bf:isbn13 rdf:resource="http://isbn.example.org/9781555709099"/>
    <rdf:type rdf:resource="http://bibframe.org/vocab/Monograph"/>
    <bf:instanceTitle rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101
    title20"/>
    <bf:publication><bf:Provider><bf:providerName><bf:Organization><bf:label>Neal-Sc
    human, an imprint of the American Library Association</bf:label></bf:Organization></
    bf:providerName>
    <bf:providerPlace><bf:Place><bf:label>Chicago</bf:label></bf:Place></bf:providerPlace>
    <bf:providerDate>2013</bf:providerDate></bf:Provider></bf:publication>
    <bf:modeOfIssuance>single unit</bf:modeOfIssuance>
    <bf:dimensions>23 cm</bf:dimensions>
    <bf:illustrationNote>illustrations ;</bf:illustrationNote>
    <bf:titleStatement>Management basics for information professionals</bf:titleStatement>
    <bf:edition>Third edition.</bf:edition>
    <bf:providerStatement>Chicago : Neal-Schuman, an imprint of the American Library Asso-
    ciation, 2013.</bf:providerStatement>
    <bf:contentsNote>Operating environment -- Legal issues and library management -- The
    planning process -- Power, accountability, and responsibility -- Delegating -- Decision
    making -- Communicating -- Changing and innovating -- Assessment, quality control, and
    operations -- Marketing -- Motivating -- Leading -- Building teams -- Addressing diversity
    -- Staffing -- Managing money -- Managing technology -- Managing and planning physical
    facilities -- Ethics -- Planning your career.</bf:contentsNote>
    <bf:lccn><bf:Identifier><bf:identifierValue>2013010868</bf:identifierValue><bf
    :identifierScheme rdf:resource="http://id.loc.gov/vocabulary/identifiers/lccn"/></
    bf:Identifier></bf:lccn><bf:derivedFrom rdf:resource="http://bibframe.org/resources/
    Hbh1422331522/841199101.marcxml.xml"/><bf:instanceOf rdf:resource="http://bibframe.
    org/resources/Hbh1422331522/841199101"/>
</bf:Instance>
<bf:Annotation rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101annotation13">
    <bf:derivedFrom rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101.
    marcxml.xml"/>
    <bf:descriptionConventions rdf:resource="http://id.loc.gov/vocabulary/descriptionConven-
    tions/isbd"/>
    <bf:generationProcess>DLC transform-tool:2015-01-16-T11:00:00</bf:generationProcess>
    <bf:annotates rdf:resource="http://bibframe.org/resources/Hbh1422331522/841199101"/>
</bf:Annotation>
```

Figure 3.7 *Continued*

```
<bf:Title rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101title5">
    <bf:titleValue>Management basics for information professionals</bf:titleValue></bf:Title>
    <bf:Person rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101person
    6"><bf:label>Evans, G. Edward, 1937-</bf:label><bf:authorizedAccessPoint>Evans, G.
    Edward, 1937-</bf:authorizedAccessPoint><bf:hasAuthorityrdf:resource="http://id.loc.
    gov/authorities/names/n78091996"/></bf:Person>
    <bf:Person rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101person
    7"><bf:label>Alire, Camila A.</bf:label><bf:authorizedAccessPoint>Alire, Camila A.</
    bf:authorizedAccessPoint>
    <bf:hasAuthority rdf:resource="http://id.loc.gov/authorities/names/n85829996"/></
    bf:Person>
    <bf:Topic rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101topic9">
    <bf:authorizedAccessPoint>Library administration--United States</
    bf:authorizedAccessPoint> <bf:label>Library administration--United States</bf:label>
    <bf:hasAuthority rdf:resource="http://id.loc.gov/authorities/subjects/sh2009129720"/></
    bf:Topic>
    <bf:Topic rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101to
    pic10"> <bf:authorizedAccessPoint>Information services--United States--Management</
    bf:authorizedAccessPoint> <bf:label>Information services--United States--Manage-
    ment</bf:label> <bf:hasAuthority><madsrdf:Authority><rdf:type rdf:resource="http://
    www.loc.gov/mads/rdf/v1#ComplexSubject"/> <madsrdf:authoritativeLabel>In
    formation services--United States--Management</madsrdf:authoritativeLabel>
    <madsrdf:isMemberOfMADSScheme rdf:resource="http://id.loc.gov/authorities/sub-
    jects"/></madsrdf:Authority></bf:hasAuthority></bf:Topic>
    <bf:Title rdf:about="http://bibframe.org/resources/Hbh1422331522/841199101title20">
    <bf:titleValue>Management basics for information professionals</bf:titleValue></bf:Title>
</rdf:RDF>
```

Figure 3.7 *Continued*

OTHER METADATA RECORDS ENCODED IN SGML AND XML

SGML and XML are also used to encode metadata records. The content definitions of some of the widely used metadata schemas are given in chapter 4. The following examples show metadata records encoded in SGML or XML.

Dublin Core (DC)

The example in Figure 3.8, extracted from OCLC's Connexion, shows the XML version of the unqualified DC record for Evans' *Management Basics for Information Professionals*. In this application, the prefix "rdf: RDF xmlns:rdf" is used as the reference to the URI of the namespace.

Encoded Archival Description (EAD)

Figure 3.9 contains an example of a fully encoded <eadheader> element.[28]

```
    Conference detail
    Edition
    Language
    Extents
    Illustrations and ancillary content
    Subject
    Audience
</DescriptiveDetail>
    Text content
    Cited content
    Supporting resources
    Prizes
</CollateralDetail>
<ContentDetail>
    Content item detail
</ContentDetail>
<PublishingDetail>
    Imprint and publisher
    "Global" publishing status and copyright
    Sales rights and restrictions
</PublishingDetail>
<RelatedMaterial>
    Related works
    Related products
</RelatedMaterial>
<ProductSupply>
    Market Group
    Market publishing status
    Supply detail: availability and price within market
</ProductSupply>
```

Figure 3.10 *Continued*

Online Information Exchange

Figure 3.10 shows a portion of an Online Information Exchange (ONIX) record using ONIX Release 3.0, the product record, containing bibliographic information about a book.[29]

NOTES

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14. Crawford, W. (1989). *MARC for Library Use: Understanding Integrated USMARC*. Boston, MA: G. K. Hall & Co. (pp. 221–22).

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Chapter 4

Metadata Schemas

METADATA

The term "metadata" has been used by different communities to mean different things. Within the information community, it has been used since the early 1990s to mean data about other data. More elaborate definitions of metadata have been offered by various user communities. Some examples follow:

> Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource. Metadata is often called data about data or information about information.[1]
>
> Metadata are structured, encoded data that describe characteristics of information-bearing entities to aid in the identification, discovery, assessment, and management of the described entities.[2]
>
> [Metadata is] anything used to describe and or to organize electronic, and primarily Web, resources (born digital and digitized) for management and/or retrieval.[3]
>
> Metadata is . . . used to mean structured information about an information resource of any media type or format.[4]
>
> Metadata is structured information that describes the attributes of information packages for the purposes of identification, discovery, and sometimes management.[5]
>
> [M]etadata encapsulates the information that describes any document or object in both digital and traditional formats.[6]

Broadly defined, cataloging information, as data about data, can be considered a type of metadata. In most cases, however, the term metadata is used in reference to data, recorded in electronic records, that is created to describe

Element Name: description
Label: Description
Definition: An account of the resource.
Comment: A Description may include, but is not limited to, an abstract, table of contents, a graphical representation, or a free-text account of the resource.

Element Name: publisher
Label: Publisher
Definition: An entity responsible for making the resource available.
Comment: Examples of a Publisher include a person, an organization, or a service. Typically, the name of a Publisher should be used to indicate the entity.

Element Name: contributor
Label: Contributor
Definition: An entity responsible for making contributions to the resource.
Comment: Examples of a Contributor include a person, an organization, or a service. Typically, the name of a Contributor should be used to indicate the entity.

Element Name: date
Label: Date
Definition: A point or period of time associated with an event in the lifecycle of the resource.
Comment: A Date may be used to express temporal information at any level of granularity. Recommended best practice is to use an encoding scheme, such as the W3CDTF profile of ISO 8601 [W3CDTF].

Element Name: type
Label: Type
Definition: The nature or genre of the resource.
Comment: Recommended best practice is to select a value from a controlled vocabulary such as the DCMI Type Vocabulary [DCMITYPE]). To describe the file format, physical medium, or dimensions of the resource, use the Format element.

Element Name: format
Label: Format
Definition: The file format, physical medium, or dimensions of the resource.

Comment: Examples of dimensions include size and duration. Recommended best practice is to use a controlled vocabulary such as the list of Internet Media Types [MIME].

Element Name: identifier
Label: Identifier
Definition: An unambiguous reference to the resource within a given context.
Comment: Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system.

Element Name: source
Label: Source
Definition: A related resource from which the present resource is derived.
Comment: The described resource may be derived from the related resource in whole or in part. Recommended best practice is to reference the resource by means of a string conforming to a formal identification system.

