Anglo-American Library Cataloging

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Abstract: This article details the Anglo-American library cataloging tradition. Cataloging is a knowledge organization process through which resources are represented in the context of a catalog. Emerging from the work of individual libraries in the United Kingdom and United States in the mid-nineteenth century, modern Anglo-American cataloging practices have undergone continuing development over the course of almost two centuries, largely through a succession of widely implemented descriptive standards. They have come to represent a distinct, coherent tradition that has grown in influence beyond English-speaking settings to exert a global impact on contemporary knowledge organization. While standardization and internationalization have both played a part in establishing the influence of the Anglo-American cataloging tradition, other trends have carried significant impact as well, including technological development and increasing cooperation among libraries. This article explores the meaning, development, and implications of Anglo-American library cataloging through an examination of its historical, practical, and theoretical foundations, along with a consideration of current and emerging developments related to this tradition.

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1.0 Introduction

Cataloging is a prominent knowledge organization process within libraries and similar institutions, entailing the description of resources as well as the organization of these descriptions. Typically taking the form of individual records, these descriptions are compiled into a catalog, and taken together form a surrogate of the institution's collection. Within the catalog, these descriptions afford collection organizers and users specific functionalities, for instance, identifying all the works by a particular author. Cataloging practices can be traced back to antiquity (Strout 1956) and have existed in various forms across time, place, and cultures. Notable cataloging traditions include the Chinese tradition (Liu and Shen 2002) and the German tradition that emerged from Prussia, Austria, and Germany (Popst and Croissant 2002). One of the most influential traditions of cataloging is the modern Anglo-American tradition. Emerging from the work of individual libraries in the United Kingdom and the United States in the mid-nineteenth century, Anglo-American library cataloging practices have expanded to encompass other English-speaking countries such as Canada, Australia, and New Zealand and have undergone increasing international standardization. They have come to represent a distinct, coherent tradition that has grown in influence beyond Anglophone settings to exert a global impact on contemporary knowledge organization.

The development of this tradition is largely tied to the development of specific cataloging standards or codes, documents that present formal guidance on the creation of catalog records. In their earliest forms, cataloging practices were unique among individual libraries, a situation that persisted into the nineteenth century. Beginning with the work

of British librarian Anthony Panizzi, Anglo-American library cataloging practices were brought into order through a small but influential succession of cataloging codes. These codes shifted practice away from the idiosyncrasies of individual libraries and toward more universal solutions for knowledge organization. By the start of the twenty-first century, a significant number of Anglophone libraries around the world were united under the *Anglo American Cataloguing Rules, 2nd Edition* (AACR2), while the succeeding standard, *Resource Description and Access* (RDA), has become the first cataloging code to attempt to appeal to both Anglophone and non-Anglophone libraries. While standardization and internationalization have both played a part in establishing the global influence of the Anglo-American tradition, other trends have had significant impact as well, including technological development and increased cooperation among libraries. At the same time, while cataloging may appear as a reactive and purely practical response to modern publisher conventions and information environments, there exists a set of underlying models and principles that signal the presence of a theoretical foundation to this tradition of practice as well.

This article explores the meaning, development, influences, and implications of Anglo-American library cataloging as a knowledge organization process, beginning with a fuller definition of this tradition of practice. This is followed by a historical narrative tracing the origins and development of this tradition, with a particular emphasis on the emergence, adoption, and impact of cataloging standards. Subsequently, definitive practices within this tradition are highlighted, and the underlying principles, models, values, and epistemologies guiding Anglo-American cataloging are reviewed as a means of further exploring the theoretical foundations behind this ostensibly pragmatic area of practice. Finally, a look at currently emerging trends and developments relevant to Anglo-American library cataloging is offered.

2.0 Definitions and scope

Cataloging is, essentially, the process by which catalogs are created. Catalogs are knowledge organizing tools designed to provide information on and access to the collection of a specific institution or set of institutions. Though catalogs occur in a variety of information settings such as museums and archives, they have come to be most strongly associated with libraries. While catalogs have existed for as long as there have been collections of documents (Strout 1956, 255), the need for catalogs in libraries has grown in response to the advent of the printing press and subsequent expansion in collection sizes (Levy 1995). A catalog serves both inventory functions for these collections as well as conceptual functions, allowing both catalog organizers and end users to interact with collection information in various ways (Coyle 2010, 9). More than a mere list of what belongs to the institution, catalogs serve to organize resources, bring like resources together, and tell specific resources apart (Svenonius 2000, 11). Catalogs are distinguished from similar knowledge organization tools such as registers or bibliographies due to their accommodation of multiple access points (Soergel 1985, 56). For instance, a resource can be filed under its creator, title, and series, with each of these access points leading to a description of the same resource and directing the user to its location. In order to accomplish this, catalogs consist of surrogate representations of the resources in a collection, commonly referred to as catalog records or bibliographic records (Abbas 2010, 102). Covering the range of materials for which an institution may be responsible, including both physical and digital resources, bibliographic records are composed of metadata meant to support the desired functions associated with the catalog. Common formats for catalogs include book catalogs, in which records are printed sequentially, card catalogs, in which records are printed on cards arranged in a physical file, and electronic catalogs, in which records are stored and retrieved via a database (see Joudrey 2017; Wells 2020). Though it has taken various forms throughout its history, the library catalog has, over time, developed as a distinct knowledge organizing tool, characterized by a common set of functions and features.

The practice of creating representations of resources is present in many settings, including museums, booksellers, and records management; this general knowledge organization process is referred to as resource description (Hider 2012). Within libraries, resource description activities, commonly known as cataloging, encompass the creation of surrogate representations of library resources to be arranged into a catalog. This process typically entails the examination of a resource as well as the collection of additional information about it from external sources. The cataloger uses data from these sources to form the basis of their description, including common, agreed-upon elements of metadata such as title, edition, and date of publication. Bibliographic records may be seen as comprising two main kinds of metadata: descriptive, which includes metadata used to describe and identify the resource as a material object, and subject, which includes intellectual content representations such as subject headings and classifications (Joudrey et al. 2015, 15). Along with determining descriptive and subject metadata for a resource, catalogers are also responsible for the selection and formation of access points. Also referred to as headings and entries, these are special indexing terms that indicate where in the catalog the resulting record is to be filed. Common access points include the title of the resource and the name of its creator (such as an author, composer, artist, etc.). The exact choice and formation

of access points requires catalogers to negotiate variations in naming in order to bring like resources together within the catalog (Olson 2001). Tasked with a variety of responsibilities and decisions, modern catalogers utilize a wealth of well-developed tools and standards to assist them in their work.

It should be noted that the term "cataloging" is used in other Anglo-American information settings, particularly among memory institutions such as archives and museums. In these settings, "cataloging" refers to similar knowledge organization processes conducted in order to represent, distinguish, organize, and provide access to information resources. Despite their similar functions, notable differences exist between library cataloging and the types of cataloging that have developed in other English-speaking settings. For instance, archives are tasked with the description of collections of information resources, and as Taylor (2004, 61) observes, descriptive practices in archives have been closely related to those in libraries. Archival descriptions, however, must accommodate unique resources and feature a heavy emphasis on provenance information (Society American Archivists 2013) (see Tognoli and Guimarães 2019). Materials are often described at the collection level through finding aids, a cataloging practice that has come to be guided by a distinct lineage of standards stemming from the *General International Standard Archival Description* (Abbas 2010, 61). Museums are similarly focused on unique artifacts and their provenance, though here descriptive practices are more distantly related to those of libraries. Historically, museum practices have been more tied to the construction of internal, accountability-driven inventories (Roberts 1993, 22) rather than descriptive catalogs, though more fully developed descriptive standards have emerged in recent years such as *Cataloging Cultural Objects* (CCO). These standards draw some inspiration from Anglo-American library cataloging but remain quite distinct from this tradition in terms of goals and what metadata elements are considered relevant (Baca and Visual Resources Association 2006). Beyond memory institutions and the cultural heritage domain, other Anglo-American institutions also engage in forms of cataloging. For example, journal indexing entails the cataloging of the contents of journals at the article level. Originally, individual journals were responsible for developing their own article indexes, but the growth of scholarly communications led to the appearance of commercial indexing and abstracting services by the early twentieth century, which would develop their own technologies, retrieval tools, and descriptive practices (Harman 2019, 431). In contrast, libraries continued to catalog serial publications at the "macro" title level (Joudrey et al. 2015, 5). Due to the overall differences in materials, goals, units of description, standards, and retrieval tools, Anglo-American library cataloging must be seen as distinct from cataloging conducted in other, similar settings. Thus, museums, archives, commercial indexers, and the like will not be considered part of the Anglo-American library tradition presented here.

Cataloging practices have developed wherever library collections of resources have been amassed and organized. As such, different cultures have also given rise to different traditions of cataloging. The Anglo-American library cataloging tradition developed from the practices of modern, Anglophone libraries and has grown to become particularly influential. As a coherent body of practice, this tradition is commonly traced back to the mid-nineteenth century efforts of Anthony Panizzi in the United Kingdom and Charles Jewett in the United States, both of whom had an influence on Charles Cutter, frequently referred to as the founder of modern Anglo-American cataloging (Dunkin 1969, xvii; Svenonius 2000, 4). Other cultural traditions of library cataloging stem from different origins and follow different trajectories over time. Though they fall beyond the scope of the present entry, they represent important areas of knowledge organization practice worth separate exploration. While the contemporary descriptive standard RDA was not created with the explicit intent of serving as an Anglo-American standard, it is covered here due to its origins in the Anglo-American tradition (Canadian Library Association et al., ch. 0, sec. 0.3.1) as well as its widespread adoption in current Anglo-American settings.

For almost 200 years, the Anglo-American tradition has been concerned with the formation of card catalogs and later electronic catalogs, and has expanded to encompass libraries in numerous English-speaking countries. During this development, a defining trait of this tradition has been its focus on descriptive cataloging and access point formation, with comparatively less focus and standardization in the area of subject cataloging (Markey 2007, sec. 3, para. 4; Coyle 2015, 6). Indeed, subject cataloging activities have rarely been considered within the major cataloging codes in the Anglo-American tradition. Rather, practices such as classification and subject representation have been guided by different bodies of standards, developed under separate lineage. It is not uncommon for descriptive cataloging and subject cataloging to be handled by different catalogers entirely, with the latter being performed by catalogers with specialized subject knowledge. In focusing on the Anglo-American tradition then, this entry focuses most on the practices and standards for descriptive cataloging and access point formation, often referred to collectively as simply "description." While subject cataloging activities are an important aspect within this tradition and will be touched upon, they ultimately represent a different knowledge organization activity and are also best addressed under separate examination (see Hjørland 2017a; Hjørland 2017c).

