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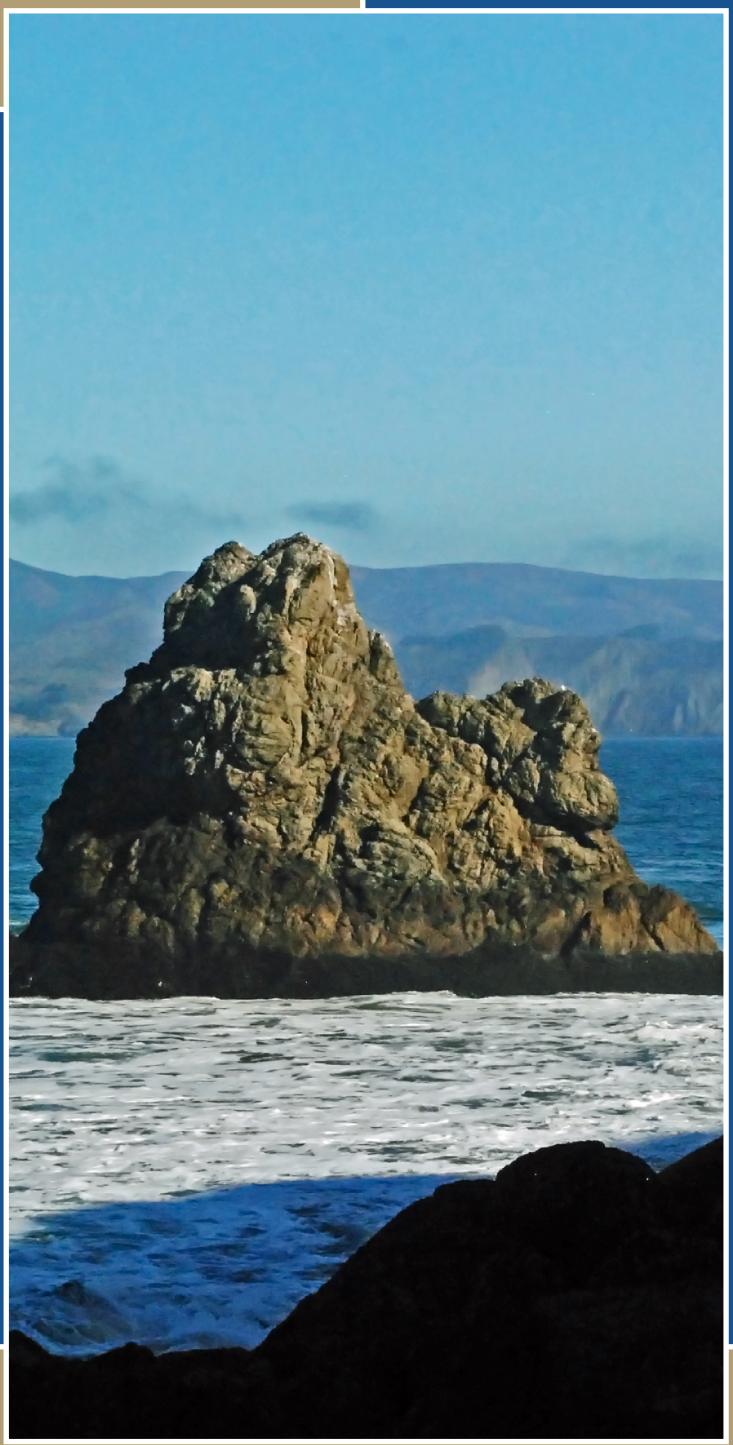

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Cover image: "Off Land's End," John Brennan, 2015.

Editorial

Mary Beth Weber

Newness has been a predominant theme in my life and work. My library implemented a new LSP last month (it was just a little over a month today), and *LRTS* migrated from the Aries Editorial Manager to an OJS platform at about the same time. I am still becoming familiar with both.

My role as *LRTS* editor can be challenging yet educational, rewarding, and very gratifying. In this role, I work with a variety of people and have the benefit of gaining knowledge and insight from their research papers. Learning about new acquisition methods or developments with Resource Description and Access (RDA) or continuing education are inspiring and help with my professional and personal growth. Papers published in *LRTS* make their way into the journal in many different ways. I might reach out to someone who has posted an interesting message to a listserv, follow up with a person who has given a presentation, or be contacted by a prospective author to discuss an idea or gauge my interest in a topic. Working with authors on the submission process, revision, and, hopefully, publication of their papers helps forge professional relationships. In a few cases, authors who have published papers in *LRTS* have later been appointed to the editorial board.

The papers in this issue of *LRTS* cover very different topics, including cataloging, career competencies, FRBR, and mobile applications:

- In "RDA and Rare Books Cataloging," Mary Burns discusses the challenges for catalogers using the Descriptive Cataloging of Rare Materials: Books, or DCRM(B) when RDA was implemented. Policy statements for rare books cataloging are currently in development with plans for them to eventually be incorporated into the RDA Toolkit. Burns discusses the current options for rare books catalogers, and her paper provides a rich history of the development of standards for contemporary rare book catalogers. Readers are guided through the creation process of three bibliographic records for the same rare book according to DCRM(B), the PCC-RDA-BSR with rare materials provisions, and RDA with exceptions for early printed resources. Burns's paper includes a wealth of information and supplementary materials, including illustrations taken from the rare book *Stirpium adversaria nova.* In keeping with the theme of "newness" cited in the first paragraph of my editorial, I will do something new with the publication of this paper. Due to its length and the complexity of the topic, it will be published in two parts. Part one will be published in this issue of *LRTS*, and the second part will be in *LRTS* volume 63, number 1 (January 2019).
- Edward O'Neill and Maja Žumer discuss textual documents within the context of the Functional Requirement for Bibliographic Records (FRBR) in their paper "FRBR: Application of the Model to Textual Documents." They analyze the FRBR model within the context of textual documents, with an emphasis on digital documents to better understand group 1 entities.
- Bruce J. Evans, Karen Snow, Elizabeth Shoemaker, Maurine McCourry, Allison Yanos, Jennifer A. Liss, and Susan Rathbun-Grubb collaborated to

develop the document "Core Competencies for Cataloging and Metadata Professional Librarians." They very well may have the largest group of collaborators for a *LRTS* paper. Their paper outlines the work of a task force on which they served that was charged by the Association for Library Collections and Technical Services Cataloging and Metadata Management Section (ALCTS CaMMS) Competencies for a Career in Cataloging Interest Group to develop a competencies document for catalogers. Their paper "Competencies through Community Engagement: Developing the Core Competencies for Cataloging and Metadata Professional Librarians" details the process taken to produce this document, plus provides recommendations for groups undertaking similar tasks.

- Again, following on the theme of "newness," Jamie Saragossi, Laura Costello, and Kathleen Kasten explore the challenges and opportunities presented by mobile applications in academic libraries. Their paper "Mobile Applications in Academic Libraries" discusses selection, acquisitions, access, instruction, outreach, and evaluation related to mobile applications as these practices have been applied to traditional library resources.
- And lastly, book reviews are provided by *LRTS* Book Review Editor, Elyssa M. Gould, a regular feature of the journal. This is an opportunity to read about new books as reviewed by experts in the profession.

Association for Library Collections and Technical Services Annual Report, 2017–18

Mary Beth Thomson, ALCTS President, 2017–18

The Association for Library Collections and Technical Services (ALCTS), a division of the American Library Association (ALA), continues to provide opportunities for members to share their passion, interest, and expertise; to network; to learn and teach; to experiment with new technologies; to create new procedures, policies, and standards; and to research, publish, and create new scholarship. ALCTS members are the leaders and experts in acquisitions, cataloging and metadata, collection management, electronic and continuing resources, and preservation within the library community. This annual report includes a summary of the association's activities for the 2017–2018 year.

Sustainability of the Independent Midsize Functional Divisions

In January 2018 the executive directors, presidents, and president-elects of ALCTS, the Library Information Technology Association (LITA), and the Library Leadership and Management Association (LLAMA) produced the document "Working Document Exploration of Integration and Realignment Opportunities for ALCTS, LITA, and LLAMA." As a group, we discussed the sustainability of the midsize functional divisions and whether there is a model for increased collaboration between our divisions or a possible structural realignment. Each division submitted the document to their respective boards for discussion and consideration during Midwinter 2018. The ALCTS Board also discussed revising the division's current strategic plan, the impact of lower Midwinter attendance on division activities and events, the impact of changes to ALA's program planning process, current and projected budgets, and the division's overall organizational effectiveness.

After the 2018 Midwinter Meeting, the ALCTS, LITA, and LLAMA groups continued to explore a possible structural realignment through a series of online meetings. To support ongoing discussions and to inform division members, the realignment group established a new ALA Connect site for posting documentation concerning the divisions and the realignment process. The three divisions established a joint Budget and Finances Working Group and a joint Communications Working Group. The Budget and Finances Working Group was charged with performing a preliminary budget analysis of the divisions by early June. The Communications Working Group was charged with developing a plan for communicating

with members concerning the potential realignment and creation of a new division. In late April, a survey was distributed to gather information from members and nonmembers concerning their current positions, work environments, educational needs, and professional aspirations.

ALCTS, LITA, and LLAMA will continue these discussions with their respective boards and are planning a joint board meeting during the 2018 ALA Annual Conference in New Orleans.

Finances

ALCTS ended FY17 ahead of budget projections and is on track to end FY18 with a positive net revenue. A second year of positive revenue will allow us to restore funds to our budget reserve. From FY12 through FY16, ALCTS experienced net losses requiring the use of budget reserve funds. ALCTS Executive Director Keri Cascio and the division's Budget and Finance Committee continuously review and analyze revenues and expenditures. This year the decision was made to begin using the OJS editorial manager, which will reduce the overall expenses of producing the *Library Resources and Technical Services* (LRTS) journal. The decision was also made to eliminate the in-person Midwinter symposium and the 2019 virtual symposium. This change will have a minimum impact on the division's revenue in FY19. A dues increase, strong continuing education registrations, a reduced rate of decrease in memberships, and controlled expenditures have all contributed to this year's positive net revenue.

ALCTS members have generously given $32,910 to support the work of the association. Due to member gifts, we were able to provide registration grants to two library school students and four library support staff to attend the 2018 Midwinter Symposium. Member donations also made it possible for us to offer free attendance to the 2018 Midwinter Symposium and to the division's virtual preconference for all current Spectrum Scholars.