Element Name: language
Label: Language
Definition: A language of the resource.
Comment: Recommended best practice is to use a controlled vocabulary such as RFC 4646 [RFC4646].

Element Name: relation
Label: Relation
Definition: A related resource.
Comment: Recommended best practice is to identify the related resource by means of a string conforming to a formal identification system.

Element Name: coverage
Label: Coverage
Definition: The spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant.
Comment: Spatial topic and spatial applicability may be a named place or a location specified by its geographic coordinates. Temporal topic may be a named period, date, or date range.

A jurisdiction may be a named administrative entity or a geographic place to which the resource applies. Recommended best practice is to use a controlled vocabulary such as the Thesaurus of Geographic Names [TGN]. Where appropriate, named places or time periods can be used in preference to numeric identifiers such as sets of coordinates or date ranges.

Element Name: rights
Label: Rights
Definition: Information about rights held in and over the resource.
Comment: Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.

Although the original intention was to develop a simple and concise schema for describing Web resources, the DC has been used to describe other types of resources as well. In different applications, some users require more descriptive details than others. Thus, there are two different views with regard to the implementation of DC: the minimalist view supporting a minimum of elements and simple semantics and syntax, and the structuralist view supporting greater extensibility through finer semantic distinctions. These different views first led to two approaches to the implementation of DC: the simple (unqualified) DC, consisting of the original fifteen elements, and the qualified DC with finer details allowed within each element.[12] Today, the term qualifiers has been replaced by refinements. For example, the element DATE may be refined to indicate the type of event associated with the date (i.e., created, available, copyrighted, etc.) and the encoding schema (W3CDTF) of the value.

The DCMI recognizes two broad classes of refinements[13]:

Element Refinement. These refinements make the meaning of an element narrower or more specific. A refined element shares the meaning of the simple element, but with a more restricted scope. A client that does not understand a specific element refinement term should be able to ignore the refinement and treat the metadata value as if it were a simple (broader) element. The definitions of element refinements must be publicly available.

Encoding Scheme. These qualifiers identify schemes that aid in the interpretation of an element value. These schemes include controlled vocabularies and formal notations (or parsing rules). A value expressed using an encoding scheme will thus be a token selected from a controlled vocabulary (e.g., a term from a classification system or set of subject headings) or a string formatted in accordance with a formal notation (e.g., "2000-01-01" as the standard expression of a date). If an encoding scheme is not understood by a client or agent, the value may still be useful to a human reader. The definitive

description of an encoding scheme for qualifiers must be clearly identified and available for public use.

In 2003, all refinements were declared as terms, and have since been maintained as part of the DCMI Metadata Terms document.[14] The elements, refinements, and encoding schemes for the fifteen DCMI Metadata Terms are shown in Table 4.1:

Table 4.1 Dublin Core Summary Refinement and Scheme Table

DCMI Element	*Element Refinement(s)*	*Element Encoding Scheme(s)*
Title	Alternative	—
Creator	—	—
Subject	—	LCSH MeSH DDC LCC UDC
Description	Table of Contents Abstract	—
Publisher	—	—
Contributor	—	—
Date	Created Valid Available Issued Modified Date Accepted Date Copyrighted Date Submitted	W3C-DTF
Type	—	DCMI Type Vocabulary
Format	—	IMT
	Extent	—
	Medium	—
Identifier	—	URI
	Bibliographic Citation	—
Source	—	URI
Language	—	ISO 639-2 RFC 3066
Relation	Is Version of has Version Is Replaced by Replaces Is Required by Requires Is Part of has Part is Referenced by References Is Format of has Format Conforms to	URI
Coverage	Spatial	DCMI Point ISO 3166 DCMI Box TGN
	Temporal	DCMI Period W3C-DTF
Rights	Access Rights	—
	License	URI

Source: DCMI Metadata Terms, http://dublincore.org/documents/dcmi-terms (May 30, 2013).

In addition to the fifteen core elements and their refinements, the DCMI Metadata Terms include new elements and element refinements. New elements (such as accrualMethod, accrualPeriodicity, accrualPolicy, audience, provenance, instructionalMethod, and rightsHolder) and new element refinements (such as mediator for audience) reflect the need of different communities to have additional information in their metadata. These additions require approval of the DC Usage Board before being registered in the DC Terms namespace.

Following are examples of DC Metadata records with refinements from OCLC's WorldCat:

(1) An electronic book:

Title:	Trained capacities : John Dewey, rhetoric, and democratic practice /
Identifier.ISBN:	9781611173192 (electronic bk.)
Identifier.ISBN:	1611173191 (electronic bk.)
Identifier.incorrect.ISBN:	9781611173185
Identifier.incorrect.ISBN:	1611173183
Identifier.URI:	http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=654805
Identifier.URI:	http://alltitles.ebrary.com/Doc?id=10827211
Type:	Electronic books.
Contributor.namePersonal:	Jackson, Brian, 1932- editor of compilation.
Contributor.namePersonal:	Clark, Gregory, 1950- editor of compilation.
Date.issued.MARC21-Date:	2014
Description.tableOfContents:	Dewey and democratic practice : science, pragmatism, religion. Dewey on science, deliberation, and the sociology of rhetoric / William Keith and Robert Danisch -- John Dewey, Kenneth Burke, and the role of orientation in rhetoric / Scott R. Stroud -- Minister of democracy : John Dewey, religious rhetoric, and the great community / Paul Stob -- Dewey and his interlocutors : Thomas Jefferson, Jane Addams, W. E. B. Du Bois, Walter Lippmann, James Baldwin. Dewey on Jefferson : reiterating democratic faith in times of war / Jeremy Engels -- John Dewey and Jane Addams debate war / Louise W. Knight -- John Dewey, W. E. B. Du Bois, and a rhetoric of education / Keith

originInfo	identifier
language	location
physicalDescription	accessCondition
abstract	part
tableOfContents	extension
targetAudience	recordInfo

The following examples show the top elements in two MODS records:

(1) Carl Sandburg's *Arithmetic* (a book):

titleInfo	**Arithmetic**
name	**Sandburg, Carl, 1878-1967**
name	**Rand, Ted**
typeOfResource	**text**
originInfo	**San Diego, Harcourt Brace Jovanovich, c1993**
language	**eng**
physicalDescription	**1v. (unpaged) : ill. (some col.); 26 cm.**
abstract	**A poem about numbers and their characteristics. Features anamorphic, or distorted, drawings which can be restored to normal by viewing from a particular angle or by viewing the image's reflection in the provided Mylar cone.**
targetAudience	**juvenile**
note	**illustrated as an anamorphic adventure by Ted Rand.**
note	**One Mylar sheet included in pocket.**
subject	**Arithmetic**
subject	**Juvenile poetry**
subject	**Children's poetry, American**
classification	**PS3537.A618 A88 1993**
classification	**811/.52**
identifier	**isbn: 0152038655**
identifier	**lccn**: **92005291**

(2) *Campbell County, Wyoming* (a map):

Title Information	**Campbell County, Wyoming**
Name:Corporate	**Campbell County Chamber of Commerce (Wyo.)**
Type of Resource	**cartographic**
Genre (MARC)	**map**
Origin Information	**[Gillette, Wyo.] : Campbell County Chamber of Commerce**

Date Issued	**1982**
Issuance	**monographic**
Language	**eng**
Physical Description	**1 map; 33 × 15 cm.**
Note	**this map reproduced by Campbell County Chamber of Commerce.**
Note	**In lower right corner: Kintzels-Casper.**
Subject (LCSH)	**Campbell County (Wyo.)—Maps**
Classification (LCC)	**G4263.C3 1982 .C3**
Record Information	**DLC** **830222** [Record Creation Date] **19830426000000.0** [Record Change Date]
Record Identifier	**5466714**

For more details and encoding of MODS records, see chapter 3.

Text Encoding Initiatives (TEI)

Text Encoding Initiatives (TEI; http://www.tei-c.org/) is an international standard providing guidelines for the preparation and interchange of electronic texts of literary and linguistic textual materials, such as fiction, drama, and poetry, for scholarly research in the humanities.

Originally sponsored by the Association of Computers in the Humanities (ACH), the Association for Computational Linguistics (ACL), and the Association of Literary and Linguistic Computing (ALLC), TEI is now maintained by the TEI Consortium.

The TEI's *Guidelines for Electronic Text Encoding and Interchange* (TEI P4), first published in April 1994 in print form, has undergone several revisions. The latest version is available online (http://www.tei-c.org/Guidelines) and is updated in a six-month cycle. A simplified version, called TEI Lite (http://www.tei-c.org/Lite/), is a specific customization designed for the core TEI constituency.

TEI Header

All TEI encoded texts have two main elements, a TEI header and the transcription of the text. The TEI header contains a bibliographic description (i.e., metadata about the work), an encoding description, a nonbibliographic description, and a revision history. It is an "electronic title page," similar to the title page of a printed work. The tags used to label individual parts of the TEI header follow the SGML convention of using brackets to enclose element tags. (For more details about SGML, see chapter 16.)