3.0 History of the Anglo-American tradition

3.1 To 1900

In her history of early English catalogs, Norris (1939, vii) delineated four major eras of cataloging: ancient, medieval, collegiate (1400-1700), and modern (1700 onwards). According to Strout (1956, 274), pre-modern practices saw catalogs develop beyond simple indexes and strengthened the argument for card rather than book catalogs. Ultimately, however, she felt that specific practices from this time had little impact on the modern Anglo-American tradition. Even so, several earlier efforts are worth brief consideration. Work done in the early seventeenth century to produce a catalog for the newly formed Bodleian Library yielded a simple set of brief cataloging rules, mostly centered on the formatting of personal names (Norris 1939, 144). The initial Bodleian catalog was a classified book catalog, though later editions began arranging entries by author name; work here was, however, eventually eclipsed by practices coming out of other institutions in the United Kingdom such as the British Museum. Though prior efforts by Ayscough, Maty, and Harper had produced a catalog for the British Museum at the end of the eighteenth century, a new catalog created under the direction of Ellis and Baber took shape from 1813-1819, guided by a simple set of rules focused on title page transcription (Blake 2002, 5). This catalog featured no subject access and soon fell into disorder in the coming years, and though Horne attempted a follow-up catalog guided by a simple seventeen-rule code of his own devising, this project was never completed (Norris 1939, 203). In the United States, William F. Poole created a simple alphabetico-classed book catalog for the Boston Mercantile Library in 1853 and undertook similar efforts at the Boston Athenaeum after becoming director there in 1856. This project was then taken on by Charles Lowell, and though ultimately unsuccessful, it would have some impact on emerging American practice in the coming years (Blake 2002, 11).

While these earlier Anglo-American cataloging activities undoubtedly had some influence on subsequent practice, it is the work of Anthony Panizzi that is commonly cited as signaling the emergence of modern Anglo-American library cataloging (Coyle 2010, 5). An Italian lawyer and political refugee, Panizzi was appointed to a position at the British Museum in 1831, soon rising (somewhat controversially) to the office of Keeper of Books (Joudrey and Taylor 2018, 75). It is at this time that Panizzi took on the work of establishing a new catalog code for the Museum. Debate around cataloging practices at the British Museum had been surprisingly contentious, even resulting in a series of formal legal hearings concerning the nature and form of the catalog (Griffiths 2015). After successfully persuading examiners to agree with his views, Panizzi, along with a committee of museum staff, was able to proceed with the development of a new code. The resulting 1841 *Rules for the Compilation of the Catalogue* presented a set of 91 rules tailored explicitly to the British Museum and its materials (Panizzi 1841). Though these rules yielded only one volume of the British Museum catalog before its production was cut short by additional disagreements and debates (Griffiths 2015), they represented a turning point in Anglo-American cataloging. The catalog Panizzi envisioned was the first of its kind, with an enhanced focus on access predicated on a variety of heading types, including form headings, an early precursor to formal subject headings. Such considerations pointed toward an expanded suite of functions beyond that of a simple inventory. His rules, as well as his vision and reasoning, would have significant influence on subsequent practice and codification.

Though, traditionally, American cataloging had been viewed as behind European practices, this began to change in the mid-nineteenth century through the work of Charles Jewett (Dunkin 1969). A librarian with previous experience at Brown University and the Andover Theological Seminary, Jewett began work at the Smithsonian in 1848. His interests and efforts in cataloging here would begin to drive American practice forward. Jewett believed the Smithsonian should serve as the national library, complete with a national union catalog, enabling uniformity and greater efficiency in American library cataloging. To accomplish this, Jewett envisioned a set of rules established by the Smithsonian and followed by all American libraries, eventually allowing the sharing of standardized records via stereotyped plates (Ranz 1964, 47). Inspired by a draft of Panizzi's 91 rules as well as cataloging practices at the Andover Theological Seminary, Jewett produced his *On the Construction of Catalogues of Libraries*, with which he aspired to set a national standard (Jewett 1852, 8). Though Jewett adopted elements introduced by Panizzi that reflected modern publication conventions, including publication place and edition (Coyle 2015, 9), he showed little of the same interest in form or subject access (Strout 1956, 271). His set of 33 rules was also much more stringent than Panizzi's, adhering closely to the resource itself and leaving little to individual cataloger judgment; this approach to cataloging would wax and wane in the coming years of the Anglo-American tradition, eventually being decried as the "legalistic" paradigm (Osborn 1941). Though influential and adopted, at least in part, in many settings, this set of rules did not become the national standard as Jewett had hoped. Regardless, Jewett has come to be recognized as a visionary and leader in the American cataloging scene, whose works and ideas formed the foundations of cooperative cataloging and the modern union catalog (Chan and Salaba 2015, 48).

Panizzi and Jewett ushered in a new era in cataloging in the United Kingdom and United States respectively, though

it is Charles Cutter who has commonly come to be seen as the progenitor of modern Anglo-American library cataloging as we know it (Svenonius 2000, 4). Building on the work of his predecessors, Cutter revolutionized the way catalogs were envisioned and prepared while foreseeing many issues in bibliographic description still being grappled with to this day. A librarian who had previously worked for Jewett at the Boston Public Library, Cutter became the head of the Boston Athenaeum library in 1868, where his initial work focused on revamping and completing the catalog of the collection begun by Poole and Lowell (Miksa 1977). This experience led to his creation of the 1876 *Rules for a Dictionary Catalogue*, written as part of a United States Bureau of Education report issued during the centennial year (Cutter 1876). Drawing on the work of both Panizzi and Jewett, Cutter laid out 369 cataloging rules, covering both descriptive and subject cataloging; his code was the first and, for many years, only code to do so. Cutter looked beyond access through author or title to locating materials by topic and form as well, an approach that reconciled previous arguments on access and strengthened support for the dictionary catalog (Lubetzky 1969, 7). His work demonstrated that catalogs were not simply locators but co-locators as well (Svenonius 2000, 16).

Several other aspects of Cutter's *Rules* are just as notable and would go on to have significant impact on the course of Anglo-American cataloging, including his focus on the needs of the user and his explication of guiding principles. Though Panizzi and previous code designers had been guided in part by views on catalog users, Cutter's code featured an unprecedented emphasis on the needs of the user (Miksa 2009, 353). Svenonius (2000, 69) described Cutter as "the user's greatest champion," and the priority he placed on the practical needs of users is apparent throughout his work. In prefacing his rules, he explained that simple rules were the easiest for the public to understand, adding that "the convenience of the public is always to be set before the ease of the cataloger" (Cutter 1904, 6). To further emphasize the importance of the user's practical needs, Cutter framed his cataloging rules with a set of guiding objectives, the first such time that objectives had been explicitly presented in a catalog code. Referred to as "Objects," these objectives specified what tasks users should reasonably be expected to perform with catalog data. These in turn guided his "Means," design choices concerning the inclusion of specific elements and access points in order to support these objectives. Together, the objects and means form a set of guiding principles, the first such of their kind. The following rules also featured a principle-driven approach, through which Cutter sought to reduce complexity and increase consistency in cataloging by presenting rules as the application of a few simple principles to a number of cases. Though Cutter's code itself was not backed by the emerging professional associations of the time and saw limited adoption (Blake 2002, 12), Cutter's rules, principles, and focus on the needs of users would go on to influence practically all subsequent Anglo-American library cataloging codes.

The final years of the nineteenth century saw a flurry of activity around cataloging practice and codification in the Anglo-American scene; Heisey (1976, 219) describes this as an era of experimentation and discussion focused on establishing consensus. In 1876, the newly formed American Library Association (ALA) distributed Cutter's *Rules* at their inaugural meeting at the Centennial Exhibition (Henderson 1976, 228). By 1878, ALA had established a Cooperation Committee to address cataloging, among other library matters; this committee recommended the use of Jewett's code for description alongside some of Cutter's rules on headings and entry, and in 1883 produced their own *Condensed Rules for an Author and Title Catalog*. At the same time, the Library Association of the United Kingdom (LAUK) had formed and, by 1881, had published their *Cataloguing Rules*, which was based heavily on Jewett's work (Blake 2002, 13). Other codes of note that emerged at this time included *San Francisco Cataloguing for Public Libraries* (Perkins 1884) and Linderfelt's (1890) *Eclectic Card Catalog Rules*, a compilation of descriptive rules from various sources that while theoretically interesting, particularly to future code designers, had little impact on the course of practice (Tikku 1983, 151).

3.2 1900-1960

At the start of the twentieth century Anglophone libraries were drawing on an array of descriptive codes, but several key developments would pave the way for increasing standardization. First, ALA reached a deal with the Library of Congress (LC) to have it print and distribute copies of its catalog cards to American libraries (Yee 2009, 69), prompting further work among ALA and LC aimed at harmonizing and updating LC's current cataloging code (Heisey 1976, 227). The resulting 1902 *A.L.A. Rules Advance Edition* was provided to all libraries subscribing to LC cards. Second, discussions between representatives of ALA and LAUK paved the way for a joint venture in cataloging rule codification, which would build on the 1902 *Advance* code and attempt to reconcile American and British practice (Dunkin 1969, 10). Released in 1908, the *Anglo-American Catalog Rules* represented the first international cataloging code, designed for both US and UK audiences. Unfortunately, the two sponsoring organizations could not agree on all points, prompting the code to be released in two slightly different editions; differences mostly involved the treatment of certain names, as well as titles of serials and translations (Blake 2002, 18). Though the code drew on the works of Panizzi and Linderfelt, it owed most to Charles Cutter, in-

voking both his name and his stance on the importance of users (American Library Association 1908). Other key aspects of Cutter's approach were excluded, however, including his objects and means as well as his coverage of subject cataloging; the omission of subject coverage would characterize most subsequent Anglo-American codes as well. Though the rules themselves focused mostly on headings and entry, Strout (1956, 274) felt the approach was progressive, particularly in its accommodation of information beyond the title page. Criticisms of the code were centered on its apparent tailoring toward large research libraries and the increase in rule complexity and detail over previous codes (Bakewell 1972, 31). Regardless, the 1908 code was widely adopted, setting a new precedent for international cooperation in cataloging and solidifying the Library of Congress's influence on Anglo-American library cataloging practice.