Corporate sponsorships continue to be important to ALCTS. Sponsorships remain a vital component in our ability to continue providing our members with quality professional development opportunities and the resources necessary to continue with other valuable events including Preservation Week.

Continuing Education and Professional Development

As a result of the ongoing dedication and tireless efforts of its members and staff, ALCTS continued to provide high-quality continuing education and professional development opportunities throughout the year. Highlights of this year's continuing education offerings include seven Fundamentals Web Courses—each one offered multiple times during the year—approximately twenty-nine webinars, and monthly e-Forums.

The Fundamentals Web Courses continue to provide those new to technical services and collections with an opportunity to learn the basics from library leaders and experts. Most of the web course offerings sold out weeks in advance. Beginning in March 2018, a six-part webinar series titled "From MARC to BIBFRAME: Linked Data on the Ground" was offered. The first webinar in the series, "Library of Congress BIBFRAME Pilot: Phase Two," was offered free of charge and had 1,036 registrations. Other webinar offerings covered a variety of topics including PyMarc, patron privacy, shared print collections, and preservation. ALCTS e-Forums continue to be popular, with over 4,867 subscribers. Topics covered include cataloging and metadata education, adapting cataloging in a batch processing environment, journal collection development, and cataloging and ethics.

As we moved forward with planning a number of the association's professional development events, the theme of accessibility of information emerged. The ALCTS 2018 Midwinter Symposium, "Empowering Access and Ensuring Accessibility: Connecting People to Information and Collections," was conceived and expertly organized under Helen Reed's leadership. Attendees heard from a variety of speakers and discussed how libraries and cultural institutions can strive to provide all populations with access to materials. This year's ALCTS Forum, "The Case for Making Video Content Accessible," addressed how libraries can overcome challenges and ensure streaming media content delivery is in compliance with accessibility standards. Prior to the 2018 ALA Annual Conference, a two-day virtual preconference titled "The Road to Electronic Information Accessibility: How Do We Increase Student Success?" was held. Preconference attendees heard from speakers who focused on how libraries can prepare and help meet the accessibility needs of students and address accessibility compliance issues.

President's Program in New Orleans

One of the highlights of the year was having Michael W. Twitty, author of *The Cooking Gene* (HarperCollins 2017), as our featured speaker at the President's Program in New Orleans. Twitty is the creator of Afroculinaria (https://afroculinaria.com), a food blog devoted to African American historic foodways and their legacies, and winner of this year's James Beard Foundation Media Award for writing and for book of the year. Twitty describes his talk "Dining

from a Haunted Plate" as focusing "on his search through the lens of extensive research at libraries and archives and plantations across the South and how he translated that journey into food through museum education and historic interpretation. In tracing his family roots through food from enslavement to emancipation, from West and Central Africa to the Old South, his work invites all Southerners of all backgrounds to a complicated, uncomfortable groaning table rich in heritage and tradition in which new conversations and connections emerge."

Publications

ALCTS continues to offer multiple avenues for the sharing of research through its publishing efforts. ALCTS publishes the highly regarded peer-reviewed journal *LRTS*, as well as monographs on collections and technical services topics. Four new publications were released this year, with several more in preparation to be published in 2018–2019.

- *Affordable Course Materials: Electronic Textbooks and Open Educational Resources*, edited by Chris Diaz (2017)
- *Coding with XML for Efficiencies in Cataloging and Metadata: Practical Applications of XSD, XSLT, and XQuery* by Timothy W. Cole, Myung-Ja (MJ) K. Han, and Christine Schwartz (2018)
- *Reengineering the Library: Issues in Electronic Resources Management*, edited by George Stachokas (2018)
- *Textbooks in Academic Libraries: Selection, Circulation, and Assessment*, edited by Chris Diaz (2017)

ALCTS members are actively engaged in developing informational documents. The Acquisitions Section's Education Committee prepared the "Core Competencies for Acquisitions Professionals" document that was reviewed by the acquisitions librarian community and approved by the ALCTS Board in May 2018.

Chelcie Rowell was appointed as the new editor of *ALCTS News* (http://alcts.ala.org/news/), and by migrating *ALCTS News* to WordPress, she has updated the division's online news publication with a fresh new design.

Advocacy

ALCTS members are interested in having a strong voice on policies and standards that are important to their work. Members were active advocates during the year on topics such as library funding, copyright, net neutrality, the FDLP Modernization Act of 2018, Marrakesh Treaty Implementation Act, and library funding issues. The ALCTS Advocacy and Policy Committee increased their involvement in keeping the membership up-to-date on legislative actions by posting updates to ALCTSCentral plus short articles in *ALCTS News*.

ALCTS and the Preservation and Reformatting Section (PARS) continue to advocate for the preservation of materials held by libraries, cultural institutions, and individuals through Preservation Week, held April 22–28, 2018, and the Preservation in Action (PiA) initiative. Preservation Week's theme this year was cooking and community archiving. Michael W. Twitty, as this year's Honorary Chair, appeared in Preservation Week artwork and participated through various social media networks. The 2018 PiA initiative focused on a preservation project held at Preservation Hall in New Orleans.

International Standards

ALCTS approved the Terms of Reference to create the North American RDA Committee (NARDAC) (www.rda-rsc.org/northamerica), which is the entity responsible for representing the North American region on the RDA Steering Committee (RSC) for RDA: Resource Description and Access.

ALA has delegated to ALCTS the responsibility of appointing the ALA Representatives to NARDAC. The first representatives to NARDAC are Dominique Bourassa, Yale University, and Kathy Glennan, University of Maryland, College Park. Bourassa is serving as NARDAC chair. The NARDAC representatives work closely with the Cataloging and Metadata Management Section (CaMMS) Committee on Cataloging: Description and Access (CC:DA) to create and respond to standards proposals to the RSC.

ALCTS Executive Director Keri Cascio represents ALA as a copyright Holder on the RDA Board.

Recruitment and Mentoring

ALCTS launched its new mentoring program in 2017. The initial cohort of forty mentors and mentees completed their formal mentoring program in May 2018. The overwhelming success of the first year of the mentoring program was celebrated during the ALCTSFest event held at Midwinter in Denver. Erin Leach and Hayley Moreno spoke to those in attendance about their experiences participating in the program. The Leadership Development Committee's Mentoring Program Subcommittee, chaired by Regina Gong, began forming the second cohort of mentors and mentees with an announcement for applicants in January 2018.

The CaMMS Recruitment and Mentoring Committee developed the *Career Profiles in Cataloging, Metadata, and*

Related Fields resource (www.ala.org/alcts/mgrps/camms/careerprofiles). This new resource includes fourteen career profiles of early career and experienced professionals.

The Lois Mai Chan Professional Development Grant's inaugural award went to Treshani Perera. The Grant (www.ala.org/alcts/awards/grants/chan) was established in 2017 by CaMMS and encourages professional development for librarians and paraprofessionals from traditionally underrepresented groups.

Memorial Resolutions

ALCTS, and the broader library community, lost three valued colleagues this year. Memorial resolutions were passed for Eugene (Gene) Dickerson, John Donald Byrum, and Mary Lynette Larsgaard.

Organizational Changes

Julie Reese, ALCTS Continuing Education and Meetings Manager, accepted a new position in July 2017. We wished Julie much success but were sad to see her leave ALCTS. Over the years, Julie made significant contributions to ALCTS and especially to the success of our continuing education efforts.

Fortunately Megan Dougherty joined ALCTS in August 2017 as our Program Officer for Continuing Education. Previously, Megan had been with ALCTS as a part-time continuing education assistant since 2015. Jazz Lee-Coley then joined ALCTS as the new part-time Continuing Education Assistant.

I am grateful for the support provided by everyone in the ALCTS Office and for their enduring patience when answering all our questions. I am especially appreciative of the thoughtful guidance, comments, and opinions of my Executive Committee colleagues, ALCTS Executive Director Keri Cascio, President-Elect Kristin Martin, Past-President Vicki Sipe, and Division Councilor Erin Stalberg, and of this year's board members who, when asked to consider a structural realignment and the future of ALCTS, were thorough and deliberate in their discussions and decisions. At the end of the day, all of the ALCTS programs, services, events, accomplishments, and successes are made possible due to the leadership, commitment, support, and participation of an amazing community of members. I am thankful to be a member of the ALCTS community and for the opportunity to give back to an association that has meant so much to me.

RDA and Rare Books Cataloging, Part 1

Mary Burns

Editor's Note: Due to the length of this paper and the complexity of the topic, this paper will be published in two parts. Part 1 includes resource description for a rare book and extends to 260 $a Place of Publication ; 264 1 $a Place of Publication ; 264 3 $a Place of Manufacture. The remainder of the description provided will be published in part 2. Part 2 will be published in *Library Resources and Technical Services* (*LRTS*) volume 63, number 1 (January 2019).

Catalogers using Descriptive Cataloging of Rare Materials: Books (DCRM(B)) were challenged when the Library of Congress (LC) adopted Resource Description and Access (RDA). DCRM(B) is based on AACR2, which is organized according to International Standard Bibliographic Description (ISBD) areas. RDA is based on FRBR. As of this writing, the RBMS Bibliographic Standards Committee intends to finish an initial version of RBMS Policy Statements for the RDA Toolkit. During the interim, the Bibliographic Standards Committee website states: "The Bibliographic Standards Committee is neutral regarding RDA, neither encouraging nor discouraging agencies regarding implementation of RDA-acceptable DCRM records." The Committee provides rare book catalogers with two options. The first instructs catalogers to form descriptive portions of records according to DCRM(B) and AACR2, using RDA for access points. The second option directs catalogers to create RDA records using the PCC-RDA BIBCO Standard Record (BSR) that includes rare materials provisions. This paper discusses the creation process of three catalog records for the same rare book developed according to DCRM(B), the PCC-RDA-BSR with rare materials provisions and RDA with exceptions for early printed resources.