The header is introduced by the element <teiHeader> and has four major parts:

File description: <fileDesc> contains a full bibliographic description of an electronic file.
Encoding description: <encodingDesc> documents the relationship between an electronic text and the source or sources from which it was derived.
Profile description: <profileDesc> provides a detailed description of nonbibliographic aspects of a text, specifically the languages and sublanguages used, the situation in which it was produced, and the participants and their setting.
Revision description: <revisionDesc> summarizes the revision history for a file.

The <fileDesc> element is mandatory. It contains a full bibliographic description of the file with the following elements:

<titleStmt>
groups information about the title of a work and those responsible for its intellectual content.
<editionStmt>
groups information relating to one edition of a text.
<extent>
describes the approximate size of the electronic text (as stored on some carrier medium) or of some other object, digital or nondigital, specified in any convenient unit.
<publicationStmt>
groups information concerning the publication or distribution of an electronic or other text.
<seriesStmt>
groups information about the *series*, if any, to which a publication belongs.
<notesStmt>
collects together any notes providing information about a text additional to that recorded in other parts of the bibliographic description.
<sourceDesc>
describes the source from which an electronic text was derived or generated, typically a bibliographic description in the case of a digitized text, or a phrase such as "born digital" for a text that has no previous existence.

A minimal header has the following structure shown here with SGML coding:

<teiHeader>
<fileDesc>

```
      <titleStmt> ... </titleStmt>
      <publicationStmt> ... <publicationStmt>
      <sourceDesc> ... <sourceDesc>
    </fileDesc>
  </teiHeader>
```

The <encodingDesc> element specifies the methods and editorial principles that governed the transcription of the text. Its use is highly recommended. It may be prose description, and may contain elements from the following list:

<projectDesc>
: describes in detail the aim or purpose for which an electronic file was encoded, together with any other relevant information concerning the process by which it was assembled or collected.

<samplingDecl>
: contains a prose description of the rationale and methods used in sampling texts in the creation of a corpus or collection.

<editorialDecl>
: provides details of editorial principles and practices applied during the encoding of a text.

<refsDecl>
: specifies how canonical references are constructed for the text.

<classDecl>
: contains one or more taxonomies defining any classificatory codes used elsewhere in the text.

Examples of <projectDesc> and <samplingDesc>:

```
<encodingDesc>
  <projectDesc>
    <p>Texts collected for use in the Claremont Shakespeare Clinic,
       June 1990.
    </p>
  </projectDesc>
</encodingDesc>

<encodingDesc>
  <samplingDecl>
    <p>Samples of 2000 words taken from the beginning of the text.
    </p>
  </samplingDecl>
</encodingDesc>
```

The <profileDesc> element enables information characterizing various descriptive aspects of a text to be recorded within a single framework. It has three optional components:

<creation>
contains information about the creation of a text.
<langUsage>
describes the languages, sublanguages, registers, dialects, etc., represented within a text.
<textClass>
groups information which describes the nature or topic of a text in terms of a standard classification scheme, thesaurus, etc.

Example:

<creation>
<date value="1992-08">**August 1992**</date>
<name type="place">**Taos, New Mexico**</name>
</creation>

The <revisionDesc> element provides a change log in which each change made to a text may be recorded. The log may be recorded as a sequence of <change> elements, each of which contains a brief description of the change. The attributes @when and @who may be used to identify when the change was carried out and the agency responsible for it.

Example:

<revisionDesc>
<change when="1991-03-06" who="#EMB">**File format updated**
</change>
<change when="1990-05-25" who="#EMB">**Stuart's corrections entered**</change>
</revisionDesc>

The TEI header is usually placed at the beginning of the electronic resource that it describes. It can also function in detached form as a surrogate record in a separate list or catalog. Some libraries use TEI headers to derive MARC records for inclusion in their catalogs. Following is an example of a TEI header bibliographic information (fileDesc):[16]

<teiHeader>
<fileDesc>
<titleStmt>

```
<eadheader>
  <eadid>Mildred Davenport Dance Programs and Dance School
  Materials, MS-P29
  </eadid>
  <filedesc>
    <titlestmt>
      <titleproper>Guide to the Mildred Davenport Dance Programs
      and Dance School Materials</titleproper>
      <author>Processed by Adrian Turner; machine-readable find-
      ing aid created by Adrian Turner</author>
    </titlestmt>
    <publicationstmt>
        <date>2001</date>
        <p>The Regents of the University of California. All rights
        reserved.</p>
    </publicationstmt>
    <notestmt><note> <p>
        <subject source="cdl">Arts and Humanities--Dance--Dance
        Performance</subject>
        <subject source="cdl">Arts and Humanities--Dance--Dance
        History and Criticism</subject>
        <subject source="cdl">Area, Interdisciplinary, and Ethnic
        Studies--African American Studies</subject> </p>
        </note>
    </notestmt>
  </filedesc>
  <profiledesc>
    <creation>Machine-readable finding aid derived from MS Word.
    Date of source: <date>2001.</date>
    </creation>
    <langusage>Description is in <language>English.</language>
    </langusage>
  </profiledesc>
</eadheader>
```

Visual Resources Association Core Categories

Visual Resources Association (VRA; http://www.vraweb.org/projects/vracore4/) is a standard for the cultural heritage community. VRA Core Categories is designed for describing visual works of art, architecture, and artifacts or structures from material, popular, and folk culture, as well as the images that document them. Its purpose is to facilitate the sharing of information

among visual resources collections about *works* and *images.* The standard is based on the DC, with modifications. Some of the VRA elements are based on the DC elements such as title, creator, subject, and relation. Other elements—such as measurements, material, and technique—are added to enable a richer description of artworks. The VRA standard is a result of a collaboration between The Network Development and MARC Standards Office of the Library of Congress and the VRA.

Core Element Set

The VRA Core 4.0 Element Description (VRA Core, Version 4.0, 2007) (http://www.vraweb.org/vracore3.htm) contains nineteen elements,[22] each of which may contain one or more attributes or subelements to allow further specifications within the element:

WORK, COLLECTION, or IMAGE
Attributes: id

Definition: A choice of one of three elements, Work, Collection, or Image, defines a VRA 4.0 record as describing a Work (a built or created object), a Collection (an aggregate of such objects), or an Image (a visual surrogate of such objects).

AGENT
Subelements:

- name
  - Attributes: type
- culture
- dates
  - Attributes: type
  - earliestDate
  - latestDate
- role
- attribution

Description: The names, appellations, or other identifiers assigned to an individual, group, or corporate body that has contributed to the design, creation, production, manufacture, or alteration of the work or image.

CULTURAL CONTEXT
Attributes: none

Description: The name of the culture or people (ethnonym), or the adjectival form of a country name, from which a Work, Collection, or Image

originates, or the cultural context with which the Work, Collection, or Image has been associated.

DATE
Attributes: Type
Subelements:
earliestDate
latestDate
Description: Date or range of dates associated with the creation, design, production, presentation, performance, construction, or alteration, etc., of the work or image. Dates may be expressed as free text or numericals.

DESCRIPTION
Attributes: None
Description: A free-text note about the Work or Image, including comments, description, or interpretation, which gives additional information not recorded in other categories.

INSCRIPTION
Subelements:
author
position
text
Attributes: type
Description: All marks or written words added to the object at the time of production or in its subsequent history, including signatures, dates, dedications, texts, and colophons, as well as marks, such as the stamps of silversmiths, publishers, or printers.

LOCATION
Attributes: type
Subelements:
name
Attributes: type
refid
Attributes: type
Description: The geographic location and/or name of the repository, building, or site-specific work or other entity whose boundaries include the Work or Image.

MATERIAL
Attributes: type

Description: The substance of which a Work or an Image is composed.

MEASUREMENTS
Attributes:
type
unit
Description: The physical size, shape, scale, dimensions, or format of the Work or Image. Dimensions may include such measurements as volume, weight, area, or running time. The unit used in the measurement must be specified.

RELATION
Attributes:
type
relids
Description: Terms or phrases describing the identity of the related work and the relationship between the work being cataloged and the related work or image. Use this element to relate work records to other work or collection records, or to relate image records to work or collection records.

RIGHTS
Attributes: type
Subelements:
rightsHolder
text
Description: Information about the copyright status and the rights holder for a Work, Collection, or Image.

SOURCE
Subelements:
name
Attributes: type
refid
Attributes: type
Description: A reference to the source of the information recorded about the work or the image. For a work record, this may be a citation to the authority for the information provided. For an Image, it can be used to provide information about the supplying agency, vendor, or individual. In the case of copy photography, it can be a bibliographic citation or other description of the image source. In all cases, names, locations, and source identification numbers can be included.

STATE EDITION
Attributes:
type (state, edition, or impression)
num (state number or edition number)
count (number of known states, known editions, or number of impressions in an edition)
Subelements
name (name of state or edition)
description (descriptive note)
Description: The identifying number and/or name assigned to the state or edition of a work that exists in more than one form, and the placement of that work in the context of prior or later issuances of multiples of the same work. For published volumes, such as books, portfolios, series, or sets, the edition is usually expressed as a number in relation to other editions printed. In other cases, a scholar may have identified a series of editions, which have then been numbered sequentially.