Though it had been a success, the 1908 code had been implemented without a plan for continuing international revision. In the coming years, usage of the code was characterized by increasing numbers of local amendments as LC-led cataloging practices began drifting further from what was in the original document (Henderson 1976, 232). By the 1930s there was significant pressure on ALA and LAUK to update the code. A specially formed ALA committee advised that major revisions were required in order to catch up with LC practice, cover more materials and situations, and, in the opinion of the committee, give catalogers the minute and detailed guidance they desired (Joudrey et al. 2015, 36). Unfortunately, the commencement of World War II ceased British and American collaboration on a new code, and ALA proceeded independently while a separate LAUK committee pursued its own revision work (Tikku 1983, 153). While LAUK's efforts resulted in continued revisions to the 1908 code, American work yielded a new 1941 preliminary draft, the *A.L.A. Catalog Rules*. The ALA 1941 code was published solely for the needs of American libraries and was an attempt to codify LC practice in a manner reminiscent of Jewett's approach. Totaling over 400 pages, the document itself was larger than any previous codes, comprising many detailed rules designed to support standardization in an era of increasingly cooperative cataloging (Chan and Salaba 2015, 57). This preliminary edition faced immediate criticisms due to its elaborate nature and potential costs to implement. One of the most vocal critics of the 1941 code and the developments leading up to it was librarian Andrew Osborn. Given the increasing pace of publication and the growing size of collections, Osborn (1941) argued that cataloging rules needed simplification rather than amplification in order to keep pace and remain cost effective. He challenged ALA's assertion that catalogers needed lengthy, detailed instructions, and decried this approach as "legalistic," calling for renewed attention to both pragmatism and principles (403). His criticisms captured the growing sentiments of frustration within the Anglo-American cataloging community at this time.

By 1949, ALA had prepared a new edition of the earlier 1941 draft designed to address some of the criticisms aimed at its predecessor. Under the editorship of Clara Beetle, the *A.L.A. Cataloging Rules for Author and Titles Entries, 2nd Edition*, known colloquially as the "red book," was designed to capture US practices concerning headings and entry. Descriptive rules were omitted entirely, partly due to their poor reception in the 1941 draft. This decision would result in most American libraries using multiple codes together to cover cataloging needs, a situation that was less than ideal and caused further frustrations. Despite its attempts to streamline and simplify vis-à-vis the 1941 draft, the 1949 ALA code had more rules on headings than any of its predecessors. Though widely utilized, this code was not popular among libraries and faced a number of its own criticisms. Chief amongst these was that the code lacked clear organization and explicit guiding principles (Henderson 1976, 239). Indeed, the text itself opened with a preface dwelling mostly on the pragmatic needs of library staff and mentioned library users only once, with no consideration of their tasks and needs (Division of Cataloging and Classification of the American Library Association 1949). As with its predecessor, the ALA 1949 code was also criticized for being too elaborate, detailed, and enumerative, resulting in a multiplication of highly specific rules (Joudrey et al. 2015, 36). Despite its ostensible focus on pragmatism, these rules frequently required catalogers to record metadata that was not always necessary (e.g., always recording fullest forms of author names), leading to widespread local rule modifications (Bakewell 1972, 34).

Often used in conjunction with the ALA 1949 code was the so called "green book," Library of Congress's 1949 *Rules for Descriptive Cataloging in Library of Congress*. For the preceding 30 years, LC cataloging practice had been diverging from the ALA backed codes, and, given the widespread adoption of LC cards during this time there was significant interest among American libraries in LC's views on cataloging practice (Lubetzky 1953, 62). During the early 1940s, LC conducted numerous studies specifically focused on descriptive cataloging practices and needs, concluding that more explicit statements of function and principles were needed in cataloging codes and that records themselves could be simplified without loss of functionality (Bakewell 1972, 34). These findings were incorporated into the LC 1949 code, drafted by Lucile Morsch and designed to capture modern descriptive practices while balancing the values of fullness, economy, and user needs. Unlike the "red book," the "green book" was generally well received, with catalogers appreciating its comparatively progressive nature (Dunkin 1969, 15). The LC 1949 code included an explicit statement of descriptive principles focusing on distinguishing re-

sources and responding to the interests of users, and the simplified rules included room for local judgments (Library of Congress and Descriptive Cataloging Division 1949). These rules were also widely adopted among American libraries, but due to their lack of coverage concerning headings and entry, were typically used in conjunction with the ALA 1949 code. The updated LC 1949 rules also allowed LC to streamline its bibliographic description process, resulting in speedier production and delivery of LC cards to subscribing libraries (Henderson 1976, 238).

Though the Anglo-American tradition was spurred on by many developments in the United States during the early twentieth century, comparatively little development was taking place in the United Kingdom at this time. Rather than adopting any of the American codes developed during the 1940s, UK libraries had continued using modified versions of the 1908 *Anglo-American Catalog Rules*. ALA's invitation to librarian Seymour Lubetzky to do a critical analysis of their 1949 code is another notable event during this time, yielding his 1953 report *Cataloging Rules and Principles*. Revered as one of the most important writings on cataloging in the twentieth century (Svenonius 2000, 76), Lubetzky's (1953) report found that rules in the ALA 1949 code were too enumerative and specific, and called for clear objectives and principles to guide and organize cataloging activities. ALA's Catalog Code Revision Committee responded by drafting a list of objectives and inviting Lubetzky to serve as editor for their next code, intended to replace both the ALA 1949 and LC 1949 codes (Bakewell 1972, 37). Lubetzky set to work producing an initial draft code that attempted to balance clear principles with user convenience, and though this work would be left unfinished upon his resignation in 1962, it would go on to influence impending developments. Though the mid-twentieth century saw the Anglo-American tradition characterized by conflicts and splits in policy and practice, Lubetzky's call to principles would soon signal a new era of reunification and unprecedented cooperation.

3.3 1960-present

By the mid-twentieth century, calls from Lubetzky and other critics had prompted growing interest in formalizing the underlying principles of descriptive practice. At the same time, the International Federation of Library Associations (IFLA) began taking a stronger role in cooperative cataloging on the international scene, particularly as emerging electronic catalogs and records suggested new potentials for the ongoing but elusive goal of universal bibliographic control (Kaltwasser 1972). The trends toward principles and international cooperation were brought together in 1961 when IFLA convened an International Conference on Cataloging Principles. Attended by representatives from 53 countries, the widest representation of international catalogers ever assembled at the time, the conference was staged in part to promote further international alignment of cataloging rules (Verona et al. 1971, vii). The end result of the conference was the issuance of the *Statement of Principles,* known colloquially as the Paris Principles. Not a formal library cataloging standard per se, this document sought to enumerate guiding principles and serve as the basis for international harmonization of codes, though its coverage was limited to choice and form of name and title access points. The content of the Paris Principles drew inspiration from Cutter's original objects and means but owed much to the works of Lubetzky (1953; 1960), particularly his two objectives (facilitating location and relating works together) and his distinction between "book" (the physical embodiment) and "work" (the intellectual content itself). The document was well received, and participating countries agreed to work toward revising their national codes accordingly. The creation of the Paris Principles has been cited as one of the most important events in cataloging history (Buizza 2004, 118), for they represented the first truly international (i.e., beyond just English-speaking countries) agreement on cataloging. This was the first time that the Anglo-American tradition had been brought together with other cataloging traditions, including the German tradition, though the end results heavily reflected Anglo-American thought and began to bring these practices to prominence on a global stage (Dunkin 1969, 17).

ALA's efforts toward code revision had not ceased with Lubetzky's departure, and with the assignment of C. Sumner Spalding as general editor, work continued on the creation of a single successor to both the ALA 1949 and LC 1949 codes (Hiatt 2011). At the same time, with the resolution of World War II, UK libraries joined with their American counterparts to work toward another Anglo-American collaboration (Henderson 1976, 242). Though Lubetzky's 1960 draft code was much admired, its wholesale implementation would have signaled costly changes in practice for large institutions, and so international efforts on code revision shifted toward a less radical, more cost-effective update to current practices capable of incorporating the recent Paris Principles (Dunkin 1969, 18). The end result was the 1967 release of the *Anglo-American Cataloging Rules* (AACR), a joint publication of the American, British, and Canadian library associations. Intended to further standardize cataloging across a growing collective of English-speaking countries, the document also stated its intent to offer a principle-based approach to cataloging and thus a shorter, simpler set of rules as a result (American Library Association et al. 1967). AACR did indeed clearly articulate its guiding principles of description, along with a statement on the objectives of the catalog drawing heavily from Lubetzky's (1953) writings. As with the prior 1908 collabo-

ration, however, key differences in practice, mostly revolving around corporate body headings and entry, resulted in the production of separate British and North American editions of the document. Though, as a whole, AACR hewed closer to current practice than Lubetzky's original vision, certain changes in entry practice were enough to cause concern among libraries; despite its widespread adoption, subsequent studies in the 1970s would suggest that many smaller libraries continued to use the pair of 1949 codes instead (Henderson 1976, 255). Regardless, AACR was a revolutionary development for its unifications of principles with practice, description rules with those on headings and entry, and British practice with North American.

Though the Paris Principles led to an increase in standardized heading and entry practices among various national codes, further work was needed to align description practices in the same manner. In 1969 another IFLA-sponsored meeting, the Copenhagen International Meeting of Cataloguing Experts, laid the groundwork for the International Standard Bibliographic Description (ISBD), a framework designed to establish consistency in the content, order, and punctuation of bibliographic descriptions (Gorman 2003, 84). As with the Paris Principles, ISBD was created to facilitate international record sharing by influencing the development of formal codes and soon encompassed a series of texts targeted at various material types. During this same time period IFLA formally recognized universal bibliographic control as one of its core programs (Bianchini and Willer 2014, 870). Some AACR revisions were undertaken in order to move Anglo-American practice more in line with the new ISBD framework, but between these and other LC-recommended revisions, concerns grew that the piecemeal approach to updating AACR was compromising the document (Henderson 1976, 254). In 1974 a Joint Steering Committee (JSC) was formed to develop a new, formal revision of the code, and included representatives from the US, UK, Canada, and Australia, with Paul Winkler and Michael Gorman serving as editors (Joint Steering Committee for the Revision of AACR 2002). The new revision was designed to build on AACR and the Paris Principles while incorporating ISBD, addressing a wider array of material formats, accommodating for newly emerging machine processing, and further reconciling American and British practices.