Descriptive Cataloging of Rare Materials (Books), first published in 2007, was the first in a series of manuals developed for rare materials in various formats, *Descriptive Cataloging of Rare Materials* (DCRM).[1] It is based on AACR2 as amended by the *Library of Congress Rule Interpretations* (LCRI) and the second edition of ISBD(A), the *International Standard Bibliographic Description for Older Monographic Publications (Antiquarian).* DCRM(B) differs from earlier editions of the rare book cataloging rules because it can be used to catalog printed monographs "of any age or type of production" and is not limited to pre-1801 imprints.[2] It contains instructions relating to headings and access points but does not instruct catalogers on how to create controlled headings for main and added entries.

DCRM(B) was preceded by the *Descriptive Cataloging of Rare Books* (DCRB), produced in 1991 and the *Bibliographic Description of Rare Books* (BDRB) (1981). BDRB was developed in response to the publication of ISBD(A). An Association of College and Research Libraries' (ACRL) Bibliographic Standards Committee, Rare Book and Manuscript Section (RBMS) task force participated in the ISBD(A) review process. The Anglo-American rare materials community then decided that a new standard based on AACR2, but separate

Mary Burns (mburns6@niu.edu) is a Catalog Librarian and Assistant Professor at Northern Illinois University in DeKalb, Illinois.

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from it, was needed. BDRB represented a "synthesis of AACR2's chapters 1 (General Rules for Description) and 2 (Books, Pamphlets, and Printed Sheets) and ISBD(A) rules."[3] DCRB, a revised version of BDRB, was written in response to the revision of ISBD(A) in 1991.

Resource Description and Access (RDA) was originally intended as a major revision of AACR2. The Joint Steering Committee for Revision of AACR2 (JSC) began meeting in 2003 to draft AACR3. Work was underway for DCRM(B) when AACR3 was announced. The DCRM(B) editors considered postponing work until RDA was published, then rejected the idea. A delay was deemed unwise because considerable progress had been made and a significant amount of time, labor, and money had been invested in the project.[4] A draft of AACR3 Part I was reviewed by the ALA Committee on Cataloging: Description and Access (CC:DA) in December 2004. In January 2005, the JSC and CC:DA solicited comments from working catalogers. Since the draft was not well received, a decision was made in April 2005 to adopt an entirely new approach.[5] The standard was titled *Resource Description and Access (RDA)* and the Committee changed its name to the Joint Steering Committee for Development of RDA. AACR2 was conceived for the card catalog environment, and the new standard was designed to accommodate digital resources. The JSC developed RDA between 2005 and 2009 as part of its strategic plan.[6] The RDA Toolkit was released June 2010. After testing by the national libraries and other institutions from October through December 2010, LC adopted the standard on March 31, 2013.

The PCC-RDA-BIBCO Standard Record (BSR) was released on January 13, 2013, for use by the PCC community in BIBCO-coded records.[7] Revisions to the standard were released on June 13, 2016, and September 6, 2017. The PCC-RDA-BSR contains special instructions for rare materials catalogers and some elements contained in the standard include rare materials provisions that override RDA instructions and guidelines. The introduction explains that the PCC-RDA-BSR consists of RDA "Core," RDA "Core if," "PCC Core," and "PCC Recommended" elements that can be used to catalog "archival materials, audio recordings, cartographic resources, electronic resources (if cataloged in the computer file format), graphic materials, moving images, notated music, rare materials, and textual monographs."[8] The standard is meant to outline a minimal set of elements that emphasize access points over descriptive data. This minimal set is considered necessary to meet user needs. Catalogers are not limited to the base set of elements and may provide a fuller bibliographic description.

RDA development and its influence on DCRM(B) can be gleaned from the ALA ACRL RBMS Bibliographic Standards Committee (BSC) ALA Annual and Midwinter meeting minutes.[9] The BSC is charged "to serve as the ALA representative of rare book, manuscript, and other special collections librarians and curators in all matters involving standards for providing intellectual access to and bibliographic description of those collections."[10] The minutes contain reports from a CC:DA liaison and RBMS BSC activities. The liaison provided updates on policies considered of interest to the BSC that the JSC or RDA Steering Committee (RSC) were developing. The BSC used the DCRM-L listserv to promote discussion and solicit feedback on RDA and rare materials cataloging issues. Postings are available in the DCRM-L listserv archive.[11]

The BSC responded to RDA development by revising or developing new rare materials cataloging rules, beginning with the failed project to revise AACR2. The joint ALCTS/ACRL Task Force on Cataloging Rules for Early Printed Monographs was initiated by CC:DA with the ACRL RMBS BSC in 2004.[12] The task force was charged to investigate using the rules for early printed monographs in AACR2, chapter 2. It produced its final report in July 2004 and a *Report on the Rules for Early Printed Resources in the Draft of AACR3 Part 1* in February 2005.[13]

After the RDA Toolkit was released, Maxwell and Attig produced a discussion paper, "Reconsidering DCRM in the Light of RDA."[14] Section IV highlighted differences between AACR2 and RDA. Section III included suggestions for redefining DCRM's relationship with RDA. Attig presented the paper at the BSC's 2011 ALA Midwinter Meeting, generating lengthy discussion on several issues.[15] At the BSC's meeting during the 2011 ALA Annual Meeting a DCRM/RDA task force was formed. Their charge stated: "In light of the recommendations of Attig/Maxwell discussion paper, and the need for further analysis of issues involved in modifying DCRM in response to implementation of RDA, the Task Force is charged, in general, to develop recommendations on the relationship between DCRM and RDA for consideration by Bibliographic Standards Committee (BSC)."[16] The task force issued its final report October 10, 2012. They recommended that RDA, as modified by Library of Congress-Program for Cooperative Cataloging Policy Statements (LCC-PCC-PSs), should become the new standard on which DCRM is based.[17] They also recommended that the BSC's primary focus should be writing a complete revision of DCRM(B) based on RDA, and that agencies wanting to create RDA records for rare materials for immediate use apply the rare materials provisions included in the forthcoming BIBCO Standard Record (BSR).

The BSC contributed to the development of the rare materials provisions for the PCC-RDA-BSR released on January 13, 2013. The PCC charged a BSC task force to develop a new RDA BIBCO Standard Record (BSR) for rare materials in 2012.[18] The BSC task force developed the standard from a finished draft of the RDA BSR for textual

monographs. Although the BSC task force intended to create a document for use with rare books, the PCC aimed to present a single BSR applicable to all format types. After RDA was released in 2010, and before the PCC-RDA-BSR was issued in 2013, rare materials catalogers had two standards from which to choose. The BSC task force evaluating RDA's impact on DCRM reported at the BSC's meeting during the 2012 ALA Midwinter Meeting that they would draft an interim statement regarding DCRM and RDA for an online vote.[19] In 2012, the BSC advised catalogers to continue using DCRM alone for the description of books and serials. Catalogers were instructed to not incorporate elements or practices based on RDA into DCRM descriptions.[20]

After the BSC Task Force on DCRM and RDA finished its work in October 2012, another BSC task force was formed to reorganize DCRM(B) according to RDA. The DCRM(B) for RDA Editorial Team was charged with completely revising DCRM(B) based on RDA, including changes in terminology, structure, and examples.[21] The DCRM(B) for RDA Editorial Team, referred to as the DCRM(B) for RDA Revision Group, changed direction in 2013. It considered a proposal to create a unified DCRM standard that addressed all formats. The proposal was posted to DCRM-L for comments and was discussed by the Revision Group. It was decided that a consolidated DCRM text was desirable and should be considered a new text rather than a revision of DCRM(B).[22]

The DCRM for RDA Revision Group renamed itself DCRM2 at the BSC's meeting during the 2014 ALA Midwinter Meeting. The task force was renamed the ACRL/RBMS Descriptive Cataloging for Rare Materials Task Force and charged with creating an initial version of a consolidated Descriptive Cataloging for Rare Material (DCRM) standard based on RDA.[23] The charge ended on June 30, 2016, and was extended to June 30, 2017.[24] The DCRM Task Force used DCRM-L to address issues, conduct surveys, and solicit feedback from the rare books cataloging community. The issues they addressed while developing a consolidated DCRM include how to transcribe punctuation, misprints, and typographical errors, and what constitutes an "early printed resource."[25] In 2014, the task force surveyed the rare materials cataloging community on possible DCRM2 implementation scenarios. The results showed that most of the responding institutions were using AACR/DCRM for rare materials cataloging and RDA for non-rare materials.[26]

The DCRM Task Force discussed with ALA Publishing how the new DCRM text would be incorporated into the RDA Toolkit. Based on these discussions, the task force planned for the new DCRM text to follow the model of LC's Program for Cooperative Cataloging Policy Statements (LC-PCC-PS).[27] The final product would be called RBMS Policy Statements (RBMS PS).[28] The RBMS PS will be integrated into the RDA Toolkit like the LC-PCC-PS. The DCRM Task Force identified four ways that the RBMS PS can relate to RDA guidelines: (1) Where the RDA policy statement is sufficient for rare materials cataloging, nothing is added to the text; (2) When LC-PCC-PS is sufficient, the RBMS PS will point to it; (3) If the RDA guidelines need augmentation for rare materials cataloging, a RBMS PS is provided; and (4) If the RDA guidelines conflict with DCRM principles, the RBMS PS will provide guidance. After a review process and subsequent approval, the RBMS PS will be published as a part of the RDA Toolkit. It is anticipated the RBMS PS will not go live until the RDA Restructure and Redesign project is finished in 2018.

In November 2015, the RDA Steering Committee (RSC) became more involved in the development of RDA for cataloging rare materials. The RSC decided at its meeting in Scotland to form a working group to address RDA's treatment of rare materials. The group was established in March 2016. The Terms of Reference for the RSC Rare Materials Working Group outlined its goals.[29] The RSC aims to develop RDA for a wider range of materials than printed materials. The RSC also "expects to expand the coverage and refine the detail of the description of and access to rare items."[30] The working group, which includes RBMS members, is charged with assisting the RSC in developing the treatment of rare materials in RDA. The DCRM Task Force noted that the RSC meeting planned for November 2016 in Frankfurt, Germany, was "a demonstration of the RSC's desire to increased RDA adoption in Europe and beyond."[31]

Literature Review

There is little literature dedicated to RDA development and its impact on rare book cataloging rules. Maxwell demonstrated the practical application of RDA to rare books cataloging for the ALCTS webinar "Rare Materials and RDA: Exploring the Issues" in 2012.[32] A MARC bibliographic record was created field by field for the rare book *Modus epistolandi copendiosissimus et facillimus* by Poggio Bracciolini, which was produced in Paris in 1505.