STYLE PERIOD
Attributes: none
Description: A defined style, historical period, group, school, dynasty, movement, etc., whose characteristics are represented in the Work or Image. Cultural and regional terms may be combined with style and period terms for display purposes.

SUBJECT
Subelements
term
Attributes: type
Description: Terms or phrases that describe, identify, or interpret the Work or Image and what it depicts or expresses. These may include proper terms that describe and the elements that it comprises, terms that identify particular people, geographic places, narrative and iconographic themes, or terms that refer to broader concepts or interpretations.

TECHNIQUE
Attributes: none
Description: The production or manufacturing processes, techniques, and methods incorporated in the fabrication or alteration of the work or the image.

TEXTREF
Subelements:

relation =	**partOf Historic architectural views [lantern slide collection]**
rights =	**publicDomain**
source =	**Core 4 Sample Database (VCat)**
stateEdition =	
stylePeriod =	**Nineteenth century; Twentieth century**
subject =	**architectural exteriors; cityscapes; Aerial photography in city planning; City planning; Housing; balloons (aircraft)**
technique =	**photography**
textref =	
title =	**Aerial topographic view of Nice, France [lantern slide] [en, descriptive, preferred] Nice, France - Panorama [en, repository, alternate]**
worktype =	**photographs; lantern slides; photographs; positives (photographs); black-and-white transparencies; topographical views**

Online Information Exchange (ONIX)

ONIX is an international metadata standard designed specifically to support electronic commerce applications. It was developed by publishers among the book industry trade groups in the United States and Europe and was designed to capture the images, cover blurbs, reviews, and other promotional information that can be used to enhance book sales. The main purpose of ONIX is to enable publishers to supply "rich" product information to Internet booksellers, and its major objective is to publicize and promote publishers' products by means of content-rich metadata.

Three bodies are involved in the development and maintenance of ONIX: Book Industry Communications (BIC) based in London, the Book Industry Study Group (BISG) based in New York, and EDItEUR (http://www.editeur.org/, an international steering group that is responsible for the maintenance of the ONIX standard). ONIX for Books was the first and most widely adopted ONIX standard. ONIX for Books release 1.0 was published in 2000. ONIX for Books release 3.0 (published in 2009) reflects the need for revision to handle digital products.[24]

An ONIX record contains bibliographic information as well as trade information. Libraries and information agencies have found the ONIX descriptions useful as starting points or as enhancements for resource descriptions for their own materials. Because much of this information is also included in library catalog records, ONIX records provide a source for ordinary cataloging information and for additional information, such as tables of contents, that is sometimes useful for enhancing cataloging records.

ONIX metadata can also be used as the beginning of a cataloging record to save money and effort in original cataloging. To facilitate this use, the LC initiated the Bibliographic Enrichment Advisory Team (BEAT) project to explore the feasibility of converting ONIX information for bibliographic use. The team created a crosswalk that maps elements between ONIX for Books and MARC 21;[25] it includes a mapping table in ONIX data element order and a record builder for creating MARC 21 records from ONIX data. The LC ONIX to MARC 21 mapping is based on ONIX release 2.1. More recently, OCLC developed comprehensive mappings from ONIX 3.0 to MARC.[26] Another approach to enriching cataloging records is to include hyperlinks in MARC records to ONIX information relating to the authors' or contributors' biographical information, and to the tables of contents and summaries contained in the ONIX records. ONIX Release 3.0 supported formal definitions in three formats, DTD, XML Schema Definition (XSD), and RELAX NG (RNG).

In the ONIX system, publishing data are organized in "ONIX messages" for transmission across networks and the Internet. The ONIX message contains data elements defined by XML tags, conforming to the ONIX DTD. A single ONIX message may contain data about multiple publications and therefore consist of one or more product records.

The ONIX DTD contains a set of over two hundred data elements in four groups:

(1) The ONIX message header—containing information concerning the message being transmitted.
(2) Main Series Record (optional)—consisting of seven main elements with subelements, describing a series or "top level" of a series or subseries.
(3) Subseries Record—consisting of eight main elements with subelements, describing a subseries.
(4) Product Record—consisting of twenty-six main elements with subelements, describing an individual publication, such as a book.

The ONIX for Books message has a header, which identifies the sender of the message and some additional optional information about the sender, followed by a number of product records.

```
<?xml version="1.0"?>
<ONIXMessage release="3.0">
  <Header>……</Header>
  <Product>……</Product>
  <Product>……</Product>
  <Product>……</Product>
</ONIXMessage>
```

The Product Record is the basic unit within an ONIX Product Information message. The following are the main elements in the Product Record using ONIX Release 3.0:[27]

<Product>
  Record metadata
  Product numbers
  <DescriptiveDetail>
    Product form
    Product parts (for multipleitem products)
    Collection
    Product title
    Authorship
    Conference detail
    Edition
    Language
    Extents
    Illustrations and ancillary content
    Subject
    Audience
  </DescriptiveDetail>
    Text content
    Cited content
    Supporting resources
    Prizes
</CollateralDetail>
<ContentDetail>
    Content item detail
</ContentDetail>
<PublishingDetail>
    Imprint and publisher
    "Global" publishing status and copyright
    Sales rights and restrictions
</PublishingDetail>
<RelatedMaterial>
    Related works
    Related products
</RelatedMaterial>
<ProductSupply>
    Market Group
    Market publishing status
    Supply detail: availability and price within market
</ProductSupply>

Following is an example showing the part of an ONIX record that contains bibliographic and biographical information relating to a book:

Product Title	**British English, A to Zed**
Authorship	**Schur, Norman W.**
BiographicalNote	**A Harvard graduate in Latin and Italian literature, Norman Schur attended the University of Rome and the Sorbonne before returning to the United States to study law at Harvard and Columbia Law Schools. Now retired from legal practise, Mr Schur is a fluent speaker and writer of both British and American English**
Edition	**REV**
EditionNumber	**3**
Language	**eng**
Extents	**493** [Pages]
Descriptions and other Text	**BRITISH ENGLISH, A TO ZED is the thoroughly updated, revised, and expanded third edition of Norman Schur's highly acclaimed transatlantic dictionary for English speakers. First published as BRITISH SELF-TAUGHT and then as ENGLISH ENGLISH, this collection of Briticisms for Americans, and Americanisms for the British, is a scholarly yet witty lexicon, combining definitions with commentary on the most frequently used and some lesser known words and phrases. Highly readable, it's a snip of a book, and one that sorts out – through comments in American – the "Queen's English" – confounding as it may seem.** **Norman Schur is without doubt the outstanding authority on the similarities and differences between British and American English. BRITISH ENGLISH, A TO ZED attests not only to his expertise, but also to his undiminished powers to inform, amuse and entertain. – Laurence Urdang, Editor, VERBATIM, The Language Quarterly, Spring 1988**

Publisher	
Publisher Name	**Facts on File Inc**
PublicationDate	**1987**
Dimensions	
Measurement	**9.25 in**
Measurement	**6.25 in**
Measurement	**1.2 in**

NOTES

1. National Information Standards Organization (U.S.). (2004). *Understanding Metadata*. Bethesda, MD: NISO Press. Retrieved from www.niso.org/standards/resources/UnderstandingMetadata.pdf (p. 1).

2. Association for Library Collections & Technical Services, Committee on Cataloging: Description & Access, Task Force on Metadata. (June 16, 2000). *Final Report* (CC:DA/TF/Metadata/5). Retrieved from www.libraries.psu.edu/tas/jca/ccda/tf-meta6.html.

3. Intner, S. S., Lazinger, S. S., and Weihs, J. (2006). *Metadata and Its Impact on Libraries*. Westport, CT: Libraries Unlimited (p. 6).

4. Caplan, P. (2003). *Metadata Fundamentals for all Librarians*. Chicago, IL: American Library Association (p. 3).

5. Taylor, A. G. (2004). *The Organization of Information* (2nd ed.). Englewood, CO: Libraries Unlimited (p. 139).

6. Zeng, M. L., and Qin, J. (2008). *Metadata.* New York, NY: Neal-Schuman Publishers (p. 7).

7. National Information Standards Organization (U.S.), 2004, p. 1.

8. National Information Standards Organization (U.S.), 2004, p. 3.

9. National Information Standards Organization (U.S.). (2001). *The Dublin Core Metadata Element Set* (ANSI/NISO Z39.85-2001). Bethesda, MD: NISO Press. Retrieved from http://www.niso.org/apps/group_public/download.php/6578/The%20Dublin%20Core%20Metadata%20Element%20Set.pdf.

10. International Organization for Standardization. (2003). *Information and Documentation—The Dublin Core Metadata Element Set* (ISO 15836: 2003). Available from http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=37629.

11. National Information Standards Organization (U.S.), 2001.

12. Hillmann, D. (November 7, 2005). *Using Dublin Core*. Retrieved from http://dublincore.org/documents/2005/11/07/usageguide/.