Published in 1978, the *Anglo-American Cataloging Rules, 2nd Edition* (AACR2), would go on to become the predominant cataloging code in Anglophone libraries for a span of roughly 35 years. More pragmatic in its approach than its predecessor, AACR2 lacked a formal statement of principles, but utilized optional instructions as a means of accommodating the continued, unreconciled differences of practice among British and North American libraries, and offered three levels of cataloging in the hopes of achieving uniformity while still offering flexibility (Joint Steering Committee for the Revision of AACR 2002). Further guidance on using AACR2 was available for U.S. libraries in the form of the *Library of Congress Rule Interpretations*, issued in the form of ongoing supplements and intended to offer a common national practice (Library of Congress and Cataloging Distribution Service 1990). Though AACR2 would face criticism for its unclear distinctions between "book" and "work" concepts and its treatment of various non-book materials, it was widely adopted in Anglo-American settings, and owed its success to a confluence of factors including libraries' reliance on LC-produced cards and electronic records and its close intertwining with the development of the MARC encoding standard (Delsey 1989; Tennant 2002; Sanner 2012).

Many significant developments would occur during AACR2's long tenure as the de facto Anglo-American descriptive code, including the growth of electronic media, the advent of the World Wide Web, and the proliferation of computerized catalogs (see Wells 2020). The changing digital landscape, among other factors, would prompt IFLA to further address international consistency in cooperative cataloging with the development and release of 1998's *Functional Requirements for Bibliographic Records* (FRBR). FRBR was intended to clarify important entities and user tasks in the bibliographic universe and ultimately decrease the costs of cooperative cataloging at an international level by bringing various codes even further in line (Coyle 2015, 70). Though the document would be criticized for its reflection of expert rather than user opinion (Le Boeuf 2005; Smiraglia 2015), it would go on to hold particular significance for the future of Anglo-American library cataloging, along with another IFLA initiative, the *Statement of International Cataloging Principles* (ICP) (Tillett and Cristán 2009).

Though AACR2 would receive numerous updates and revisions over the years, by the end of the twentieth century there was significant pressure toward the development of an entirely new edition. In 1997, the International Conference on the Principles and Future Development of AACR was hosted in response to these growing calls for change. The conference brought together leading experts to present views on the principles, problems, and potential futures for AACR2, resulting in a formal plan of action items focused on further analyzing the structure and principles of AACR2 while committing to a transparent revision process (Tillett 1998, 54). Following this conference, the Joint Steering Committee for the Revision of AACR commissioned studies exploring the potential for reworking AACR2 to incorporate an entity-relationship approach while better addressing digital environments (Dunsire 2014, 9). This work would culminate in what was first known as AACR3, the 2004 draft of which featured Tom

Delsey as editor. This reconciling of AACR2's structure with the FRBR model proved less than satisfactory though (Dunsire 2014, 10), and a new direction more heavily focused on FRBR was pursued instead, leading to the nascent standard's 2005 rebranding as *Resource Description and Access* (RDA) (Delsey 2016, 26).

Unlike previous descriptive codes, RDA would be developed with the intent of international adoption among Anglophone and non-Anglophone libraries alike, making it the first truly global cataloging code. At the same time, it drew directly on the foundations set by the Anglo-American tradition (Canadian Library Association et al. 2010, ch. 0, sec. 0.3.1). As such, RDA does not mark the end of the Anglo-American tradition as much as it signals the start of a new era in which Anglo-American practices are more closely intertwined with those in other settings. RDA also bears the distinction of being the first cataloging code used in Anglo-American settings to be developed specifically for electronic retrieval systems. Drawing on AACR2, FRBR, and ICP, the initial draft of RDA was released in 2010, organized around the FRBR bibliographic entities and bearing a clear statement of principles and objectives (Canadian Library Association et al. 2010). This draft was met with some anxiety and skepticism within the Anglo-American cataloging community concerning the costs and feasibility of transitioning from AACR2 to RDA. Following a testing phase that same year, the Library of Congress stipulated a number of changes to the standard that would be fulfilled in the following two years, leading to its eventual adoption by LC and other major institutions (Boehr et al. 2012).

By 2013, RDA was seeing widespread implementation within Anglophone countries and, with subsequent translations, was soon being tested or implemented in a number of non-Anglophone countries as well (Poulter 2012). With a scope extending further beyond the traditional domain of books than any of its predecessors did, RDA provides descriptive guidance for over 20 different content types including cartographic datasets, notated movement, and three-dimensional moving images. Thus, RDA holds the potential to accommodate more institutions and materials than any single descriptive standard before. Though this has led to RDA's increasing appeal to many communities in the years since its release, it has also continued to face criticism for its cost and complexity. In response, a number American catalogers have worked to develop a simpler, free, open-source alternative. The resulting Open Rules for Cataloging remains a work in progress, though is set to draw heavily on IFLA's ICP, as well as ISBD and many other elements of Anglo-American tradition and practice (Leibowitz et al. 2022).

At present, RDA remains the de facto descriptive code for Anglo-American libraries. Far from a static standard, it has seen a steady stream of updates since its initial publication in 2010. In 2017, the first significant overhaul of RDA began, largely in response to IFLA's release of the *Library Reference Model* (LRM) (Žumer 2018). This document reconciled FRBR, along with its companion publications *Functional Requirements for Authority Data* (FRAD) and *Functional Requirements for Subject Authority Data* (FRSAD), into a single, comprehensive model with a consistent point of view. To accommodate for key conceptual differences in LRM, the international RDA Steering Committee initiated their 3R Project (RDA, Restructure, Redesign), a series of revisions designed to update the content and structure of RDA accordingly while transforming its presentation to better reflect contemporary web design and accessibility standards (RDA Steering Committee 2016). This new, post-3R RDA was first released as a public beta at the end of 2020, and though the Steering Committee explicitly refrains from referring to it as a new edition, it features a number of significant changes in wording, presentation, and navigation (Oliver 2021). The Library of Congress's Program for Cooperative Cataloging, a source of best practices documentation for many libraries, has announced a rolling adoption of post-3R RDA, set to conclude by 2027 (Program for Cooperative Cataloging 2024). For now, libraries using RDA continue to acclimate themselves to this new version while awaiting additional supporting documentation.

4.0 Foundations of Anglo-American library cataloging

4.1 Key practices

Over time, the Anglo-American tradition of library cataloging has become characterized by certain key practices. One of the most influential of these is perhaps the unit of description. In resource description this is also referred to as catalog level or level of granularity and determines what conceptual level a record is intended to represent (Joudrey and Taylor 2018, 186). For example, a record could represent an entire run of a journal, or it could represent a single issue within the journal's run, or even a single article; this type of unit decision has also been referred to as choice of record segmentation (Willer and Plassard 2019, 457). Before descriptive elements can be decided upon and recorded, it is first necessary to agree upon what is being described. All models of resource description must operationalize bibliographic constructs in some way. For instance, cataloging in archives tends to take place at the collection level, yielding finding aids that represent an entire group of related materials. Though the Anglo-American library tradition has varied somewhat regarding units of description, it has tended to rely on a pragmatic approach to the matter. Bibliographic records in this tradition have typically represented resources at the title level (i.e., what all copies of a specific publication

have in common) and utilize what Joudrey et al. (2015, 5) refer to as macro-level indexing. Under this practice, records provide access to books but not individual book chapters, serial publications but not individual issues, and so on. The authors attribute this long-standing practice to practical matters such as work scaling and economic limitations; Hopkinson (1986, 99) ties this choice to the library's physical, borrowable units. More granular, analytic cataloging is instead provided by commercial indexers (Harman 2019, 431). Discourse around Anglo-American library cataloging has featured ongoing debate about units of description, with some authors arguing for work-level records rather than title-level (i.e., what all publications of a specific work have in common) (see Smiraglia 2019). Lubetzky (1969) was one of the most notable supporters of this approach, specifying work, book, and author as the three main entities that catalogs are responsible for answering questions about. Mid-twentieth century practice would see some support for work-level representations with the addition of uniform title entries in AACR. More recently, FRBR and LRM have reimagined how bibliographic constructs are operationalized, specifying a set of four entities (Work, Expression, Manifestation, Item) that represent different levels of abstraction in the characteristics of resources from the most abstract (Work) to the most concrete (Item). Some experimental catalogs have attempted to accommodate records for each of these entities (e.g., Bowen 2010). At the same time, RDA's emphasis on bibliographic data itself rather than specific data presentation or storage structures (Canadian Library Association et al. 2010, ch. 0, sec. 0.1) looks toward a future where varying types of records or data structures may be in use concurrently.

Closely related to units of description are the material types intended to be represented by bibliographic records. Typically, in the Anglo-American tradition, title-level bibliographic records have been created for many, but not all, types of resources that a library is responsible for. Earlier libraries were responsible for manuscripts and print monographs, though additional materials were featuring more largely in Anglophone libraries by the latter half of the twentieth century (Dunkin 1969, 19). With the 1967 publication of AACR, we see for the first time the inclusion of rules specifically covering non-book materials. Though such materials may have been previously represented and organized in discovery tools separate from the library catalog, this marked the beginning of a trend towards format integration and the establishment of descriptive standards capable of covering all types of materials. This trend would manifest even more significantly in AACR2, the text of which is organized around major material types that had come to commonly be found in libraries. It should be noted that even among this growing variety of material types, library collections were and are still heavily characterized by commercially published materials, as opposed to the unique materials being described in archives and museums. In the ensuing years, the implementation of electronic records and catalogs had further consequences for format integration in Anglo-American descriptive codes. Delsey (1989) pointed out that these technological advances have exerted "horizontal focus" (56) on cataloging rules, applying pressure for all library materials to be described similarly (i.e., like books) for the convenience of early electronic systems. This resulted in a murky distinction between content and carrier, something AACR2 struggled to address, particularly as electronic formats proliferated toward the end of the twentieth century (Bothmann 2004). Though the influence of FRBR would see RDA take a more deliberate approach to disentangling content from carriers, this standard has also been criticized for carrying on legacy approaches to non-book materials. Smiraglia (2009) referred to this as "bibliocentrism," a trend particularly prominent in Anglo-American description, resulting in practices that tend to apply book-biased descriptive features to all materials rather than treating different material types with equal consideration.