After LC adopted RDA in 2013, the effects of the new standard on rare book and rare materials cataloging in general began to be addressed. The conflicting purposes of the two standards is made clear by multiple authors. Nimer and Daines point out that the DCRM standards, based on AACR2, are specialized rules designed to create descriptions that meet the needs of expert researchers.[33] RDA, based on FRBR, is a general-purpose cataloging standard that provides guidelines based on user needs. Elings and Brandt, writing about the future of technical services, discuss linked data with its promise to improve the processing

of information resources and to enhance discovery and access. RDA was designed for a linked-data environment where catalogers identify entities as opposed to describing them.[34] Although the purposes of the two standards are fundamentally different, they maintain that rare materials catalogers have an advantage over general materials catalogers based on RDA and DCRM commonalities. They cite RDA guidelines for transcribing information as it appears on the source—the same rules provided in DCRM. Writing shortly after RDA was officially accepted and acknowledging the BSC's continuing efforts to adapt DCRM to RDA, they declare that it is time to fully get on board the RDA bandwagon.[35]

Elings and Brandt give an extensive summary of the outcomes of the discussions resulting from Maxwell and Attig's paper "Reconsidering DCRM in the Light of RDA," which was presented at BSC's meeting during the 2011 ALA Midwinter Meeting and at the preconference discussion session. They note that by the end of the preconference discussion session there was almost equal support from participants of the three different approaches to adapting DCRM to RDA. One group favored an interim ISBD revision, a second supported a complete revision based on RDA, and a third group was undecided. Nimer and Daines acknowledge that the rare book community is slowly working toward accommodation and implementation since RDA's release. They highlight the six-month period that DCRM and RDA coexisted before the PCC-RDA-BSR was released. The BSC addressed the need to make an interim statement at their ALA Midwinter meeting.[36] The BSC's website advised catalogers not to incorporate RDA elements or practices into their descriptions based on DCRM until the PCC-RDA-BSR was released.[37]

MacDonald and Quarmby Lawrence addressed the impact on catalogers and cataloging departments using both RDA and DCRM(B).[38] The Edinburgh University Library adopted RDA as the in-house cataloging standard for modern materials in 2014. The metadata team included thirteen highly skilled cataloging and classification staff, seven of them trained in DCRM(B). After RDA adoption, it was recognized that clear guidelines were needed to specify what standard to use for cataloging diverse types of material. A DCRM(B) policy was in place but lacked the specifics needed for cataloging books produced after 1800. Rare book catalogers were unsure of which standard to use with exceptional examples of otherwise routine publications. A new policy that aimed to empower catalogers to use discretion when choosing between RDA and DCRM(B) was developed. In general, the EUL catalogs books to full DCRM(B) that fit any of these criteria:

- All items printed up to about 1850, which are or appear to be the products of the hand press (i.e., everything printed up to 1820) and later items with the features of hand-press printing (e.g., traditional bibliographical signatures).
- Later items with special characteristics that demand fuller bibliographical description (e.g., modern hand-press books), items with special physical features that are to be fully described (e.g., bindings or illustrations), and items that are the subject of close bibliographical analysis.
- Later items that complete a set or run that started in the hand-press period and has otherwise been cataloged to DCRMB.[39]

Sjökvist discusses another aspect of rare books cataloging practice that needs clarification—title transcription. He explains the incongruity of RDA rules that direct catalogers to transcribe what they see with rare book cataloging standards that instruct catalogers to normalize the transcription of titles.[40] Materials cataloged for the Swedish union catalog *Libris* generally follow ISBD (consolidated ed. 2011). The National Library of Sweden emphasizes the importance of transcribing a title page verbatim to distinguish different editions. However, Sjökvist explains that the library policy allows catalogers to deviate from this practice if needed. Misprints in the text are followed by "[*sic*]" and blank spaces are indicated with "[blank space]" within square brackets. Catalogers are instructed that various forms of commas and hyphens found on the original should be transcribed as ordinary commas and hyphens. The virgule (/) is usually transcribed as a normal comma. Dots are transcribed as they appear, but spaces in the title are normalized. Line breaks are not represented in a transcription and hyphens at line breaks are not recorded. The use of lowercase and uppercase letters is normalized according to modern principles. Sjökvist suggests that the argument for careful transcription to help the user distinguish between different editions sounds odd given the level of deviation from the original source that can result. He points out the transcription rules in DCRM(B) give a similar impression. Sjökvist suggests titles recorded in the 245 field should be transcribed closely following the original for purposes of identification. The normalized forms of titles should be recorded as variant titles in 246 fields for retrieval purposes.

High, in a brief introduction to rare book cataloging, credits RDA with making the work of rare books catalogers more intelligible to users. It accomplishes this by eliminating the use of Latin terms that have the potential to mystify rather than clarify.[41] He cites misprints in titles that are no longer followed by "[*sic*]" and are instead indicated in a 500 note that records the correct spelling. The replacement of "s.l." and "s.n." with "No identifiable place of publication" and "No identifiable publisher" is another improvement. He emphasizes the importance of recording an ESTC number in a 510

field. The ESTC number is like an ISBN for each edition of a book published in English-speaking countries before 1801. It records differences between editions that are not always obvious, such as printing errors and the number of booksellers or printers appearing on a title page. This argument for the importance of the 510 field in rare books records is highly relevant since the RSC rejected the BSC proposal to add referential relationships to RDA and formal instructions for creating citation forms that are recorded in the 510 field.[42] High's overview of rare book cataloging includes a description of the 561 field used to record ownership and custodial history of a rare book and the 563 field used to record binding information. This approach differs from DCRM(B) practice, which directs recording copy-specific information in a 590 local note. An international cataloging practice differs from an Anglo-American DCRM(B) cataloging practice. These different practices support García-Monge and Green's observation that international approaches to copy-specific information in books, manuscripts, or objects must be developed so catalogers do not rely on local decisions to record provenance, binding, physical condition, or handwritten annotations.[43] The BSC's work and the international rare materials cataloging community has been moving gradually toward developing both a single international standard for cataloging rare materials and a single standard that can be applied to all types of rare materials.

Nimer and Daines state that the descriptive practices in American libraries, historical societies, and archives are complex and involve a wide range of standards. It is their hope that future standards will be developed that enable cross-community sharing. They suggest this could be accomplished by creating modular standards with a common core that allows for sharing of information, plus extensions to meet the needs of different user communities.[44] In a recent issue of *Cataloging and Classification Quarterly*, García-Monge and Green state in the issue's introduction that the International Federation of Library Associations and Institutions' (IFLA) Rare Books and Special Collections Section (RBSCS) has provided a long-standing forum for discussion and exchange of information on matters of particular concern to rare books, manuscript, and special collections librarians.[45] They report on the IFLA RBSCS's activities, including following the development of RDA since its inception. IFLA RBSC Standing Committee members attended a conference held in Edinburgh in November 2015 where the DCRM-RDA Task Force's ongoing work was highlighted. They recognized the need to pursue a discussion with the rest of the Standing Committee about the potential of a common international standard for rare materials cataloging, regardless of format.[46] Another conference held in February 2016 in Lisbon by the IFLA RBSC provided yet another forum for discussing DCRM-RDA and its advantages and disadvantages for non-Anglo-American cataloging agencies. It was also hoped that there could be discussion about developing a rare materials standard that was not siloed by format.[47]

Fell and Lapka state that with the adoption of RDA as an international cataloging standard, it is time to reevaluate the possibility of an international standard for rare materials cataloging. They specify that their paper will not comment on the desirability of undertaking such a project.[48] A review of the history of Anglo-American rare book cataloging rules is provided. They point out that the title of the current standard, *Descriptive Cataloging of Rare Materials* qualified by "Books," indicated that it was supposed to be the first in a series of specialized manuals for various formats. Manuals for serials, graphics, cartographic materials, and music were later published. The summarization of the history of the Anglo-American rare books cataloging standard shows how its development is intertwined with the development of the *International Standard Bibliographic Description for Older Monographs (Antiquarian)* (ISBD(A)). A list of nine primary requirements for an international rare materials standard is provided with an evaluation of how well a standard based on RDA might fulfill the requirements. They suggest that a common standard for rare materials cataloging could be developed as a replacement for DCRM or an extension of RDA for special collections. They note that the next version of DCRM is designed to be an extension of RDA. Lapka discusses the structure of the RBMS Policy statements developed by the DCRM Task Force to accommodate RDA and gives examples of how they will look in the RDA Toolkit in *Catalogue and Index*.[49]

Record-Creation Process

To compare bibliographic records created according to the three different standards, the author constructed separate records according to DCRM(B), the PCC-RDA-BSR, and RDA (without LC-PCC-PS) for the rare book *Stirpium adversaria nova* by Pierre Pena and Matthias de L'Obel, which was printed in London by Thomas Purfoot in 1571. The records included the MARC 040 $e to record the cataloging standard, MARC fields to record the rare book's descriptive elements (245, 246, 260 or 264, 300, 500, 510, 590), and MARC fields to record authorized access points, including controlled vocabularies (100, 700, 655). The record-creation process began with assigning the appropriate content to $e of the 040 field.

040 $e Cataloging Source-Descriptive Conventions

The codes for the cataloging standards in the 040 $e are provided in the *Descriptive Convention Source Codes*.[50]

Table 1. Cataloging Source-Descriptive Conventions (040 $e)

Cataloging Standard	PCC-RDA-BSR Rare Materials Provisions or RDA Early Printed Resources Exceptions or Alternatives	Transcription of 040 $e
Descriptive Cataloging of Rare Materials (Books) Source of codes: *Descriptive Convention Source Codes*[*] Transcription of codes: *OCLC Bibliographic Formats and Standards* 4th ed.	Not Applicable	040 $e dcrmb
PCC-RDA-BSR (BIBCO Standard Record) Source of codes: PCC-RDA-BSR: Cataloging source: Descriptive conventions, page 36 Transcription of codes: *OCLC Bibliographic Formats and Standards* 4th ed.	040 $e "Rare materials: use "rda" and the appropriate authorized dcrm code (currently, "dcrmb", "dcrmc", dcrmg", or "dcrmm"). Other codes may be used as they become authorized upon publication of their respective *DCRM* module. Always place $e rda directly after the language of cataloging ($b)"	040 $e rda $e dcrmb
Resource Description & Access (RDA) Source of codes: *Descriptive Convention Source Codes* Transcription of codes: *OCLC Bibliographic Formats and Standards* 4th ed.		040 $e rda

[*] *Description Convention Source Codes*. Source Codes for Vocabularies, Rules and Schemes. Library of Congress, Network Development and MARC Standards Office, accessed November 6, 2017, www.loc.gov/standards/sourcelist/descriptive-conventions.html.