13. Dublin Core Metadata Initiative. (November 7, 2005). *Using Dublin Core—Dublin Core Qualifiers*. Retrieved from http://dublincore.org/documents/2005/11/07/usageguide/qualifiers.shtml.

14. DCMI Usage Board. (June 14, 2012). *DCMI Metadata Terms.* Retrieved from http://dublincore.org/documents/dcmi-terms/.


image
not
available

Chapter 5

RDA and Its Foundations

INTRODUCTION

Chapter 2 provided an introduction to the principles of resource description and an historical overview of the development of standards for description. Chapters 3 and 4 provided an overview of records in an online environment and of the different ways to encode the data created by them using description standards to represent resources. The chapters in Part Three will take a more detailed look at current resource description guidelines for the creation of descriptive bibliographic data using RDA.

RDA: *Resource Description and Access*[1] is the new standard providing guidelines for description and access to different types of information resources and is available in a variety of formats. It was intended as a replacement for AACR2. The history of the development of this standard has been given in chapter 2. Even though it was developed by the library community, the standard is designed for wider applicability in the linked-data environment of the semantic web.

RDA is based on the foundations established by the *Anglo American Cataloguing Rules (*AACR), and therefore often continues the practices and traditions influenced by the application of AACR. RDA does not provide guidelines for the presentation of data in a record structure, nor does it specify the use of an encoding schema for electronic record coding. RDA's Appendix D provides a link to the mappings of RDA elements to ISBD: *International Standard Bibliographic Description*, including its respective punctuation specifications, and RDA Toolkit's "RDA Mappings" provides mappings to MARC 21 Format for Bibliographic Data fields. This is due to the fact that libraries have traditionally used ISBD as a standard for data presentation and MARC 21 as a standard for encoding.


image
not
available


image
not
available

Examples:
100 1 $a Abell, Charles F., $d **1929-2011**
100 0 $a A. M. R. $q (Anna Maria Richards), $d **-1918**
100 0 $a Ralph, $c Abbot of Battle, $d **-1124**
100 1 $a Abernathy, Penelope Muse, $d **1951-**
100 1 $a Adams, John, $d **approximately 1730-approximately 1800**

Although this is not required in all cases, and is required only for differentiation, RDA provides the option of adding the date of birth and/or death even if it is not necessary for differentiation. LC-PCC PS 9.19.1.3 explains that the LC and PCC practice is to always add the dates when creating new authorized access points, if the dates are known, even if they are not needed for distinction. LC and PCC practice also provides an option to the cataloger to add both dates or a missing date (birth or death) to an existing authorized access point.

Fuller Name (RDA 9.19.1.4)

Add the fuller form of a name to the authorized access point if it is necessary to distinguish the person from others with the same or similar names, especially when the dates of birth or death are not known. Follow RDA 9.5 guidelines for the fuller name. LC-PCC practice is to add the fuller form of a name if part of the first or surname used in the preferred name is an initial or an abbreviation and if the cataloger considers the fuller form important for identification.

Examples:
100 0 $a A. M. R. $q **(Anna Maria Richards)**, $d -1918
100 1 $a Delany, $c Mrs. $q **(Mary)**, $d 1700-1788

Period of Activity and/or Profession or Occupation (RDA 9.19.1.5)

Add the period of activity of the person, or the profession, or the occupation, if needed, for differentiation among persons with the same or similar names. Add this information if no dates of birth and/or death or no fuller form of the name are available and are not used in the authorized access point for the person. Follow RDA 9.3.4 for guidelines on period of activity or RDA 9.16 for profession or occupation.

Example:
100 1 $a Dear, M. E. $q (Mary E.), $d **active 1848-1867**

Other term of rank, honor, or office (RDA 9.19.1.6)

Add the term indicating rank, honor, or office if it is part of the name and is needed for distinction from another with the same or similar name. Add this information if no dates of birth or death, or no period of activity, are known. RDA provides an option to include this information in the authorized access point, even if it is not necessary for distinction. LC and PCC practice for the optional addition is to leave it to the cataloger to determine if this information is helpful to users.

Examples:
100 1 $a Baker, Charles A. $c **(Captain)**
100 1 $a Sitwell, George Reresby, $c **Sir**, $d 1860-1943

Other Designation (9.19.1.7)

If none of the above additions to the preferred name are sufficient to uniquely distinguish the person, assign another designation, as instructed in RDA 9.6.1.9.

Examples:
100 1 $a Katz, Susan B. $c **(Of the National Institute of Standards and Technology)**
100 1 $a Chan, Vincent $c **(Member of the Har Gee Chans Reunion Committee 2014)**

Variant Access Points Representing a Person

Variant access points for a person are constructed by following the same guidelines as for the authorized access points for a person. The variant name is constructed like the preferred name, only using the variant name or variant forms of the name (following RDA 9.2.3). Additions to the variant name are made only if they are considered important for identification. The LC and PCC practice is to also make additions to the variant names if needed to resolve a conflict with another authorized access point or with another variant access point for the same person.

In a MARC authority environment, the variant access points for a person are recorded in field 400. Variant access points are never recorded in a bibliographic access point heading (e.g., fields 100, 600, or 700). Links are made from the authority data when a user enters a name or form of a name that is not the same as the authorized access point. The links from the search appear either as "see references," pointing to the authorized access point, or as automatic reformulations of the search to retrieved resources using the authorized access point instead.

Examples:

Authorized access point:	100 1 $a Ackerman, F. Eugene $q (Francis Eugene), $d 1888-1974
Variant access point(s):	400 1 $a **Ackerman, Francis Eugene**, $d **1888-1974**
	400 1 $a **Ackerman, Eugene,** $d **1888-1974**
Authorized access point:	100 1 $a Liu, Ping, $d 1980-
Variant access point(s):	400 1 $a **Liu, Fangjige,** $d **1980-**
	400 1 $a **Liu, Francis,** $d **1980-**
	400 0 $a **Liulangrenjian**, $d **1980-**
	400 1 $a **刘平**, $d **1980-**
Authorized access point:	100 1 $a Allen, Nicholas $c (Political scientist)
Variant access point(s):	400 1 $a **Allen, Nick**, $c **Dr**.
	400 1 $a **Allen, Nicholas**, $c **Dr.**
Authorized access point:	100 0 Abdullah, $c King of Saudi Arabia
Variant access point(s):	400 0 **ʻAbd Allāh ibn ʻAbd al-ʻAzīz,** $c **King of Saudi Arabia**

400 0 **Abdullah, $c Prince, son of Ibn Saʻūd, King of Saudi Arabia**
400 0 **Abdullah bin Abdul Aziz**, $c **King of Saudi Arabia**
400 0 **Abdallah ibn Abdulaziz, $c King of Saudi Arabia**
400 0 **ʻAbdullah ibn ʻAbd al-ʻAziz, $c King of Saudi Arabia**
400 0 **Abdullah bin Abdulaziz al-Saud, $c King of Saudi Arabia**
400 0 **Abdullah bin Abdul Aziz al-Saud, $c King of Saudi Arabia**
400 0 عبد الله، $c ملك السعودية

IDENTIFYING FAMILIES

The original FRBR model, as it was published in 1997, did not include the entity "family" in its Group 2 entities. This is mostly due to the fact that families were not considered to be the same as other entities responsible for creation, contribution, ownership, etc., of materials, or as a person or corporate body was under the *Anglo-American Cataloguing Rules*. Using families as entities responsible for content was not new for the archival community, however, which is reflected in the rules governing archival description, such as archives, personal papers, and manuscripts (*Archives, Personal Papers, and Manuscripts* (APPM)),[3] or as the APPM's successor, *Describing Archives: A Content Standard* (DACS).[4]

As discussed at the beginning of this chapter, family is defined in RDA as a group of two or more persons related by birth, marriage, adoption, civil

union, or a similar legal status, or who present themselves as a family (RDA 8.1.2). RDA Chapter 10 provides guidelines for selecting the preferred names for families, recording the preferred and variant names for families and other additional attributes, and constructing authorized access points and variant access points to represent families.

Current practice is to use MARC 21 to record elements for these entities; this requires the recording of all elements for a family as authority data in authority records. However, information about the name, names, or forms of a name of a family can be taken from any source. Data describing family attributes (RDA elements) are recorded as authority data in a MARC environment. Authorized access points representing a family are recorded in MARC authority field 100 (same as for a person), with the first indicator taking a value "3" to indicate family name. Variant names representing a family are recorded in MARC authority field 400, with indicator 1 having a value of "3." The authorized access point representing a family may also be included in bibliographic records.

The general guidelines for identifying persons, families, or corporate bodies discussed at the beginning of this chapter apply to families, including language and script, and the elements status of identification, undifferentiated name indication, source consulted, and cataloger's note, and, therefore, are not discussed separately here.