Regardless of material type, the creation of bibliographic records has traditionally relied on an item-in-hand approach: title-level metadata is collected and recorded based on characteristics of a specific exemplar held, physically or digitally, by the cataloger. The earliest approaches in the Anglo-American tradition saw a much stricter reliance on the physical object as the sole source of information. Early descriptive codes were inspired to some extent by the practice of bibliography, inheriting a tendency to rely only on the resource for descriptive information, something Cutter (1876) referred to as the "cult of the title-page" (16). A reliance on the title page privileged the views of the resource producer in descriptions, reflecting publisher perspectives and conventions while deemphasizing information from external sources. The preeminence of the title page would also contribute to the long-standing bibliocentric approach to understanding library resources (Smiraglia, 2009). With the 1908 *Anglo-American Catalog Rules*, Strout (1956, 274) noted a move away from this trend, with increasing allowance of information from beyond the title page. However, Osborn (1941) observed a return to title-page reliance in the 1941 *A.L.A Catalog Rules*, and 1967's AACR even featured "description of the perfect copy" among its guiding principles. This trend would reverse yet again in future years, however, and AACR2 and its successor RDA would both allow important descriptive elements to be provided beyond the title page and even by external sources, including those on the Internet (Joint Steering Committee for the Revision of AACR 2002; Canadian Library Association et al. 2010). This incorporation of a potentially wider variety of sources has worked to reduce the singularity of viewpoint in descriptive cataloging. Currently, the cataloging process en-

tails the examination of a resource or its surrogate as well as the collection of additional information about it from external sources. The cataloger uses data from these sources to form the basis of their description as guided by RDA, and, optionally, supplemental best practices documentation such as the *Library of Congress-Program for Cooperative Cataloging Policy Statements*.

Among the information recorded as part of descriptive cataloging in the Anglo-American tradition of practice are access points, also referred to as entries or headings. Historically, these were the places within a physical book or card catalog where a specific record was filed and could be accessed by a user; in an alphabetically organized system (see Korwin and Lund 2019), access points are strings of characters representing important names (i.e., authors or other creators), titles, or concepts associated with a resource. For instance, a manuscript may be filed under its title as well as the name of its author. Access points thus represent key terms under which a resource may be located and have been intricately tied to fundamental catalog objectives (Lubetzky 1960). Some earlier card catalogs in Anglophone libraries were divided, with title cards, author cards, and subject cards in separate files. Both Lubetzky (1969, 98) and Svenonius (2000, 69) point to Cutter as being responsible for reconciling early arguments around access points and filing in his prescription for a dictionary catalog, in which titles, authors, and subjects are interfiled together. This would become the predominant catalog form in many Anglo-American settings, particularly in the United States, until being displaced by early electronic systems (Joudrey 2017, 724). Since Cutter's time, titles, creator names, and subject terms have factored as the three major types of access points in this tradition, with descriptive codes covering the selection and formation of these access points (excepting subjects) for each resource. This trinity is even reflected in the three main groups of entities presented by FRBR (creative works, agents, subjects). Authority control, a separate but interrelated knowledge organization process, emerged as the set of work conducted to ensure access points were being formulated and used consistently within, and eventually among, institutional catalogs.

Though their function has changed in the context of electronic retrieval systems, access points remain relevant in contemporary bibliographic description (Hjørland and Kyllesbech Nielsen 2001). Modern online catalogs feature keyword searching of the entire bibliographic record, thus rendering any bibliographic information a potential point of access. Formal access points differ in that they are curated by information professionals, subjected to authority control, and populate specific search indexes for users; they are capable of providing access in instances where full-text searching may not (Hjørland and Kyllesbech Nielsen 2001, 283). Though catalog technology has changed, Anglo-American practices around access points still tend to reflect earlier, physical practicalities. Through most of its history, the Anglo-American tradition has assumed a card catalog environment, with the formation and number of access points assigned influenced by the physical realities and limitations of filing cards. Other cataloging traditions have featured less parsimonious selection of access points, particularly in modern electronic environments; for example, in archival cataloging it is common to include lengthy lists of access points in a finding aid (Society of American Archivists 2013, xxii).

Though subjects have served as vital access points in Anglo-American library catalogs, the process of subject determination and representation has typically fallen outside the scope of descriptive cataloging. Anglo-American cataloging practices and standards have focused on physical descriptions, carrier information, identifying traits, and key names and titles associated with the resource. In contrast to descriptive cataloging, subject cataloging is designed to place materials in conceptual context within a collection: subject terms and classifications collocate similar resources while also conveying information about their intellectual content. These distinctions are admittedly somewhat arbitrary, as both descriptive and subject elements can allow identification and contextualization, and full-text indexing has since further blurred these lines (Hjørland and Kyllesbech Nielsen 2001, 251). Distinguishing between the two was not always a hallmark of the Anglo-American tradition but rather developed over time. Early Anglo-American code designers recognized the value of subject access in the catalog, with Panizzi arguing for the importance of subject access in addition to author and title (Lubetzky 1969, 11). Panizzi's code included rules about form headings, precursors to genre and subject headings that laid the groundwork for future development of subject access in the catalog (Strout 1956, 269). Subsequently, Cutter (1876) furthered the argument for the inclusion of all three access point types in the catalog and supported their formation in his rules. These early codes did not draw a distinction between "descriptive" and "subject" cataloging, considering all metadata of interest to be under the same purview.

Cutter's code, however, would prove to be the last prominent Anglo-American code to contain instructions on subject selection and filing. Succeeding codes sponsored by ALA focused solely on descriptions and name and title access points, a trend that remains to this day in Anglo-American codes. Subject representation was still an important aspect of Anglo-American catalogs but began to develop as a separate area of work. The Library of Congress had developed separate rules regarding the assignment of subject headings to their widely used catalog records, and by the 1940s, descriptive cataloging and subject cataloging were considered completely separate departments, using their

own documentation and workflows (Henderson 1976, 236), a trend that became common in other larger libraries as well. More recently, during RDA's development, the influence of the FR family of models guided the inclusion of chapters concerning the subject-related Group 3 entities: Concepts, Objects, Events, and Places. Only the chapter concerning Places, which corresponded to earlier AACR2 rules on name access points, was completed, with the other chapters remaining provisional placeholders. As such, even in its newer post-3R version, RDA still does not contain comprehensive coverage of subject representation and access, and a separation between descriptive and subject cataloging has remained. In modern practice, library catalogers rely on RDA for descriptive elements and access points and turn to a variety of other standards and systems to supply subject headings and classifications to their bibliographic records.

Another separate but related process worth touching upon is encoding: the practice of compiling the bibliographic record into a standard format for use, communication, or exchange. Early "encoding" practices saw library workers writing or typing their bibliographic data onto cards, though currently, most encoding of Anglo-American bibliographic records is performed electronically in the MARC (Machine Readable Cataloging) format. Whether paper or electronic, uniformity in the presentation of bibliographic records provides more consistent user experience and facilitates sharing of metadata among institutions. Though by the start of the twentieth century shared Anglo-American descriptive codes were guiding the creation of more consistent bibliographic metadata, physical card catalogs were unique and specific to their particular libraries and could feature variations in the order and presentation of data. With the distribution of LC printed cards, American libraries saw more uniformity in how cards were formatted, and many began to follow LC formatting practices with their locally created cards as well (Delsey 1989, 51). Later on, ISBD would reflect a level of international consensus on the contents, arrangements, and formatting of bibliographic records, with the Anglo-American tradition incorporating these provisions in 1978's AACR2.

At the same time, Anglo-American libraries were seeing a shift from card catalogs to early electronic catalogs and, with this, a shift from paper "encoding" of records to electronic encoding. Emerging in the late 1960s, the MARC format would become the first and most prominent major electronic encoding for Anglo-American libraries. MARC provides a framework of fields and subfields into which bibliographic data is placed in order to facilitate the compilation and communication of bibliographic records, and though it has undergone continuing revisions over the years, it remains the de facto encoding standard in many contemporary libraries (McCallum 2010). In the late 1970s, UNESCO brought together experts to investigate the creation of an alternative bibliographic exchange format capable of accommodating libraries as well as abstractors and indexers (Hopkinson 1986, 99); the resulting Common Communication Format (CCF) drew from a number of encoding standards already in place, and while it offered new potentials for inter-institutional record sharing (Willer and Plassard 2019, 456), MARC remained the major encoding standard in Anglo-American libraries.

Since its conception, the MARC encoding format has undergone its own internationalization process. Clarke (2015, 289) noted that the early MARC format was designed to accommodate only the bibliographic data that was of use to the Library of Congress. Indeed, early studies informing the design of MARC were based on the cataloging being performed by LC catalogers, for materials in the LC collections (Avram et al. 1967). To accommodate the needs of other settings, different national formats of MARC developed over the years, including CAN/MARC and UKMARC. Toward the end of the twentieth century, attempts were made to unite these variations under CCF or the IFLA-backed UNIMARC, though ultimately the consolidation of USMARC and CAN/MARC into MARC 21 would provide a single internationally recognized MARC format; this was in part due to the influence of American software vendors (McCallum 2010, 3535). While this facilitated the sharing and reuse of bibliographic data among Anglophone libraries, MARC 21's success presented other problems. In the succeeding years, the development of MARC 21 was so strongly interrelated with the development of AACR2 that Tennant (2002) described the two formats as inextricably intertwined. This may help explain MARC's continued persistence as the encoding standard in Anglo-American settings, despite the presence of other, more modern means of encoding. The recent, LC-led initiative on the BIBFRAME format (Library of Congress 2024) hopes to provide a linked data-compatible means of encoding bibliographic metadata that could finally see Anglo-American libraries leaving the MARC format behind (Kim et al. 2021).