The code "dcrmb" was used for the record created using *Descriptive Cataloging of Rare Materials (Books)* and "rda" was used for the record created using RDA. The record constructed following the PCC-RDA-BSR included an 040 field with two $e subfields, one with "rda" and the second with "dcrmb."[51] The PCC-RDA-BSR dictates:

> One of the stipulations of applying the rare materials provisions is the recording of the appropriate "dcrm" code in 040 in addition to "rda" in order to label the record as following the BSR rare materials provisions.[52]

The RBMS website instructs rare book catalogers using the PCC-RDA-BSR with the rare materials provisions to include these two $e subfields.[53] The 040 $e fields and the sources and instructions used to construct them are summarized in table 1. The descriptive fields were constructed next, beginning with the 245 $a title proper.

245 $a Title Proper

According to DCRM(B)1A2.1, "the prescribed source of information for the title and statement of responsibility area is the title page."[54] The PCC-RDA-BSR refers to RDA 2.3.2, which addresses the title proper element. RDA 2.3.2.2 directs catalogers to "take a title proper from the preferred source of information as specified at 2.2.2 RDA-2.2.3 RDA."[55] RDA 2.2.2.2 gives the preferred source of information for "Manifestations Consisting of One or More Pages, Leaves, Sheets, or Cards (or Images of One or More Pages, Leaves, Sheets, or Cards)."[56] RDA directs catalogers that the preferred source of information for a paginated book is the title page. The source of information used to construct the 245 $a title proper for *Stirpium adversaria nova* was the title page for all three standards (see figure 1). Table 2 summarizes the rules used from each of the standards for the records.

The rules for transcribing punctuation were reviewed before the 245 fields were created for the three records. DCRM(B)0G3.1 directs catalogers:

> Do not necessarily transcribe punctuation as it appears in the source. Instead, follow modern punctuation conventions, using common sense in deciding whether to include the punctuation, omit it, replace it, or add punctuation not present.[57]

The PCC-RDA-BSR contains a rare materials provision for RDA 1.7.1 allowing catalogers to use DCRM(B) as the designated published style manual for transcribing punctuation. RDA 1.7.3 instructs catalogers to transcribe punctuation as it appears on the source but offers an alternative. Catalogers may omit or modify punctuation if it

Figure 1. *Stirpium adversaria nova* title page (Dittrick Medical History Center, Case Western Reserve University)

significantly hinders clarity. Punctuation was normalized for the transcription of the MARC fields in *Stirpium adversaria nova*'s three records.

The rules for transcribing the title proper in each of the standards are similar. DCRM(B)1A3 instructs: "Transcribe the title and statement of responsibility information in the form and order in which it is present in the source, unless instructed otherwise by specific rules (see 0G)."[58] The PCC-RDA-BSR directs catalogers to RDA 2.3.1.4 for instructions on recording titles. The rule states: "Transcribe a title as it appears on the source of information (see 1.7 RDA)."[59] This element in the PCC-RDA-BSR includes the provision: "Rare materials: Generally do not abridge titles." This is in response to the optional omission contained in RDA 2.3.1.4:

> Abridge a long title only if it can be abridged without loss of essential information. Use a mark of omission . . . to indicate such an omission. Never omit any of the first five words.[60]

DCRM(B)1B7.1 gives the same instructions:

> Abridge a long title proper only if it can be done without loss of essential information. Do not omit any of the first five words. Indicate omissions by the mark of omission.[61]

The title proper of *Stirpium adversaria nova* is not lengthy, so the RDA or DCRM(B) rules, or the PCC-RDA-BSR rare materials provision for abridging titles, were not applied.

After the title proper was determined to be "Stirpivm adversaria nova," transcription issues related to the use of the letter *v* were addressed (see figure 1). DCRM(B)1A3 directs catalogers to DCRM(B)0G for more detailed transcription guidance for topics including symbols, diacritics, and the capitalization and conversion of case of the letters *I*, *V*, *i*, *j*, *u*, and *v*. However, the guide needed for transcribing the letter *v* in the title proper is contained in DCRM(B) G4, the appendix that addresses the transcription of the letterforms *I/J*, *U/V*, *i/j*, and *u/v*. DCRM(B)G4.1 gives a brief overview of the history of printing as it applies to *I/J*, *U/V*, *i/j*, and *u/v*. The letter *v* was used in the initial position without signifying vocalic or consonantal use. Therefore, the letter *v* was replaced with the letter *u*, which was "used in the initial, medial or final position, without signifying vocalic or consonantal use" (see appendix A).

The PCC-RDA-BSR General guidelines on transcription, RDA 1.7.1, contains Alternative 1st:

> Rare materials: Use Descriptive Cataloging of Rare Materials as the 'designated published style manual' in place of the instructions given under RDA 1.7.2-1.7.9 for transcribing punctuation, numerals, symbols, abbreviations, etc.[63]

However, since RDA 1.7.2-1.7.9 do not address the use of the letters *i/j*, *u/v*, the alternative offered by RDA1.7.1 was used for transcription guidance:

> The agency creating the data may establish in-house guidelines for capitalization, punctuation, numerals, symbols, abbreviations, etc., or choose a published style manual, etc. (e.g., *The Chicago Manual of Style*), as its preferred guide.[63]

DCRM(B) with Appendix G4.1 was the chosen style manual applied to the transcription of the title proper for both the PCC-RDA-BSR record and the RDA record. The title proper for all three standards were transcribed in the same form using DCRM(B) because it was the published style manual that provided instructions for *u/v*. The letter *v* was transcribed as *u* in the title proper (see table 2).

245 $b Other Title Information

Other title information is a PCC Core element under the PCC-RDA-BSR but is not core in RDA. RDA 2.3.4.1 instructs catalogers to not include other title information in general. If other title information is included, it is taken from the same source as the title proper (RDA 2.3.4.2).

DCRM(B)1D1 begins by instructing catalogers to "transcribe other title information appearing on the title page in the order indicated by the sequence on, or layout of, the title page. Transcribe other title information not appearing on the title page in a note, if considered important."[64] Although the other title information on *Stirpium adversaria nova*'s title page is lengthy, it was transcribed in its entirety for the 245 $b element in the DCRM(B) record because it contains valuable information that describes the rare book. However, DCRM(B)1D4 may be used to abridge other title information:

> Optionally, if other title information is very lengthy and can be abridged without loss of essential information, omit less important words or phrases,

Table 2. Title Proper (245 $a)

Cataloging Standard	PCC-RDA-BSR Rare Materials Provisions or RDA Early Printed Resources Exceptions or Alternatives	Transcription of 245 $a
Descriptive Cataloging of Rare Materials (Books) Sources of information for title proper: DCRM(B)1A2.1 Prescribed source of information for title Transcription of title proper: DCRM(B)0G3.1 Transcribing punctuation DCRM(B)1A3 Transcribing title, form & order DCRM(B)1B7.1 Abridging title proper DCRM(B)G4 & G4.1 I/J, U/V, i/j, u/v	Not Applicable	Title page is prescribed source of information 245 $a Stirpium aduersaria noua
PCC-RDA-BSR (BIBCO Standard Record) (Element included in BSR: RDA core element) Sources of information for title proper: RDA 2.3.2 Title proper RDA 2.3.2.2 Preferred source of information for title proper RDA 2.2.2 Preferred source of information RDA 2.2.2.2 Manifestation of one or more pages, leaves, sheets, or cards Transcription of title proper: RDA 1.7.1 Alternative first: transcribing punctuation RDA 2.3.1.4 Recording titles RDA 1.7.1 DCRM(B) designated published style manual as guide for transcription DCRM(B)G4 & G4.1 I/J, U/V, i/j, u/v	Transcription: RDA 2.3.1.4 "Rare materials: Generally do not abridge titles." RDA 1.7.1 General guidelines on transcription. Alterantive (1st): "Rare materials: Use *Descriptive Cataloging of Rare Materials* as the 'designated published style manual' in place of the instructions given under RDA 1.7.2-1.7.9 for transcribing punctuation, numerals, symbols, abbreviations, etc."	Title page is preferred source of information *Transcription same as DCRM(B)*
Resource Description & Access (RDA) (RDA Core element) Sources of information for title proper: RDA 2.3.2 Title proper RDA 2.3.2.2 Preferred source of information for title proper RDA 2.2.2 Preferred source of information RDA 2.2.2.2 Manifestation of one or more pages, leaves, sheets, or cards Transcription of title proper: RDA 1.7.3 Transcribing punctuation RDA 2.3.1.4 Recording titles RDA 1.7.1 DCRM(B) published style manual as preferred guide for transcription DCRM(B)G4 & G4.1 I/J, U/V, i/j, u/v	Transcription: RDA 1.7.1 Alternative: "The agency creating the data may establish in-house guidelines for capitalization, punctuation, numerals, symbols, abbreviations, etc., or choose a published style manual, etc. (e.g. *The Chicago Manual of Style*) as its preferred guide. In such situations, use those guidelines or that style manual instead of the instructions at 1.7.2 RDA-1.7.9 and in the appendices."	Title page is preferred source of information *Transcription same as DCRM(B)*

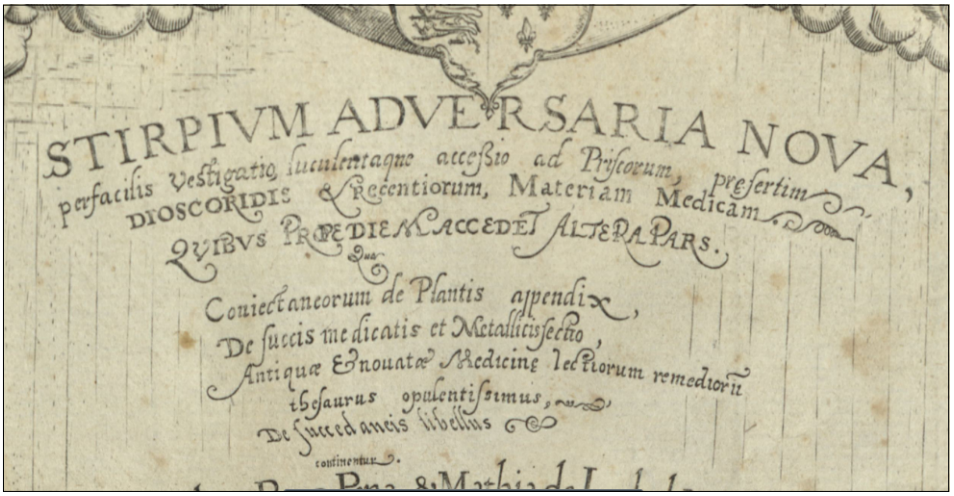

Figure 2. *Stirpium adversaria nova*'s other title information enlarged (Dittrick Medical History Center, Case Western Reserve University)

> using the mark of omission. If considered important, transcribe omitted words or phrases in a note (including the other titles or phrases referred to in 1D2.3).[65]

DCRM(B)1D2.3 directs catalogs to take format statements of contents notes that are grammatically separable from the other title information and record them in a note if they are considered important.