Core Elements

Similar to other entities, RDA has defined a number of elements representing attributes of a family. Some of these are identified as RDA core elements. Core elements correspond to FRBR and FRAD attributes and relationships that are identified as important to support user tasks. In addition, LC-PCC policy statements may identify some elements as LC/NACO core, even if they are not RDA core. These may be required elements if a library is participating in the NACO program or using LC/NACO authority files and following their practices, which is the case for the majority of US library cataloging.

When describing families, the following are considered core elements, and, therefore, must be recorded if applicable:

- Preferred name for the family
- Type of family
- Date associated with the family
- Identifier for the family.

Elements required if necessary to differentiate among families with the same or similar names include the following:

- Place associated with the family
- Prominent member of the family.

Name of the Family (RDA 10.2)
Core Element: *Preferred Name for the Family*

Similar to the name of the person, the name of the family is defined as a work, character, or group of words and/or characters by which a family is known. One of the known names or forms of a name is chosen as the preferred name for the family, while the other names or forms of a name are recorded as variant names for the family.

Preferred Name for the Family (RDA 10.2.2)
Core Element
[MARC authority 100]

The preferred name for the family is the name or form of the name chosen to identify the family and is used as the basis for the construction of the authorized access point representing the family.

CHOOSING THE PREFERRED NAME

Use preferred sources of information in the resources themselves to determine the preferred name (follow RDA 2.2.2). If this is not possible, use other formal statements within the resources associated with the family, and, as a last resource, use other sources, including reference sources. Choose as the preferred name, the name by which the family is commonly known, but, based on RDA 0.4.3.4, bear in mind that a well-known name or form of name in the language or script of the cataloging agency may be chosen instead in some cases. RDA 10.2.2.4 also instructs us to make an exception when a family is known to have a preference for one of its names that differs from the commonly used family name. In this case, follow the family's preference when selecting the first element of the preferred name for the family. The family name chosen as the preferred name can be a surname shared by the family members, such as the name of a royal house, or clan, among others.

Apply general guidelines from RDA 8.5 when recording the preferred name for a family.

Different Forms of the Same Name (RDA 10.2.2.5.4)

Because family names more often include a surname, RDA 10.2.2.5 directs us to the guidelines for a person in RDA 9.2.2.5.1–9.2.2.5.4, discussing the

Variant forms include names or forms of names used by the family, names or forms of names found in reference sources, and forms of names resulting from a different transliteration of the same name. Record a name as a variant form if a different part of the name is used as the first element when recording the preferred name for the family. Also record as variant the names that are in different linguistic forms of the same name (same name, different language).

Examples:

Names of family:	Γαλάτης
	Galatēs
	Galatti
Preferred name for the family:	Galatēs
MARC authority:	100 3 $a Galatēs (Family)
Variant name for the family:	Γαλάτης
	Galatti
MARC authority:	400 3 $a Γαλάτης (Family)
	400 3 $a **Galatti** (Family)

Names of the family:	Zimmerman
	Zemerman
	Zemmerman
	Zimerman
	Zimmer
	Zimmermon
Preferred name for the family:	Zimmerman
Variant forms of name:	**Zemerman**
	Zemmerman
	Zimerman
	Zimmer
	Zimmermon
MARC authority:	400 3 $a **Zemerman** (Family)
	400 3 $a **Zemmerman** (Family)
	400 3 $a **Zimerman** (Family)
	400 3 $a **Zimmer** (Family)
	400 3 $a **Zimmermon** (Family)

OTHER IDENTIFYING ATTRIBUTES FOR FAMILY

A number of other attributes for families are defined and discussed in RDA 10.3–10.9. The RDA elements include type of family, date associated with the family, place associated with the family, prominent member of the family, hereditary title, language of the family, family history, and identifier for the

family. These elements can be useful for identifying the family or for distinguishing the family from other families or entities with the same or similar names. Elements can be recorded separately, and some may be part of the authorized access point for the family. The construction of the authorized access point for the family—and, therefore, the determination of which elements will be used in the construction of the access point—is covered in RDA 10.11 and discussed later in the chapter.

Type of Family (RDA 10.3)
Core Element
[MARC authority 376 subfield $a]

Type of family is "a categorization or generic descriptor for the type of family." Examples include "family," "clan," "dynasty," "royal house," etc., with the most common type used being "family." Record the term for the type of family as a separate element or as part of the authorized access point.

Examples:

Type of family:	**Family**
MARC authority:	100 3 $a Gorgas (**Family**: $d 1853-: $c Ala.) 376 $a **Family**
Type of family:	**Royal houses** **Dynasty**
MARC authority:	100 3 $a Kamehameha (**Royal house**: $d 1810-1872: $c Hawaii) 376 $a **Royal houses** $2 lcsh 376 $a **Dynasty**
Type of family:	**Clan**
MARC authority:	100 3 $a Koteda (**Clan**: $d active fifteenth century-seventeenth century: $c Hirado-shi, Japan) 376 $a **Clan**

Date Associated with the Family (RDA 10.4)
Core Element
[MARC authority 046]

This element is used to record a significant date associated with the history of the family. The same guidelines apply here as with the date associated with the person (RDA 9.3); therefore, we see dates for when the family was active, starting and/or ending dates for the family, etc. Due to the vague instructions

regarding "significant" date associated with the history of the family, it may be difficult to determine what dates to record in this element. For example, how does one determine the start date for a family, that is, does a family start at the time of marriage of a couple? Does it start when the first child of a couple is born? For historical families, such as royal families or dynasties, it may be easier to determine the dates associated with them. Often, dates associated with the family are based on resources associated with the family.

A date associated with the family is recorded in a separate element, and can also be recorded as part of the authorized access point for the family. As a core element, dates are recorded if available and are also part of the authorized access point for the family.

Examples:

Date associated with family:	**active 15th century-17th century**
MARC authority:	046 $s **14** $t **16** 100 3 Koteda (Clan: $d **active 15th century-17th century**: $c Hirado-shi, Japan)
Date associated with family:	**1872-1963**
MARC authority:	046 $s **1872** $t **1963** 100 3 $a Abdurahman (Family: $d **1872-1963**: $c South Africa)

Place Associated with the Family (RDA 10.5)
Core Element: *for differentiation*
[MARC authority 370]

The place where a family resides or has resided in the past, or that the family is connected with, is recorded in the place associated with the family element. Recording of place names follows the same guidelines as for the place associated with a person, and follows guidelines in RDA Chapter 16. Use names for place from a controlled vocabulary, and record the source when possible.

RDA 10.5.1.3 instructs us to abbreviate the place name of larger geographic areas, as applicable. These abbreviations of names of countries, states, provinces, territories, etc., are listed in RDA Appendix B.11. The element is core if it is necessary to differentiate between families with the same or similar names. The place is recorded as a separate element or as part of the authorized access point representing the family.

Examples:

Place associated with family:	country: **South Africa**

Prominent member: **Romney, Mitt**
Romney, Ann, 1949-
MARC authority: 100 3 Romney (Family: $d 1969-: $g **Romney, Mitt**)
376 Family $b **Romney, Mitt** $b **Romney, Ann, 1949-**

Notice that in the last two examples, the preferred family name of these two different families is the same. Also, two prominent members are recorded for each, although only one is used in the authorized access point for the family.

Hereditary Title (RDA 10.7) [MARC authority 376 subfield $c]

The element hereditary of the family is defined as a title of nobility, and so on, associated with a family. Record the title in direct order and in the plural form. Hereditary titles are those that are always held by a family member.

Example:
Hereditary title: **Dukes of Edinburgh**
MARC authority: 376 $c **Dukes of Edinburgh**

Language of the Family (RDA 10.8) [MARC authority 377]

The language the family uses for its communications is recorded in the element language of the family. The appropriate term or terms in the language preferred by the agency is used. In a MARC structure, preference often is given to codes for languages, like the *MARC Code List for Languages*.

Example:
Language of the family: **English**
MARC authority: 377 $a **eng**

Family History (RDA 10.9) [MARC authority 678]

A brief biographical sketch about the family and its members is recorded in the family history element. Information about the family that is included in other elements should be incorporated in the family history when possible.

Example:
678 0 The Sfondrati family were important political and religious leaders in Italy. $b **The Sfondrati family was founded by Francesco Sfondrati (1493-1550) and his wife Anna Visconti de Madrone (died 1535). The Sfondrati were of Spanish descent, and had lived in Cremona before settling in Milan. Francesco trained as a lawyer and taught at the University of Pavia. He became involved in politics, and was eventually made Count of Riviera di Lecco in 1537. After the death of his wife in 1538, Sfondrati entered service to the Church and became cardinal. Francesco and Anna had seven children. Of these, his sons Niccolò and Paolo were the most prominent. Like his father, Niccolò joined the Church, becoming a cardinal in 1583 and then being elevated to pope as Gregory XIV (1590-1591). Niccolò's brother, Paolo, was Baron of Valassina and Count of Riviera. Paolo's sons continued the family's legacy as political, military, and religious leaders: Ercole became Duke of Montemarciano, Francesco a general in the papal forces and marchese of Montafia, and Paolo Emilio a cardinal and papal secretary of state. The last male member of the family was Carlo Sfondrati, Count of Riviera (died 1788).**

Identifier for the Family (RDA 10.10)
Core Element
[MARC authority 010]

A core element, the identifier for the family is a string of characters that is uniquely associated with a family or a surrogate representation or description of a family (such as an authority record). As a unique string of characters, this element differentiates the family from other families. Whenever possible, include the context of the identifier, that is, the organization creating and maintaining the identifier. One family may be associated with more than one identifier.