Finally, another key practice that has developed within the Anglo-American tradition is cooperative cataloging. Though, generally speaking, descriptive catalog codes have never prescribed cooperative practices, cataloging in this tradition has not occurred within a vacuum. Rather, it has been in the context of a community of Anglophone libraries focused on cataloging many of the same, commercially published materials. This stands in contrast to archives and museums, which have focused on unique materials and thus saw less impetus for collaborative cataloging. Early cooperative practices in libraries were more sharing than truly collaborating, though. In the United States, LC began its card distribution service in 1901, allowing libraries to obtain LC-

produced records for library books (Yee 2009, 69). There and in the United Kingdom, alternative commercial cataloging services such as H.W. Wilson also emerged (Henderson 1976, 257); services like these remain a significant part of the Anglo-American cataloging scene to this day. As Swanekamp (1998) described, while "cooperative" cataloging originally meant using another record provider's work, the introduction of electronic systems and the rise of bibliographic utilities and union catalogs, including those of the Online Computer Library Center (OCLC) and the Research Libraries Group (the database RLIN), enabled individual libraries to assume roles as contributing participants as well. It is quite common for contemporary libraries to find records, enhance records, or contribute original records through OCLC or other shared services. Though current cooperative practices exist outside the scope of formal descriptive standards, the economics of shared cataloging and related technological innovations have often been cited as driving forces in the development of modern Anglo-American standards and practice (Delsey 1989; Sanner 2012). Contemporary Anglo-American cataloging takes place within a large, connected network of libraries and other information institutions, realizing Jewett's (1853) earlier dreams of a more efficient, cooperative practice of description and moving libraries closer toward universal bibliographic control.

4.2 Theoretical foundations

While the theoretical assumptions behind knowledge organization systems are more explicit, those underlying knowledge organization processes are often difficult to discern (Hjørland 2008). This is indeed the case with the Anglo-American tradition of library cataloging, which, for much of its history, has been regarded as a purely pragmatically-derived body of practices (Dunkin 1969, 144). In attempting to bring sets of material resources into order, catalogers have been concerned with the practicalities of the bibliographic universe rather than achieving conceptual clarity; this work has thus advanced more in a reactive way than a theoretical one (Wajenberg 1989, 24), reflecting the changing conventions of Western publishers and the needs of physically evolving libraries. Even empirical findings on the tasks and needs of the catalog user have played a diminished, secondary role in comparison to practical considerations in the development of most Anglo-American codes (Hufford 1992). In an attempt to reveal the philosophy behind Anglo-American cataloging, Paul Dunkin's (1969) *Cataloging U.S.A*. offers up the work of Charles Cutter, assumed user needs, and historical custom as the three "theoretical" pillars of this area, though even Dunkin admits the largely responsive nature of this tradition's development (143). While this development may not have been guided by an overarching theory, attempts have been made to distill key theoretical constructs underlying Anglo-American library cataloging. These have commonly taken the form of principles (the objectives, rules, and directives behind catalog codes) and, more recently, conceptual models; closely tied to these are examinations of underlying values and epistemologies as well. Taken as a whole, these theoretical underpinnings have been revealed through key writings issued throughout the development of the Anglo-American tradition and given consideration here.

Early catalog code designers were often guided by their own theorizing or principles, even if these were not always clearly articulated. For example, in the creation of his ninety-one rules in 1841, Panizzi committed to specific design choices that were influenced by his own beliefs about the principles of cataloging, which included meeting the objectives of the catalog, normalizing name forms, identifying edition relationships, and achieving overall uniformity. While these principles were not articulated in the *Rules for the Compilation of the Catalogue*, Chan and Salaba (2015, 48) point to separate writings and correspondence of his as more explicit sources of confirmation. Interestingly, another early code designer, Klaus August Linderfelt, seemed aware of the questionable role of underlying theory in the emerging Anglo-American practice. Looking to Dziatzko's (1886) *Instruction für die Ordnung der Titel im Alphabetischen Zettelkatalog der Königlichen und Universitäts-Bibliothek zu Breslau*, a work encapsulating Prussian practices at the time, Linderfelt (1890) created his *Eclectic Card Catalog Rules* to serve a similar role for Anglo-American practice (v). He felt that a cataloging code could never come from pure theoretical reasoning and, instead, should reflect actual cataloging experiences and an awareness of author and publisher conventions. Linderfelt's resulting work thus represents a somewhat inductively compiled code, theoretical in its implications while also deliberate in its shying away from theory.

It is with the work of Charles Cutter that we see the first explicit statement of principles within a cataloging code. Cutter prefaced his 1876 *Rules for a Dictionary Catalogue* with a statement of the importance of the user's practical needs and framed the ensuing rules with a set of guiding objectives, the first such time that objectives had been presented in an Anglo-American catalog code. Referred to as "Objects," these objectives specify what users should reasonably be expected to do with catalog data (10):

1. To enable a person to find a book of which either
(A) the author
(B) the title
(C) the subject
is known.

2. To show what the library has
(D) by a given author
(E) on a given subject
(F) in a given kind of literature.

3. To assist in the choice of a book
(G) as to its edition (bibliographically)
(H) as to its character (literary or topical)

Cutter's objects serve as a frame of reference for the development of his code, guiding and justifying basic design choices laid out in a subsequent section, the "Means" (10):

1. Author-entry with the necessary references (for A and D)
2. Title-entry or title reference (for B)
3. Subject-entry, cross-references, and classed subject-table (for C and E)
4. Form-entry and language-entry (for F)
5. Giving edition and imprint, with notes when necessary (for G)
6. Notes (for H)

The means prescribe specific types of metadata meant to support the objects. Together, the objects and means represent Cutter's theorizing on the nature of catalogs, their intended use, and how this use may be achieved. They serve as an explicit set of principles behind the rules presented in his code. Cutter's objects, means, and focus on user convenience above all else (Heisey 1976, 228) not only formed the basis of the emerging dictionary catalog, but they are also cited as significant, ongoing contributions to cataloging theory (Svenonius 2000, 16).

Andrew Osborn's 1941 "The Crisis in Cataloging" was, for many reasons, a landmark work concerning the Anglo-American tradition. Among these reasons was an explicit interest in the theoretical underpinnings of the practice, a relative rarity in cataloging discourse at the time. Osborn viewed cataloging as a field in crisis, overcome by increasing amounts of costly work and an overwhelming number of rules. He found these problems epitomized in the 1941 *A.L.A. Catalog Rules*, the draft of which spurred the creation of his essay. Within his criticisms of the 1941 draft code, Osborn presented his Four Theories of Cataloging: legalistic (creating a rule for every individual case), perfectionistic (the assumption that a resource could be completely described in its initial cataloging), bibliographic (characterized by a preoccupation with the physical aspects of the resource), and pragmatic (cataloging through a smaller number of simpler, practical rules). Osborn decried the 1941 code as a legalistic work and urged a pragmatic approach instead as a means of bringing the field back into coherence and order (401). While seen as a classic statement of cataloging philosophy, Osborn's four theories are perhaps better viewed as a framework of cataloging approaches rather than formal theorizing. Though the four theories themselves have not persisted as lasting contributions, Osborn's work encapsulated frustrations in cataloging at the time, spurred change, and influenced future theoretical considerations of cataloging.

Osborn was not alone in his calls for further attention to the principles underlying cataloging. The re-emerging, principle-based approach of the mid-twentieth century would find an even greater champion in librarian Seymour Lubetzky. Rather than building on Osborn's theoretical framework, Lubetzky instead looked back to the writings of Cutter. As Lubetzky (1969, 6) saw it, early arguments about the catalog were resolved through Cutter's recognition that different elements and arrangements served different objectives; choices about cataloging should thus be based on an agreed-upon set of objectives. He championed a return to Cutter's use of explicit objectives as guiding principles in catalog code development, and it is within his 1953 *Cataloging Rules and Principles* that we find the first major articulation of catalog objectives since Cutter. Focusing here specifically on author and title entry practices, Lubetzky provided two major objectives (36):

1. To enable the user of the catalog to determine readily whether or not the library has the books he wants
2. To reveal to the user of the catalog, under one form of the author's name, what works the library has by a given author and what editions or translations of a given work.

Sometimes referred to as the "locate and collocate" tasks (Wilson 1989, 6), these two objectives were meant to establish the foundation for a set of clear cataloging principles and, ultimately, an improved cataloging code. Indeed, Lubetzky's influence can be seen in 1967's AACR, which opens its second section on description with a brief statement of principles, as follows (American Library Association et al 1967, 189):

1. Objectives of descriptive cataloging
2. Description of a perfect copy
3. Extent of description
4. Terms of description
5. Organization of the description
6. Documentation
7. Style

The first of these descriptive principles are a pair of catalog objectives owing much to Lubetzky:

> 1. To state the significant features of an item with the purpose of distinguishing it from other items and describing its scope, contents, and bibliographic relation to other items
> 2. To present these data in an entry which can be integrated with the entries for other items in the catalog and which will respond best to the interests of most users of the catalog.

Though the perspective seems to have shifted from that of the user to that of the catalog itself, the core locate and collocate tasks can still be recognized and serve to guide the formation and interpretation of the rules that follow. The presence of these objectives shows the influence that mid-century theorizing had begun to have on the development of Anglo-American library cataloging. Still, it should be noted that even Lubetzky (1960) recognized that, in practice, pure principles must be balanced with user needs and pragmatic considerations.

Lubetzky's theorizing would go on to exert influence on the development of cataloging not just in the Anglo-American tradition but on a global scale as well. IFLA's 1961 Paris Principles took clear inspiration from Cutter and Lubetzky and sought to enumerate guiding principles behind practices related to choice and form of name and title access points (Verona et al. 1971, vii). The initial document included twelve key principles, the majority of which functioned as general rule groups concerning headings and entry. The second principle, however, takes the form of an articulation of the intended functions of the catalog, given as the following (xiii):

> The catalogue should be an efficient instrument for ascertaining:
> 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
> (a) which works by a particular author and
> (b) which editions of a particular work are in the library.

This is followed by the third principle, a statement on the structure of the catalog, comparable to Cutter's means, but again focused solely on headings and entry. The Paris Principles inspired the creation of a number of subsequent catalog codes, including the Anglo-American code AACR. The text of this code openly stated its intent to offer a principle-based approach to cataloging and thus a shorter, simpler set of rules as a result (American Library Association et al. 1967, 5). Within the first major section, covering choice and form of access points, the underlying principles can be taken to be the Paris Principles, though they themselves are not fully articulated. Though AACR's successor, AACR2, bears no explicit statement of principles, many of its specific rules are derived directly from AACR, leaving one to assume it had silently inherited the principles of its predecessor.