RDA provides similar instructions for the transcription of other title information. This information is recorded according to RDA 2.3.4.3, which directs catalogers to RDA 2.3.1., the Basic Instructions on Recording Titles. RDA 2.3.1.4 states: "Transcribe a title as it appears on the source of information (see 1.7 RDA)."[66] RDA 2.3.1.4 also includes instructions on abridging long titles in an optional omission: "Abridge a long title only if it can be abridged without loss of essential information. Use a mark of omission . . . to indicate such an omission. Never omit any of the first five words."[67]

After deciding that the complete other title information from the title page would be recorded in the 245 $b element in each of the records, a number of transcription issues common in rare book cataloging were addressed. The first line of the other title information contains the symbol "*ß*" in the word "acce*ß*io." It was transcribed as "ss" following the table provided by DCRM(B)G2 showing letterforms and symbols with their appropriate transcriptions (see http://www.loc.gov/cds/PDFdownloads/dcrm/, appendix G2). The second issue was familiar from the transcription of the title proper and the use of the letter *v* in a medial position in a word. "Qvibvs," which begins the third line of the other title information on the title page (see figure 2), was transcribed as "Quibus," according to DCRM(B) G4.1 (see appendix A). In the sixth line of other title information, "Medicin*ę*" contains an early contraction, "*ę*," that was transcribed as "[ae]" according to the table of early contractions in DCRM(B)G3 (see http://www.loc.gov/cds/PDFdownloads/dcrm/, appendix G3). Also in line 6, the ligature *æ* in "antiqu æ" and "nout æ" were transcribed as "ae." DCRM(B) 0G1.1 directs that the component parts of "æ" are transcribed separately unless the language is Anglo-Saxon. DCRM(B) G3 explains that the "˜" over the *u* of "remedior*ũ*" at the end of line 6 usually indicates a *n* or an *m* following the vowel. This contraction was transcribed as "remedioru[m]." The last transcription issue was the space between the *d* and the *a* of "Succedaneis" in line eight. It was recorded as "succedaneis," according to DCRM(B)0G4.1, which advises:

> In general, follow modern spacing conventions when transcribing from the source. Make no attempt to preserve full or irregular spaces between letters within words. If a word is divided between the end of one line and the beginning of the next, transcribe it as a single word, ignoring the line-break.[68]

DCRM(B) was used as the style manual following the alternative at RDA 1.7.1 for the 245 $b element transcription of the PCC-RDA-BSR and RDA records as it was for the transcription of the 245 $a title proper element. Since the transcription of the three records relied on the same style manual, DCRM(B), *Stirpium adversaria nova*'s other title information was transcribed in the same form in all three records shown below and in table 3:

> 245 10 $a Stirpium aduersaria noua : $b perfacilis vestigatio luculentaque ace[ss]io ad priscorum, presertim Dioscoridis & recentiorum, materiam medicam : quibus prope diem accedet altera pars : qua coniectaneorum de plantis appendix, de succis medicatis et metallicis sectio antiquae & nouata medicin[ae] lectiorum remedioru[m] thesaurus opulentissimus, de succedaneis libellus continentur.

DCRM(B) contains more detailed guidelines for issues that rare books catalogers encounter when transcribing other title information that the PCC-RDA-BSR and RDA lack. Other title information can contain a formal statement

Table 3. Other Title Information (245 $b)

Cataloging Standard	PCC-RDA-BSR Rare Materials Provisions or RDA Early Printed Resources Exceptions or Alternatives	Transcription of 245 $b
Descriptive Cataloging of Rare Materials (Books) Sources of information for other title information: DCRM(B)1D1 Order and source of other title information Transcription of other title information: DCRM(B)1D1 Transcribing other title information DCRM(B)1D4 Abridging other title information DCRM(B)G2 Early letter forms and symbols DCRM(B)G3 Early contractions DCRM(B)G4.1 i/j u/v DCRM(B)0G4.1 Internal spacing within words	Not Applicable	Title page is source of information transcribed as other title information 245 10 ... : $b perfacilis vestigatio luculentaque acce[ss]io ad priscorum, presertim Dioscoridis & recentiorum, materiam medicam : quibus prope diem accedet altera pars : qua coniectaneorum de plantis appendix, de succis medicatis et metallicis sectio antiquae & nouatae medicin[ae] lectiorum remedioru[m] thesaurus opulentissimus, de succedaneis libellus continentur.
PCC-RDA-BSR (BIBCO Standard Record) (PCC Core element: Not RDA core element) Sources of information for other title information: RDA 2.3.4 Other title information RDA 2.3.4.1 Do not include in general RDA 2.3.4.2 Same source as title proper Transcription of other title information: RDA 2.3.4.3 Recording other title information RDA 2.3.1 Recording titles RDA 2.3.1.4 Transcribing titles RDA 1.7.1 DCRM(B) designated published style manual as guide for transcription DCRM(B)G2 Early letter forms and symbols DCRM(B)G3 Early contractions DCRM(B)G4.1 i/j u/v DCRM(B)0G4.1 Internal spacing within words	Transcription: RDA 1.7.1 General guidelines on transcription. Alternative (1st): "Rare materials: Use *Descriptive Cataloging of Rare Materials* as the 'designated published style manual' in place of the instructions given under RDA 1.7.2-1.7.9 for transcribing punctuation, numerals, symbols, abbreviations, etc."	Other title information taken from same source as title proper Transcription same as DCRM(B)
Resource Description & Access (RDA) (Not RDA core element) Sources of information for other title information: RDA 2.3.4 Other title information RDA 2.3.4.1 Do not include in general RDA 2.3.4.2 Same source as title proper Transcription of other title information: RDA 2.3.4.3 Recording other title information RDA 2.3.1 Recording titles RDA 2.3.1.4 Transcribing titles RDA 1.7.1 DCRM(B) published style manual as preferred guide for transcription DCRM(B)G2 Early letter forms and symbols DCRM(B)G3 Early contractions DCRM(B)G4.1 i/j u/v DCRM(B)0G4.1 Internal spacing in words	Transcription: RDA 1.7.1 Alternative: "The agency creating the data may establish in-house guidelines for capitalization, punctuation, numerals, symbols, abbreviations, etc., or choose a published style manual, etc. (e.g. *The Chicago Manual of Style*) as its preferred guide. In such situations, use those guidelines or that style manual instead of the instructions at 1.7.2 RDA-1.7.9 and in the appendices."	Other title information taken from same source as title proper *Transcription same as DCRM(B)*

of the work's contents (DCRM(B)1D2.3) and statements about illustrations or volumes (DCRM(B)1D3) requiring unique instructions. When other title information follows the statement of responsibility in subfield $c of the 245 field, it is recorded as a subsequent statement of responsibility (DCRM(B)1D2.2). The PCC-RDA-BSR and RDA lack these guidelines.

Table 4. Statement of Responsibility (245 $c)

Cataloging Standard	PCC-RDA-BSR Rare Materials Provisions or RDA Early Printed Resources Exceptions or Alternatives	Transcription of 245 $c
Descriptive Cataloging of Rare Materials (Books) Sources of information for statement of responsibility: DCRM(B)1A2.1 Prescribed source of statement of responsibility Transcription of statement of responsibility: DCRM(B)1E1 Transcribing statements of responsibility DCRM(B)1E4.1 Single statement of responsibility with two or more names	Not Applicable	Prescribed source of information is the title page 245 $a …/ $c authoribus Petro Pena & Mathia de Lobel, medicis.
PCC-RDA-BSR (BIBCO Standard Record) (Element included in BSR: RDA Core element) Sources of information for statement of responsibility: RDA 2.4.2 Statement of responsibility relating to title proper RDA 2.4.2.2 Prescribed sources of information Transcription of statement of responsibility: RDA 2.4.2.3 Recording statement of responsibility RDA 2.4.1 Basic instructions on recording statement of responsibility RDA 2.4.1.4 Transcribing statement of responsibility	Transcription RDA 2.4.2 "Rare materials: Generally transcribe all statements of responsibility relating to title proper found in the preferred source of information." RDA 2.4.2 "Rare atlases, rare books, and rare music: If a title and statement of responsibility as recorded have been transposed from their presentation in the source, see also 2.17.3."	Source of information is the title page *Transcription same as DCRM(B)*
Resource Description & Access (RDA) (RDA Core element) Sources of information for statement of responsibility: RDA 2.4.2 Statement of responsibility relating to title proper RDA 2.4.2.2 Sources of information Transcription of statement of responsibility: RDA 2.4.2.3 Recording statement of responsibility RDA 2.4.1 Basic instructions on recording statement of responsibility RDA 2.4.1.4 Transcribing statement of responsibility		Source of information is the title page *Transcription same as DCRM(B)*

245 $c Statement of Responsibility

The last element of the 245 field, subfield $c statement of responsibility, was then constructed. The statement of responsibility for *Stirpium adversaria nova* is straightforward. The prescribed source of information is the title page (DCRM(B)1A2.1). The PCC-RDA-BSR directs catalogers to RDA 2.4.2 for instructions regarding the statement of responsibility relating to the title proper element. RDA 2.4.2.2 lists the sources of information for the statement of responsibility in order of preference. The first preference is *Stirpium adversaria nova*'s title page. All three of the standards use the same source for the statement of responsibility, which is the rare book's title page.