Examples:

Identifier for the family:	*Library of Congress control number* **no2013141057**
MARC authority:	010 $a **no2013141057**

Putting it All Together: Identifying Families

As a conclusion on the elements identifying a family, the following example covers all applicable elements in one record structure, using MARC authority format.

In current practice, using MARC structures, we enable the user to find all resources associated with a particular family with the use of bibliographic access points. For a family, these are the authorized access points representing the family, included in bibliographic records and linked to each corresponding authority record.

Use of the authorized access points, which are constructed based on RDA guidelines, ensures consistency. The authority data provided should be true representations (RDA 0.4.3.4) of the family's attributes and should be sufficient (RDA 0.4.3.2) to uniquely identify the family and differentiate the family from others with the same or similar names.

The construction of the authorized access point representing a family (or points for families represented by more than one name) is discussed in RDA 10.11 and in the following section of this chapter.

Authorized Access Point Representing a Family (RDA 10.11.1)

RDA 10.2–10.10 provides guidelines for attributes included in the description of a person for bibliographic purposes. Not all elements covered in RDA 10.2–10.10 will be used for the authorized access point representing a family; however, constructing the access point should be relatively easy once all data relating to the family are recorded in the various elements.

The examples below illustrate authorized access points for a family by using MARC 21 formatting. Authorized access points for a family are recorded in MARC authority field 100. As an access point, these are also added in bibliographic records, more specifically in MARC bibliographic fields 100 (for creators), 600 (for the family as a subject of the work), and 700 (for contributors and collaborators). Subfield coding is the same for all three bibliographic fields.

General Guidelines

When constructing an authorized access point for a family, use the preferred name for the family as the basis for the authorized access point for the family. Additions may be necessary if they are applicable, and should follow guidelines discussed in RDA 10.11.2–10.11.5 and in the following sections of this chapter. Follow the guidelines in RDA 10.2.2 and discussed above to record the preferred name as the basis of the authorized access point. In most cases, the preferred name of the family will be the chosen surname.

Examples:
100 3 $a **Sakakibara**
100 3 $a **Romanov**

Variation in spelling: Choose the form on the first resource received.

Example:
Name of corporate body: Berks Summer Theatre
Berks Summer Theater
Preferred name: **Berks Summer Theatre**

LCC-PC PS 11.2.2.5.1 offers instructions for dealing with variations in spelling due to orthographic reform for corporate bodies located in countries of reform, such as in Greece, Netherlands, Indonesia, among others. In these cases, LC and PCC practice is to revise the name of the corporate body to conform to the reformed spelling.

Language variation: In the case of variation of the name as it appears in different languages, choose the name in the official language of the body (RDA 11.2.2.5.2). However, LC-PCC PS 11.2.2.5.2 states that if the name appears in more than one language and one of them is English, we must choose the English form of the name as the preferred name.

In a case where a country has more than one official language and one of them is the preferred language of the corporate body, choose that language for the preferred name. If, however, the preferred language of the corporate body is not one of the official languages or the official language of the corporate body is not known, use the form of the name in the language predominantly appearing in the resources associated with the body.

Examples:
Name of corporate body: Beogradski centar za ljudska prava
Belgrade Centre for Human Rights
Preferred name: **Beogradski centar za ljudska prava**

For international bodies (RDA 11.2.2.5.3) choose the language preferred by the cataloging agency, if one is determined. LC-PPC practice is to choose the name in the English form.

Examples:
International body names: Kommission der Europäischen Gemeinschaften
Commission des Communautés européennes
Commissione delle Comunità europee
Commission of the European Communities

	Comisión de las Comunidades Europeas
Preferred name:	**Commission of the European Communities**
MARC authority:	110 2 $a **Commission of the European Communities**
International body names:	Federación Internacional de Asociaciones de Bibliotecarios e Instituciones International Federation of Library Associations and Institutions Fédération internationale des associations de bibliothécaires et des bibliothèques Internationaler Verband der Bibliothekarischen Vereine und Institutionen Federació internacional d'associacions de bibliotecaris i de bibliotèques
Preferred name:	International Federation of Library Associations and Institutions
MARC authority:	110 2 $a **International Federation of Library Associations and Institutions**

Conventional name: If an examination of reference resources in the language of the corporate body indicates that the most common form of the name is one other than the official name of the body (conventional name), choose the conventional name as the preferred name (RDA 11.2.2.5.4).

Examples:	
Name:	Dudley Peter Allen Memorial Art Museum Allen Memorial Art Museum
Preferred name:	**Allen Memorial Art Museum**
MARC authority:	110 2 $a **Allen Memorial Art Museum**

Exceptions to 11.2.2.5.4, conventional name guidelines, include the following:

- Ancient and international bodies: use the name in the preferred language of the cataloging agency, if the body is well known with the name in that language. For example, *Augustinians*, not Augustiniáni.
- Religious orders: use the most known name in the language preferred by the cataloging agency. For example, *Archdiocese of Campinas*, not Arquidiocese de Campinas.
- Governments: use the conventional name of the area over which the government has jurisdiction. Governments exist in countries, states, provinces,

the name, that name is recorded in field 110. Examples below illustrate data about corporate bodies as authority data.

Names Consisting of or Containing Initials (RDA 11.2.2.7)

Based on the most commonly known form of the name, record or omit full stops (period) and/or other punctuation marks as they appear on the preferred name for the corporate body. Do not add them if the name does not use these marks. When usage of full stops is uncertain, follow RDA's instruction to omit them.

Examples:

Name:	Unesco U.N.E.S.C.O
Preferred name:	**Unesco**
MARC authority:	110 2 $a **Unesco**
Name:	Americans for Music Libraries in Israel A.M.L.Y. A.M.L.I.
Preferred name:	**A.M.L.I.**
MARC authority:	110 2 $a **A.M.L.I.**

Initial Articles (RDA 11.2.2.8)

If an initial article is present in the preferred name of the corporate body, record it. The alternative guideline, followed by LC-PCC PS 11.2.28, instructs us to omit the initial article from the preferred name, unless the preferred name is indexed and accessed by the initial article. See RDA Appendix C for a list of initial articles in different languages. This guideline is mostly to accommodate the lack of nonfiling characters featured in MARC authority name fields.

Examples:

Name:	The Albert and Mary Lasker Foundation
Preferred name:	**Albert and Mary Lasker Foundation**
MARC authority:	110 2 $a **Albert and Mary Lasker Foundation**
Name:	Les Brigittines
Preferred name:	**Les Brigittines**
MARC authority:	110 2 $a **Les Brigittines** (Performance arts centre)

Terms Indicating Incorporation and Certain Other Terms (RDA 11.2.2.10)

In general, most terms or abbreviations indicating incorporation or ownership of the body, or phrases indicating type of incorporation, are omitted from the preferred name, unless the term is an integral part of the name or helps identify the entity as a corporate body. The term "company" does not indicate incorporation, and, therefore, should not be omitted. Terms such as "U.S.S." and "R.M.S.," used with names of ships, should be omitted.

Examples:

Name:	20/20 Multimedia, Inc.
Preferred name:	**20/20 Multimedia, Inc.**
MARC authority:	110 2 $a **20/20 Multimedia, Inc.**
Name:	U.S.S. Columbia
Preferred name:	**Columbia**
MARC authority:	110 2 $a **Columbia** (Spacecraft)
Name:	bce films & more GmbH
Preferred name:	**bce films & more GmbH**
MARC authority:	110 2 $a **bce films & more GmbH**

Number or Year of Convocation of a Conference, etc. (RDA 11.2.2.11)

Omit indication of year, number, etc. from the name of convocation, conference, meeting, congress, festival, exhibition, etc. The same applies to the name of a subordinate body.

Examples:

Name:	2nd Asian Yaws Conference
Preferred name:	**Asian Yaws Conference**
MARC authority:	111 2 $a **Asian Yaws Conference** $n (2nd: $d 1961: $c Bandung, Indonesia)
Name:	7th Mediterranean Conference on Information Systems
Preferred name:	**Mediterranean Conference on Information Systems**
MARC authority:	111 2 $a **Mediterranean Conference on Information Systems** $n (7th: $d 2012: $c Guimarães, Portugal)

Names Found in a Nonpreferred Script (RDA 11.2.2.12)

If the preferred name is in a script other than the preferred script of the cataloging agency, transliterate the name according to the scheme chosen by the agency. LC-PCC PS 11.2.2.12 states that the LC and PCC practice is to transliterate the name of a corporate body using the *ALA-LC Romanization Tables: Transliteration Schemes for Non-Roman Scripts.*

Examples:	
Name:	Διεθνές Επιστημονικό Συνέδριο "Ο Ελληνισμός της Διασποράς"
Preferred name (transliterated):	**Diethnes Epistēmoniko Synedrio "Ho Hellēnismos tēs Diasporas"**
MARC authority:	111 2 $a **Diethnes Epistēmoniko Synedrio "Ho Hellēnismos tēs Diasporas"**
Name:	鰓類研究連絡会
Preferred name: (transliterated):	**Bansairui Kenkyū Renrakukai**
MARC authority:	110 2 $a **Bansairui Kenkyū Renrakukai**

RECORDING NAMES OF SUBORDINATE AND RELATED BODIES

Recording the preferred name of a subordinate body can fall under one of the following categories:

- The subordinate body has a distinctive name, and that name is sufficient to identify the corporate body. In this case, record the preferred name of the subordinate body directly as found, following the guidelines in RDA 12.2.2.4.