More recently, attempts have been made to reveal a more cohesive, underlying theory to cataloging. Perhaps the most modern, coherent statement of such theory can be found in Elaine Svenonius's 2000 work, *The Intellectual Foundation of Information Organization*. While Svenonius is here concerned with theoretical issues related to the broader domain of knowledge organization, a large part of the work is devoted to aspects of bibliographic description and access, with the Anglo-American tradition serving as a main reference point. Svenonius introduces the concept of "bibliographic languages," standardized knowledge organizing practices that serve as a bridge between the language of information resources and the language of the user. Various bibliographic languages exist, and in the Anglo-American tradition, descriptive cataloging is a kind of language governed by bibliographic codes such as AACR2. Subject cataloging has traditionally been governed by separate languages (e.g., Library of Congress Subject Headings). Svenonius's language metaphor carries further conceptual weight in that human languages are systems that develop and standardize out of immediate, pragmatic needs, rather than a priori theory. The same can be said of many knowledge organization processes (Hjørland 2008, 87), especially the Anglo-American cataloging tradition. Recognizing the importance of principles as theoretical constructs in bibliographic description, Svenonius also took the opportunity to propose the principles that she felt have been (and should be) influential to bibliographic control. In doing so, she drew inspiration from the works of Ranganathan and Leibniz, and would appear to also have been influenced by AACR's principles of description. Her principles are as follows (Svenonius 2000, 68):

1. User convenience
2. Common usage
3. Representation
4. Accuracy
5. Sufficiency and necessity
6. Significance
7. Standardization
8. Integration

In 2009, when IFLA set out to produce an updated version of the Paris Principles, meetings were held to draft a modern set of principles focused on user needs and defensible choices (Chan and Salaba 2015). The resulting *Statement of International Cataloging Principles* (ICP) is a complete reiteration of Svenonius's principles with the addition of a ninth, the principle of economy (Tillett and Cristán 2009). These principles would go on to influence the most recent Anglo-American code, RDA, which contains an explicit statement of cataloging principles reflecting ICP, and thus Svenonius, and suggests a deepening connection between practice and theory in the Anglo-American tradition.

At the same time, this enshrining of key principles over the years may begin to suggest the presence of a deeper value structure within the Anglo-American tradition. Systems of values are often attributed to individuals and groups but may also be embedded in their artifacts. Though, in general, standards such as descriptive codes tend to be considered as neutral, technical infrastructure, information standards have been shown to embody distinct perspectives (Bowker and Star 2000), particularly those concerned with knowledge organization (Olson 2001). In establishing an ideal reality and a standard of correctness (Busch 2000), standards carry functional value commitments. Though scholarship on values in library and information science has noted the importance of human values to the field (e.g., values concerning human well-being and empowerment) (Bates 1999; Gorman 2003; Koehler 2015), cursory exploration of the values associated with the Anglo-American cataloging tradition has revealed other commitments. In her historical review, Strout (1956, 267) noted that, from their early origins, modern descriptive codes have valued brevity, simplicity, and practicality. Lubetzky's (1969) work highlighted the continuing presence of values of expeditiousness, uniformity, and cooperation, findings later echoed by both Henderson (1976) and Hoffman (2009). In a formal value analysis of RDA, Dobreski (2019) found access as well as the principles of the ICP (Tillett and Cristán 2009) to be highly valued throughout the text; in contrast, values such as diversity, privacy, and self-determination were largely absent. Through principles and practice, the Anglo-American tradition would seem to be guided by values associated with the practicalities of knowledge organization, with less valuation of the human values typically attributed to the library and information science domain. More broadly, the interplay between principles, values, and practice offer one way of understanding the deeper social implications of the Anglo-American cataloging tradition, as well as a means of comparison with other practices and traditions of knowledge organization.

Beyond valued principles, the other significant yield of theoretical explorations of cataloging practice has been a succession of conceptual models designed to delineate bibliographic description as a domain of knowledge and depict the key entities and relationships within this domain. Modern conceptual models have a precursor in ISBD, a framework intended to bring international descriptive practices more closely together. This was achieved in part through the ISBD "areas," prescribed groups of descriptive elements occurring in a set order within bibliographic records. In this way, ISBD offered a shallow model of publications and what could be known about them. A more comprehensive model would be ventured in 1998 as part of IFLA's FRBR document. FRBR is a key theoretical document in the Anglo-American tradition for two major reasons. First, FRBR put forth a set of user tasks (Find, Identify, Select, Obtain, and later Explore) that serve as a condensed, modern set of catalog objectives. Second is the presentation of the aforementioned conceptual model. FRBR offers a view of the bibliographic domain arranged into three groups of entities: Group 1 (Work, Expression, Manifestation, Item) encompassing resources that are intellectual and creative products, Group 2 (Person, Family, Corporate Body) representing the agents responsible for those resources, and Group 3 (Concept, Object, Event, Place) being the subjects associated with those products. FRBR would be followed by FRAD, which expounded upon Group 2, and FRSAD, which provided an alternate conception of subject data.

The so-called FR family of documents would spark much conversation within the cataloging community, and their influence was ultimately felt in the structure and contents of the bibliographic code RDA. Recognizing some of the inconsistencies among the three FR models, IFLA pursued further work attempting to bring them into better alignment. This has resulted in the creation of LRM, which offers one comprehensive model of the bibliographic domain from the perspective of the user (Riva and Žumer 2015). LRM's model structures the entities using super- and subclasses and ascribes to them specific attributes and relationships, thus holding more concrete ramifications for data and data structures than its predecessors. Accommodating this altered entity-relationship model has been one of the main motivating factors in RDA's recent 3R revision. While the recent push toward establishing entity-relationship models also offers opportunities for bibliographic data to join the ontology-focused realm of the Semantic Web, an area of growing interest for the cultural heritage community (Marden et al. 2013), these models offer one perspective on cataloging that may not be shared or even well received by all in the community. Alternative theories of bibliographic entities have been advanced, for instance, Smiraglia's (2005) work on instantiation. Current Anglo-American practice, however, remains closely tied to the IFLA-backed conceptual models.

Within the Anglo-American tradition, the development and implementation of principles and models also offer

acute insight into more deeply rooted epistemological paradigms in play. Though the role of epistemologies within library and information science has been more fully explored elsewhere (for example, Dick 1999, Hjørland 2005, Smiraglia 2014), several epistemological commitments within Anglo-American library cataloging in particular are worth noting here. By and large, the development of the IFLA-backed models FRBR and LRM has occurred independently of user studies or other empirical evidence (Hoffman 2009; Coyle, 2015), relying instead on the rationalistic assumptions of experts (Le Boeuf 2005). This is reflective of the long-standing current of rationalism as an epistemological basis within the Anglo-American tradition. Indeed, whereas other knowledge organization tools may be more epistemologically rooted in empiricism, Smiraglia (2014) identified catalogs and their development as being particularly driven by rationalism (54). The strong link to rationalism within the Anglo-American tradition has been noted by Gorman (2015), who cited its cataloging practices as the epitome of rationalism within librarianship (137). Beyond rationalism, another epistemology may be seen as underpinning the modern Anglo-American approach to cataloging: pragmatism, in its various forms, has been noted for its significance in many areas of knowledge organization (Dousa 2010), and Anglo-American cataloging is no exception. Within this domain, knowledge solutions have been fostered and evaluated in reference to concrete practices, for example, the ordering of a physical collections or the need to answer specific user questions (Dunkin 1969, 144). Hufford (1992) reviewed prominent descriptive codes from the Anglo-American tradition, finding both their development and focus to be most strongly driven by pragmatism. While rationalism and pragmatism continue to play important epistemological roles in Anglo-American library cataloging, other epistemological perspectives, such as empiricism, serve relatively diminished roles, a situation Smiraglia (2014, 73) found lamentable.

If knowledge organization acts are, in sense, about bringing like things together and telling them apart (Svenonius 2000, 11), it must be acknowledged that there are any number of dimensions along which resources could be compared and distinguished. Different knowledge organizing communities must determine which of these dimensions are most relevant to their needs and the needs of their users; such determinations are ultimately influenced by the fundamental values and epistemologies of these communities. In the Anglo-American library cataloging community, descriptive standards have prescribed the elements of metadata along which resources are to be described, distinguished, and organized. These are, ostensibly, derived from the needs of library users, though, as shown, much of the establishment of the Anglo-American canon of descriptive elements has come about through the rational reconstruction of user needs by successive generations of bibliographic scholars. Intertwined with these rationalizations has been the underlying drive toward pragmatism. These elements and their operationalizations are maintained in part due to the practical need for compatibility with legacy data, as well as the economic and labor costs of massive ruptures with past practice. The Anglo-American tradition is thus characterized by an inheritance of metadata elements from previous catalogs, tied to earlier models of practice and earlier bibliocentric models of description. The incorporation of a broader array of epistemological perspectives into Anglo-American library cataloging may offer new insights into user needs and suggest changes to metadata elements and structures, offering some liberation from legacy practices and notions while better upholding important community values. Further exploration of the role and potential of epistemologies within the Anglo-American tradition, as well as other in cataloging traditions, is warranted.

Overall, we can see that the Anglo-American tradition of library cataloging has been characterized by a search for and adherence to principles, with a more recent focus on establishing underlying conceptual models. Though principles were recognized and valued by code designers and catalogers since the time of Cutter, in their earliest manifestations they were operationalized into purely functional terms or were otherwise closer in definition to catalog objectives. Over time, these principles have developed into more theoretical constructs and serve as heuristics for the design of bibliographic standards and data, carrying specific value and epistemological commitments. Together, these principles, models, values, and epistemologies form the basis of this tradition's theoretical foundation. Among valued principles, the convenience of the user is perhaps the most often and loudly repeated, and is also one of the most visible examples of the continuing conflict between theory and practice in Anglo-American library cataloging. Code development has infrequently taken empiricist approaches to user needs and behaviors, and catalogers themselves often do not know their users (Hoffman 2009, 635). Even the most recent, comprehensive models of the bibliographic domain have been criticized for their omission of empirical considerations of users and other matters (Le Boeuf 2005; Smiraglia 2015). While serving the needs of the user is aspired to, it is complex and impractical compared to more rationalistic or legacy approaches to description, exemplifying the larger conflict here between theory and practice, and between principles and practicalities. Such conflicts and the overriding importance of pragmatism have perhaps, thus far, prevented the emergence of a true theory of descriptive cataloging in the Anglo-American tradition.