Next, issues related to the transcription of the element were considered. *Stirpium adversaria nova*'s title page names two authors, Petro Pena and Mathia de Lobel, in a single statement of responsibility (see figure 1). The PCC-RDA-BSR contains two rare materials provisions. The first does not apply to the 245 $c element for *Stirpium adversaria nova*'s record. It is included in response to the core requirement of RDA 2.4.2, which states that only the first statement of responsibility is core: "Rare materials: Generally transcribe all statements of responsibility relating to title proper found in the preferred source of information."[69] The second provision addresses a common situation that rare book catalogers must address, the transposition of elements: "Rare atlases, rare books, and rare music: If a title and statement of

Table 5. Variant Titles (246 field)

Cataloging Standard	PCC-RDA-BSR Rare Materials Provisions or RDA Early Printed Resources Exceptions or Alternatives	Transcription of 246 Field
Descriptive Cataloging of Rare Materials (Books) DCRM(B)F Title access points DCRM(B)0G2.2 Converted graphical form u/v DCRM(B)0G7.1 Modern orthography form	Not Applicable	Appendix F lists specific situations where uncontrolled title access is likely to be useful 246 3_ $a Stirpivm adversaria nova 246 3_ $a Stirpium adversaria nova
PCC-RDA-BSR (BIBCO Standard Record) (PCC Core element: Not RDA Core element) RDA 2.3.6 Variant title RDA 1.7.1 DCRM(B) designated published style manual as guide for transcription DCRM(B)F Title access points DCRM(B)0G2.2 Converted graphical form u/v DCRM(B)0G7.1 Modern orthography form	RDA 2.3.6 "PCC Core for rare materials; record variant titles that are required by the appropriate DCRM module." RDA 1.7.1 General guidelines on transcription. Alternative (1st): "Rare materials: Use *Descriptive Cataloging of Rare Materials* as the 'designated published style manual' in place of the instructions given under RDA 1.7.2-1.7.9 for transcribing punctuation, numerals, symbols, abbreviations, etc."	*Appendix F lists specific situations where uncontrolled title access is likely to be useful* *Transcriptions same as DCRM(B)*
Resource Description & Access (RDA) (Not RDA Core element) RDA 2.3.6 Variant title RDA 2.3.6.2 Take variant titles from any source RDA 2.3.6.3 Recording variant title RDA 2.3.1 Basic instructions on recording titles RDA 2.3.1.4 Transcribe what is on the source RDA 1.7.1 DCRM(B) published style manual as preferred guide for transcription DCRM(B)F Title access points DCRM(B)0G2.2 Converted graphical u/v DCRM(B)0G7.1 Modern orthography form	Transcription: RDA 1.7.1 Alternative: "The agency creating the data may establish in-house guidelines for capitalization, punctuation, numerals, symbols, abbreviations, etc., or choose a published style manual, etc. (e.g. *The Chicago Manual of Style*) as its preferred guide. In such situations, use those guidelines or that style manual instead of the instructions at 1.7.2 RDA-1.7.9 and in the appendices."	Variant titles may be taken from any source *Transcriptions same as DCRM(B)*

responsibility as recorded have been transposed from their presentation in the source, see also 2.17.3"[70]

The single statement of responsibility with the two author names was transcribed for the DCRM(B) record as instructed by DCRM(B)1E1 ("Transcribe statements of responsibility found on the title page in the form in which they appear")[71] and DCRM(B)1E4.1 ("Transcribe a single statement of responsibility as such whether the two or more persons or corporate bodies named in it perform the same function or different functions.")[72] The directions provided for the PCC-RDA-BSR and RDA record are essentially the same as those used to create the DCRM(B) record. The PCC-RDA-BSR directs catalogers to RDA 2.4.2, which contains RDA 2.4.2.3. Catalogers are instructed to record a statement of responsibility by applying the instructions at RDA 2.4.1. RDA 2.4.1.4 directs: "Transcribe a statement of responsibility as it appears on the source of information (see 1.7 RDA)."[73] The 245 $c elements in all three records were transcribed with the single statement of responsibility citing the two author names given on the title page.

Another detail of transcribing the 245 $c element addressed is that the statement of the author names on the title page is followed by "medicis" (see figure 1). "Medicis" was transcribed as it appears in the statement of responsibility on the title page according to DCRM(B)1E1: "Transcribe statements of responsibility found on the title page in the form in which they appear."[74] "Medicis" was included in the 245 $c transcription for the PCC-RDA-BSR and RDA records because RDA 2.4.1.4 directs catalogers to: "Transcribe a statement of responsibility as it appears on the source of information (see 1.7 RDA)."[75] The transcriptions of the 245 $c elements for the three records were the same, "authoribus Petro Pena & Mathia de Lobel, medicis." (see table 4).

Although the 245 $c statement of responsibility elements were the same for all three standards, DCRM(B)'s

more detailed instructions for common features of rare books should be noted. These include terms of address in statements of responsibility (DCRM(B)1E7), qualifications such as initials indicating membership in societies, academic degrees, and statements of positions held (DCRM(B)1E8) and phrases about notes, appendixes, etc. (DCRM(B)1E14). The question of whether to include such terms, initials, phrases, and notes can be answered by RDA 2.4.1.4, which instructs catalogers to transcribe what appears on the source, yet the DCRM(B) provisions contain examples that illustrate the kinds of information commonly found on books produced during the hand-press era.

246 Field Variant Titles

Access points required for varying forms of the title proper were developed for the 246 field. DCRM(B)'s Appendix F provides instructions for variant title access points. The appendix's introduction states: "Title access plays an important role in enabling users to identify and locate special collections materials."[76] Two 246 variant title fields were created to record different forms of the title proper. The first recorded "Stirpivm adversaria nova," the form of the title as it appears on the title page, with the letter *v* transcribed in a medial position in the title words. Appendix F section 0G2.2 states, "Provide title access for the form of title proper that corresponds to the graphical appearance of the letters in the source."[77] The second 246 field recorded the modern form of the title, "Stirpium adversaria nova." Appendix F section 0G7.1 provides the optional rule to make a title access point for the title proper spelled according to modern orthography.

The PCC-RDA-BSR variant title element includes the provision: "PCC Core for rare materials: record variant titles that are required by the appropriate DCRM module."[78] The same 246 variant title fields created for the DCRM(B) record were recorded in the PCC-RDA-BSR. The same 246 fields were included in the RDA record, yet recording them was not a straightforward process. RDA 2.3.6 provides instructions for creating variant titles. RDA 2.3.6.2 instructs that a variant title can be taken from any source and directs catalogers to RDA 2.3.1, the Basic Instructions on Recording Titles. RDA 2.3.1.4 states: "Transcribe a title as it appears on the source of information (see 1.7 RDA)."[79] This rule cannot be easily applied to *Stirpium adversaria nova*'s variant forms of title proper. The modern form of the title proper, *Stirpium adversaria nova*, does not appear on any source. The form recorded in the 245 $a title proper, "Stirpium aduersaria noua," does not appear on any source. The title proper was recorded with the letter *v* converted to the letter *u* in accordance with the printing conventions of the time (DCRM(B)G4.1). The alternative at RDA 1.7.1 to use another published style manual was very broadly interpreted. DCRM(B) Appendix F was applied to create the 246 variant title fields in the RDA record. All three records included 246 fields that recorded the two variant title forms described in DCRM(B) Appendix F. DCRM(B) was the standard that provided necessary instructions for recording *Stirpium adversaria nova*'s 246 variant title fields that the PCC-RDA-BSR and RDA could not (see table 5).

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Appendix A. Letterforms *I/J*, *U/V*, *i/j*, and *u/v*. Descriptive Cataloging of Rare Materials (Books)

G4. Letterforms I/J, U/V, i/j, and u/v

G4.1. Historical background.
Some knowledge of the history of printing as it applies to **I/J**, **U/V**, **i/j**, and **u/v** is helpful when applying the provisions of 0G2.2.

Until the early seventeenth century, the standard Latin alphabet contained 23 letters. The letters we know as **i** and **j** were considered different minuscule shapes (or letterforms) of the same letter, as were the letters **u** and **v**. The letter **w** was not part of the standard Latin alphabet. A printer's choice for the **u** letterform in preference to the **v** letterform (or the **i** to the **j**) depended on its placement in a word and was governed by convention. Conventions varied somewhat from printer to printer, but often reflected national and regional preferences. While there were variant letterforms for lowercase letters, in the pre-modern distribution there was only one letterform for each of these letters used as capitals: **I** (with the gothic form resembling a modern **J**), and **V** (with the gothic form resembling a modern **U**). For example, Jacob = Iacob; Unſpotted = Vnspotted (capitalized as the first word of a title).

The dominant patterns in use before the seventeenth century were:

- **i** used in the initial, medial, and final position, without signifying vocalic or consonantal use; e.g., iustice (modern form: justice)
- **j** used in the medial or final position only after a preceding **i** (more typical on the European continent), signifying vocalic use; e.g., commentarij (modern form: commentarii)
- **u** used in the initial, medial or final position, without signifying vocalic or consonantal use; e.g., oeuures (modern form: oeuvres)
- **v** used in the initial position, without signifying vocalic or consonantal use; e.g., vtilita (modern form: utilita)

A gradual shift took place over time, from the late fifteenth century through the middle of the seventeenth century, with **U/u** coming to phonetically signify a vowel and **V/v** to signify a consonant, regardless of case or position in the word. Likewise with **i** and j, although that shift was more irregular, with **I/i** coming to phonetically signify a vowel and **J/j** a consonant. In the modern 26-letter Latin alphabet, **i** and j and **u** and **v** are all considered separate letters.