- The subordinate body or its name fall under one of the categories covered by the guidelines in RDA 11.2.2.14, including those whose name implies being part of another body, those whose name implies administrative subordination, those whose name does not convey the idea of a corporate body, etc.

Subordinate and Related Bodies Recorded Directly

Follow the guidelines in RDA 12.2.2.4 to record the preferred name of a subordinate and related body that has a distinctive name, which allows unique

Name is General in Nature or Simply Indicates Geographic, Chronological, or Numbered/Lettered Subdivision (RDA 11.2.2.14.3)

Record the subordinate body subordinately under the higher or related body if the name of the subordinate body is general in nature or simply indicates geographic, chronological, or numbered or lettered subdivision of the higher body. Typically, the name of the subordinate body will not include subject words, adjectives, or distinctive proper nouns.

Example:
Subordinate name: Central Research and Statistics Division
Preferred name: **Port Authority of New York and New Jersey. Central Research and Statistics Division**
MARC authority: 110 2 $a **Port Authority of New York and New Jersey**. $b **Central Research and Statistics Division**

Name does not Convey the Idea of a Corporate Body and does not Contain the Name of the Higher Body (RDA 11.2.2.14.4)

Record the subordinate body subordinately under the higher or related body if the name of the subordinate body does not convey the idea that it is a corporate body.

Example:
Subordinate name: Technical Management Services
Preferred name: **Cape Town (South Africa). Technical Management Services**
MARC authority: 110 1 $a **Cape Town (South Africa).** $b **Technical Management Services**

Name that Simply Indicates a Particular Field of Study of a University Faculty, School, College, Institute, Laboratory, etc. (RDA 11.2.2.14.5)

Record the subordinate body subordinately under the higher or related body of a university, school, etc., if the name of the subordinate body simply indicates a particular field of study.

Examples:
Subordinate name: Matemaatikateaduskond [Faculty of Mathematics]
Preferred name: **Tartu Ülikool. Matemaatikateaduskond**
MARC authority: 110 2 $a **Tartu Ülikool**. $b **Matemaatikateaduskond**

Name of Legislative Body (RDA 11.2.2.14.9)

Record the subordinate body subordinately under the higher or related body if the name is of a legislative body. For additional information about legislative bodies, see RDA 11.2.2.19 and relevant section below.

Example:
Subordinate name: Territorial Legislature
Preferred name: **Alaska. Territorial Legislature**
MARC authority: 110 1 $a **Alaska**. $b **Territorial Legislature**

Name of Constitutional Convention (RDA 11.2.2.14.10 and 11.2.2.20)

Record the subordinate body subordinately under the higher or related body if the name is of a constitutional convention. For additional information about a constitutional convention, see RDA 11.2.2.20.

Example:
Subordinate name: Constitutional Convention
Preferred name: **Philippines. Constitutional Convention**
MARC authority: 110 1 $a **Philippines**. $b **Constitutional Convention**

Name of Court (RDA 11.2.2.14.11 and 11.2.21)

Record the subordinate body subordinately under the higher or related body if the name is of a court. For additional information about a court, see RDA 11.2.2.21.

Example:
Subordinate name: Court of Appeals
Preferred name: **Idaho**. **Court of Appeals**
MARC authority: 110 1 $a **Idaho**. $b **Court of Appeals**

NAME OF PRINCIPAL SERVICE OF THE ARMED FORCES OF A GOVERNMENT (RDA 11.2.2.14.12 AND 11.2.2.22)

Record the subordinate body subordinately under the higher or related body if the name is of principal service of the armed forces of a government. For additional information, see RDA 11.2.2.22.

Example:	
Subordinate body:	Charitable Solicitation Branch
Hierarchy:	North Carolina Department of Health and Human Services Division of Facility Services Charitable Solicitation Branch
Preferred name:	**North Carolina. Charitable Solicitation Branch**
MARC authority:	110 1 $a **North Carolina.** $b **Charitable Solicitation Branch**

Although this guideline offers some advantages to cataloging, it may not always be intuitive to users who are not aware of the guidelines and library practices. Inclusion of all levels as a variant name helps alleviate the access issue.

Joint Committees, Commissions, etc. (RDA 11.2.2.16)

The preferred name of a joint committee with membership from two or more different, independent corporate bodies is recorded directly under its preferred name. Variant names may be recorded for each of the independent corporate bodies, with the name of the joint committee recorded as subordinate under each.

Example:	
Joint committee:	Joint Legislative Water Committee
Independent bodies:	Oklahoma House of Representatives Oklahoma Senate
Preferred name for joint committee:	**Oklahoma. Legislature. Joint Legislative Committee on Water**
MARC authority:	110 1 $a **Oklahoma**. $b **Legislature**. $b **Joint Legislative Committee on Water**

Conventional Names for State and Local Units of US Political Parties (RDA 11.2.2.17)

Record the local and state units under the name of the party. Omit from the subordinate body any indication of the location, state, or name of the party.

Example:	
Local unit:	Indiana Republican State Central Committee

Preferred name: **Republican Party (Ind.). State Central Committee**
MARC authority: 110 2 $a **Republican Party (Ind.).** $b **State Central Committee**

Government Officials (RDA 11.2.2.18)

RDA 11.2.2.18 covers preferred name for a government official, including the following:

Head of State, Head of Government, etc. (RDA 11.2.2.18.1), e.g., governor
Ruling executive bodies (RDA 11.2.2.18.2), e.g., junta ruler
Head of international intergovernmental bodies (RDA 11.2.2.18.3), e.g., secretariat
Governors of dependent or occupied territories (RDA 11.2.2.18.4), e.g., governor
Other officials (RDA 11.2.2.18.5), e.g., audit officer

When considering government officials, we are not considering necessarily the person, but the holder of the office. Therefore, in this case it is considered a corporate body and not a person. A separate entity exists for the individual as a person, with a complete set of authority data describing the elements applicable to the person. The two entities, the official as corporate body and the person, are linked through the statement of the relationship between the two, according to RDA chapters on recording relationships (Chapter 30 for person and Chapter 32 for corporate bodies) and chapter 9 of this text. In some instances, the person may hold more than one government office, and, therefore, may have more than one corporate body name.

Example:
Person: Carter, Jimmy, 1924-
Government official: **Georgia. Governor (1971-1975: Carter)**
United States. President (1977-1981: Carter)
MARC authority: 110 1 $a **Georgia**. $b **Governor (1971-1975: Carter)**
110 1 $a **United States**. $b **President (1977-1981: Carter)**

The preferred name of a government official is typically formulated by recording the jurisdiction and adding the title of the office as the subordinate

body, in the language of the agency creating the data. For each person holding the office, add within parentheses the years of reign and the name of the person in brief form, in the language of the preferred name for the person. If the person's reign spans across nonconsecutive periods, create a separate preferred name for each period.

Example:	
Government official:	Great Britain Prime Minister Baldwin
Preferred name:	**Great Britain. Prime Minister (1923: Baldwin)** **Great Britain. Prime Minister (1924-1929: Baldwin)** **Great Britain. Prime Minister (1935-1937: Baldwin)**
MARC authority:	110 1 $a **Great Britain**. $b **Prime Minister (1923: Baldwin)** 110 1 $a **Great Britain**. $b **Prime Minister (1924-1929: Baldwin)** 110 1 $a **Great Britain**. $b **Prime Minister (1935-1937: Baldwin)**
Government official:	Army Service Forces, Office of the Surgeon General
Preferred name:	**United States. Surgeon-General's Office**
MARC authority:	110 1 $a **United States**. $b **Surgeon-General's Office**

Legislative Bodies (RDA 11.2.2.19)

Record the name of a legislature, legislative committee or subordinate unit, and successive legislature under the preferred name for the jurisdiction it legislates. If the legislature has more than one chamber, record the preferred name of the chamber as a subdivision of the preferred name for the legislature.

Examples:	
Legislature:	Parliament of Kenya
Preferred name:	**Kenya. Parliament**
MARC authority:	110 1 $a **Kenya**. $b **Parliament**.
Chamber:	National Assembly Senate
Preferred name:	**Kenya. Parliament. National Assembly** **Kenya. Parliament. Senate**