5.0 Emerging developments

Far from a static practice, modern Anglo-American library cataloging has shifted and evolved for almost two centuries now and shows all signs of continuing to do so. The current de facto descriptive standard used in Anglo-American settings, RDA, is a dynamic document that has seen ongoing changes since its initial 2010 publication, and, with the culmination of the 3R Project, has now undergone its first significant overhaul in both content and structure (Oliver 2021). While the underlying conceptual changes in post-3R RDA introduce new entities and relationships, yielding more ontologically inspired bibliographic data, the changes in format and presentation promise alterations to the cataloging process itself. Previous descriptive codes used in the Anglo-American tradition have been presented as linear documents; the post-3R RDA moves further away from this design toward one that is "more intrinsically of the web" (RDA Steering Committee 2016, sec. 1, par. 5), which will no doubt impact how catalogers approach, navigate, and reference this standard. Changes in element names, labelling, and the removal of instruction numbers also signify a fundamental shift in how catalogers are expected to interact with post-3R RDA (Oliver 2021). The combination of these conceptual and format changes are expected to yield an overall less prescriptive code, leaving more decisions to specific communities of practice, with the expectation that best practices guides and application profiles will help fill this void. Secondary documents have long played an important role in Anglo-American cataloging, with the *Library of Congress Rule Interpretations* and, more recently, the *Library of Congress-Program for Cooperative Cataloging Policy Statements* helping libraries in interpreting and applying descriptive standards. Though such resources can serve to further limit any variation in the data resulting from catalog code and enforce a single interpretation among catalogers (Delsey 1989, 54), they also have the capability of better balancing principles with specific community and user needs (Henderson 1976, 256). What impact a greater reliance on secondary documents may have on catalogers, cataloging, and bibliographic data in Anglo-American libraries is not yet certain but represents a significant impending change. Supporting documentation for post-3R RDA is expected to become more readily available in the years leading up to the Program for Cooperative Cataloging's full adoption of this new version of the standard in 2027 (Program for Cooperative Cataloging 2024).

Another shifting aspect of practice concerns the growing internationalization of descriptive cataloging, a trend that has been in progress for many decades but has seen unprecedented development with the release and expanding global adoption of RDA. The current descriptive standard sees the Anglo-American tradition of cataloging converging with a movement toward internationality that may result in a new, global tradition. As a descriptive standard, RDA is at once both a break with the Anglo-American tradition while also inextricably tied to it. RDA's international intentions are well documented, and internationalization is explicitly listed as a guiding concept in the text of this standard (Canadian Library Association et al. 2010, ch. 0, sec. 0.11). The fact remains, however, that RDA is built on the foundations of the lineage of Anglo-American standards, a fact that the text of this standard is also quite open about (Canadian Library Association et al. 2010, ch. 0, sec. 0.3.1). As such, RDA has been criticized for forcing Western perspectives onto other traditions of cataloging practice. For example, Biella and Lerner (2011) detailed problems associated with using RDA for Hebrew collections and felt that the standard needed input from many communities in order to become truly international. In an analysis of Chinese language authority records, Kimura (2015) found cultural mismatches between RDA and Chinese cataloging practices and suggested ongoing modifications to make the standard more applicable. In interviews with RDA users from several countries, Dobreski (2019) found that catalogers working with non-English collections were concerned about persisting English and Western perspectives in this standard. While prior international agreements on cataloging have typically favored Anglo-American practice over other traditions such as the German (Dunkin 1969, 17), RDA holds far greater potential for international uniformity in cataloging than any prior models or standards. By 2022, RDA had been fully translated into eight other languages, with eight partial translations underway as well (RDA Steering Committee 2022). As its international implementation base continues to expand, so too does the potential for cultural conflicts concerning this standard. Though plans exist for the continued internationalization of RDA, including increasing global governance (Hennelly 2016), it remains to be seen how well this standard will balance its legacy ties with the Anglo-American tradition with the diverse needs of a growing global user base.

As described by Schmierer (1989), technology has been affecting the development of cataloging standards and practice for the entirety of the modern Anglo-American tradition, and this influence will likely continue to grow in the future. One of the most significant, emerging technological developments associated with resource description practices has been the linked data movement. Within Anglo-American cataloging, its influence can be seen in approaches to both conceptual modeling and encoding. Linked data and the associated Semantic Web are largely powered by ontologies, highly expressive knowledge organization systems offering explicit representations of the entities and relationships relevant to a particular domain of knowledge (Gruber 1995). While FRBR offered an entity-relationship model of

the bibliographic domain, its successor, LRM, moves closer toward an ontology, featuring a greater emphasis on classes, attributes, and relationships, and was designed with Semantic Web technologies in mind (Riva, LeBoeuf, and Žumer 2017, 40). These changes in conceptual modeling set the stage for the creation of bibliographic data more compatible with linked data approaches (Žumer 2018, sec. 8, para. 2) and are reflected in the structure and content of post-3R RDA (RDA Steering Committee 2016).

While linked data dissemination promises new exposure and usage of catalog data, as well as greater opportunities to catch up with contemporary electronic retrieval environments, concerns persist about the potentials for Anglo-American bibliographic models to exist alongside alternative conceptions in the Semantic Web (Shirky 2005). As a community sharing a common knowledge along with ontological and epistemological commitments, the Anglo-American tradition and its practitioners can themselves be thought of as a domain (see Hjørland 2017b), with other, alternative domains focused around similar areas of knowledge. These other domains can produce models featuring distinct ontological assumptions; for example, the FaBiO ontology models publications from the indexer and publisher perspective, rather than a library perspective (Peroni and Shotton, 2012). The rise of widespread data sharing and increased multidisciplinary work has long highlighted the challenge of designing knowledge organization systems and models capable of responding to different knowledge communities (Beghtol 1998). As a domain itself, the Anglo-American cataloging community has been interested in a specific set of perspectives and practices that have been materially, functionally, and culturally bound, raising further questions around whether standards such as RDA can truly extend beyond the scope of the Western, English bibliographic domain and hold meaning for other communities. Conversely, Dunsire et al. (2012) highlight the potential for Semantic Web-based approaches to erode the longstanding monolithic view of bibliographic control, thereby empowering different communities to collaborate around bibliographic data while maintaining their perspectives. The general turn toward ontological approaches may also offer a means of improving other tensions that currently exist in the Anglo-American tradition as well, specifically the long-standing trend of bibliocentrism. Comparing RDA with an object-oriented implementation of FRBR, Smiraglia (2015) found the latter to be more conducive to capturing the nuanced structural relationships among intellectual content and various carriers. Further pursuit of ontological approaches may lead to a resolution of the book versus non-book conflict that has characterized this tradition throughout its history.

Regarding encoding, linked data technologies promise an updated, alternative to the long-used MARC encoding standard, which has been tightly linked with the Anglo-American tradition since the 1960s. Unlike MARC encoding, linked data encoding practices are guided by the Resource Description Framework (RDF) model of data interchange and focus on metadata at the statement rather than record level, allowing individual elements of metadata to be repurposed as well as the creation of composite records made up of metadata from different sources (Dunsire et al. 2012; "RDF Primer 1.1" 2014). As Anglo-American libraries turn their attention toward linked data standards such as BIBFRAME (Kroeger 2013; McCallum 2016; Kim et al. 2021), the potential exists for their bibliographic metadata to take on new forms, leaving the confines of traditional records, and perhaps even catalogs, behind. New data encoding and dissemination technologies may provide some liberation from adherence to legacy practices and open new means of conceptualizing and generating bibliographic data. This raises new questions about the desired objectives and uses of Anglo-American bibliographic data in a Semantic Web environment that will need to be explored in the coming years.

6.0 Conclusion

Anglo-American library cataloging is a tradition of resource description focused on the creation of records to be compiled into catalogs for Anglophone libraries. Over the course of almost two centuries, modern Anglo-American cataloging practices have formed an identifiable lineage, often traced back to the work of Anthony Panizzi. It is through the work of Charles Cutter, however, that the emerging Anglo-American tradition found its most recognized basis. His focus on users, objects, and means influenced the form of Anglo-American catalogs and informed the data needed to compose them; his approach forms the basis of cataloging objectives and principles which continue to guide cataloging work to this day. Spurred on by the subsequent progression of standardized cataloging codes, Anglo-American library cataloging has emerged as a coherent tradition of practice, focused primarily on the descriptive cataloging of borrowable units and characterized by key concepts, practices, and theoretical underpinnings. Through its development, this area of practice has been constantly influenced by technological advances, from the mass production of shared catalog cards to the advent of electronic catalogs, though many legacy traces of earlier analog environments remain. Most recently, Anglo-American cataloging has been reshaped by new conceptual models of the bibliographic domain–FRBR and its successor, LRM–that promise to bring catalog data more in line with the emergent environment of the Semantic Web. The current, de facto standard used by Anglophone libraries, RDA, draws inspiration from these models and offers a modern view of the bibliographic universe marked by conceptual entities and rich relationships.

At the same time, RDA also marks a significant achievement in the progress toward establishing a global cataloging practice and, with it, a further means toward universal bibliographic control. The Anglo-American tradition has a long history of internationalization, starting first with shared efforts between the United States and the United Kingdom at the start of the twentieth century and progressing to encompass more English-speaking countries around the world such as Canada, Australia, and New Zealand. RDA represents the first descriptive standard to be aimed at a truly global audience, with multiple translations and ongoing implementations in a number of non-Anglophone countries. This shift sees the lineage of Anglo-American practices converging with those of other cultural settings. To truly achieve internationalization, RDA will need to continue to negotiate the cataloging concepts and practices of various cultural traditions. Even given this, however, it is unlikely that the Anglo-American library cataloging tradition would be completely subsumed within a new global tradition. Rather, it will foreseeably persist in the form of application profiles and community best practices documents aimed at accommodating existing bibliographic data while continuing to meet the needs of Anglo-American libraries and their users.

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