- **I** used in all positions, without signifying vocalic or consonantal use; e.g., Iuan (modern form: Juan)
- **V** used in all positions, without signifying vocalic or consonantal use; e.g., Vrsprung (modern form: Ursprung)

FRBR: Application of the Model to Textual Documents

Edward O'Neill and Maja Žumer

The FRBR (Functional Requirements for Bibliographic Records) model was a revolutionary development that presented a new view of the bibliographic universe. Although FRBR has been widely accepted and extensively studied, actual implementations have been limited. This can be partly attributed to: (1) the vague and controversial definitions of the group 1 entities—work, expression, manifestation, and item, (2) that various types of information resources pose different issues, and (3) the rapid digitization of information. The various definitions of information resources are identified and reviewed here. To simplify the modeling, this study is limited to a single type of information resource: textual documents consisting of a sequence of words that may include non-textual material in the form of tables, symbols, equations, and/or illustrations. The FRBR model is analyzed in the context of textual documents with particular emphasis on digital documents to better understand the group 1 entities. An overview of the problematic aspects of the FRBR model is discussed and possible solutions are proposed.

It has been twenty years since the International Federation of Library Associations and Institutions (IFLA) Section on Cataloguing approved the final report for the *Functional Requirements for Bibliographic Records* (FRBR).[1] Since then, FRBR has been widely accepted, extensively studied, and significantly revised. In 2002, an FRBR Working Group was formed "to provide a focal point within IFLA for the ongoing support and development of the conceptual model and to encourage the use of FRBR as a reference model for the bibliographic universe."[2] A year later, that working group was transformed into the FRBR Review Group.

In 2005, the FRBR Review Group convened an invitational workshop to explore various aspects of the FRBR model.[3] Following up on the problematic issues identified at the workshop, the FRBR Review Group established two working groups: the Working Group on the Expression Entity and the Working Group on Aggregates. FRBR was extended in 2008 to include name authority data (FRAD) and further extended in 2011 to encompass subject authority data (FRSAD).[4] FRBR itself was revised in 2009 to incorporate updates to the model, including the changes proposed by the Working Group on the Expression Entity.[5] The Working Group on Aggregates issued their report in 2011 (Aggregates Report) proposing how aggregates should be modeled.[6] The *IFLA Library Reference Model* (LRM) represents the most recent development. LRM is a high-level conceptual reference model that consolidates the FRBR, FRAD, and FRSAD models. "LRM issues from, but is distinct from, the three previous models in the FR family of conceptual models, FRBR, FRAD, and FRSAD."[7]

Edward O'Neill (edwardtoneill@gmail.com) is a Senior Research Scientist (Retired), OCLC Research, Dublin, OH. **Maja Žumer** (maja.zumer@ff.uni-lj.si) is a Professor of information science at the University of Ljubljana in Slovenia.

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Literature Review

Despite all the work that has been done, considerable confusion about the model remains and some aspects are still controversial. Although the FRBR model includes three groups of entities and the relationships among them, it is the group 1 entities (work, expression, manifestation, and item) that have generated the most discussion, confusion, and controversy. Why is there still so much controversy and confusion? It is not due to the lack of scholarly interest—FRBR may be the most studied current aspect of information organization. At least six FRBR books plus numerous reports, theses, and papers have been written on the topic.[8] The *FRBR Bibliography* identifies more than five hundred publications, even though it has not been updated since 2008.[9]

Because many of the publications have been based on different understandings of Work-Expression-Manifestation-Item (WEMI) model, it has been difficult to apply the model consistently across different types of resources. The goal of this study is to clarify the model by applying it to textual documents, a relatively homogeneous type of library material. To achieve this, the most important sources dealing with concepts such as documents, texts, and textual documents are first analyzed. After refining the concept of textual documents, definitions of WEMI entities for textual documents are discussed and their conceptual boundaries identified. This analysis placed textual documents in the context of the bibliographic universe and identified several problematic aspects of the FRBR model.

RDA was heavily influenced by FRBR but does not strictly adhere to its concepts. Tillett stressed the close relationship between RDA and FRBR stating, "All of these features of FRBR are incorporated into the new cataloging code now being developed, called RDA: Resource Description and Access."[10] While RDA differs from FRBR in several areas, the difference in the treatment of aggregates is especially notable. In describing the group 1 entries, RDA specifies that "Each of these terms [work, expression, manifestation, item], depending on what is being described, can refer to individual entities, aggregates, or components of these entities (e.g., the term *work* can refer to an individual work, an aggregate work, or a component of a work)."[11] FRBR is much more restrictive and limits aggregates to manifestations. Because aggregates are relatively common, this distinction is particularly significant.

Understanding the group 1 entities is critical to applying FRBR because they constitute the model's foundation. Names of group 1 entities were introduced or redefined in the FRBR context. While it is tempting to equate the FRBR terms with their earlier usage, the equivalents are imprecise. As a conceptual model, FRBR provides broad definitions but often lacks sufficient details for implementation. Leaving the implementation details to the cataloging rules can be advantageous because it provides the flexibility necessary to make bibliographic distinctions based "on the anticipated needs of users."[12] While this flexibility is desirable, unambiguous definitions for the group 1 entities are necessary for the exchange and reuse of bibliographic data. Sharing bibliographic data in today's global environment is only practical if the data are created following consistent applications of accepted standards. If cataloging rules are based on differing or ambiguous definitions, sharing the resulting bibliographic data will be difficult. The lack of clear definitions contributes to confusion because discussion and examples are often based on varying definitions of the FRBR entities.

To explain, clarify, and identify problematic aspects of FRBR, this study focuses on textual documents and will:

- Review the various definitions of documents, texts, textual documents, and other similar terms;
- Discuss the WEMI model in the contexts of textual documents;
- Examine how digital resources should be modeled;
- Review the structure and development of bibliographic families; and
- Identify problematic aspects of the FRBR model.

Focusing on this single relatively homogeneous resource type greatly simplifies the terminology. FRBR's scope includes all bibliographic "entities described in library catalogues and national bibliographies."[13] In addition to print materials such as books and journals, there is also an extremely diverse set of resources that includes motion pictures, still images, musical scores, sound recordings, games, web resources, mixed media, data, artifacts, etc. Each resource type is associated with a specialized vocabulary. A discussion of the FRBR model often requires phrases such as "physical object (e.g., a copy of a one-volume monograph, a single audio cassette, etc.)."

While the terms "textual work," "document," "text," and "textual document" are commonly used to describe bibliographic entities and are often used interchangeably, they lack generally accepted and unambiguous definitions. The library literature includes numerous attempts to define or clarify the terminology, but definitions that worked for print resources cannot easily be extended to digital resources. Buckland uses multimedia as an example of the terminology problem. Multimedia, which "used to denote multiple, physically-different media, is now of renewed interest, because, ironically, the multiple media can be reduced to the mono-medium of electronically stored bits."[14]

Defining a document has never been easy and is even more difficult for digital resources. Svenonius defined documents as "information-bearing messages in recorded form" and stated that "a document may assume a variety of

material embodiments: a copy of a book, a video, a sound recording, text or images on the Internet, or a one-of-a-kind work such as a manuscript or a painting."[15] Definitions of documents range from a relatively narrow view that a document is a printed object intended to be read without mediation to a broader view that a document is any object that has the potential to inform. FRBR defines a work as "a distinct intellectual or artistic creation."[16] In LRM, a work is defined as "the intellectual or artistic content of a distinct creation."[17] Because works are defined as intellectual or artistic creations and documents embody works, documents are also limited to man-made intellectual objects.

Buckland provides several different definitions of a document:[18]

- Any source of information, in material form, capable of being used for reference or study or as an authority. Examples: manuscripts, printed matter, illustrations, diagrams, museum specimens, etc. (International Institute for Intellectual Cooperation)
- Any physical or symbolic sign, preserved or recorded, intended to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon. (S. Briet)
- A document is the repository of an expressed thought. (Donker Duyvis)
- A document . . . a record on a more or less flat surface. (Ranganathan)
- He also noted that Briet considered anything that is the "object of study" to be a document, citing an antelope in a zoo as an example.

In an earlier paper, Buckland examined "information-as-thing" and distinguished between knowledge and information.[19] He argued that knowledge is intangible, but information is tangible and must be recorded. He identified three types of information: data, documents, and objects. Documents were broadly defined to encompass images and sound. "Objects are collected, stored, retrieved, and examined as information, as a basis for becoming informed," and Buckland cited rocks, fossils, bones, and other artifacts as examples.[20] He differentiated between documents and objects based on their dimensionality—documents are two-dimensional, objects are three-dimensional.

Buckland recognized that relying on dimensionality is problematic because it results in a map being categorized as a document while a globe is an object. Applying FRBR's intellectual or artistic requirement, rather than dimensionality, solves this problem by considering three-dimensional man-made objects (globes, statues, models) to be documents rather than objects. Objects are limited to natural objects (antelopes, stones, specimens, etc.). By combining Svenonius's definition with the FRBR creativity requirement, documents can be defined as a recorded intellectual or artistic message. Books, journals, manuscripts, videos, sound recordings, photographs, paintings, sculptures, and monuments would all be considered documents.

Data, the third element in Buckland's information triad, generally consists of numeric or tabular information that is not intended to be read. Technology enables the collection of massive amounts of data (e.g., temperatures from across the globe, book circulation statistics, economic trends). Unlike documents, data are not primarily intended for human consumption without further processing and refinement.

Textual Documents

When documents are broadly defined as recorded intellectual or artistic messages, they form a category that encompasses most information resources. Textual documents are a subset of documents, and common definitions of textual documents include:

- Any object that can be "read," whether this object is a work of literature, a street sign, an arrangement of buildings on a city block, or clothing styles. It is a coherent set of signs that transmits some kind of informative message;[21]
- The set of words that constituted writing;[22] and
- [A collection of] certain words into a certain sequence.[23]

A textual document is defined here as *A document consisting of a sequence of words that may include nontextual material in the form of tables, symbols, equations, and/or illustrations.* Textual documents are language dependent and can take the form of either writing or recorded speech. They are intended to be read or heard. The most common examples are printed books and journals, but they also include spoken audio recordings and Braille. This view of textual documents and their place in the bibliographic universe is shown in figure 1. Each of the basic information types has a number of subtypes. While there are many other important document types (motion pictures, still images, musical scores, games, music, etc.), they are beyond the scope of this study.

Figure 2 shows the classic WEMI model using different shapes to represent each of the group 1 entities. The cloud shape is used for works, the oval for expressions, the hexagon for manifestations, and the rectangle for items. Using distinctive shapes makes the recognition of each entity type easier. The following discussion focuses on digital resources and ways in which they can be accommodated by the FRBR model. To better accommodate digital resources, the descriptions of group 1 entities will emphasize their

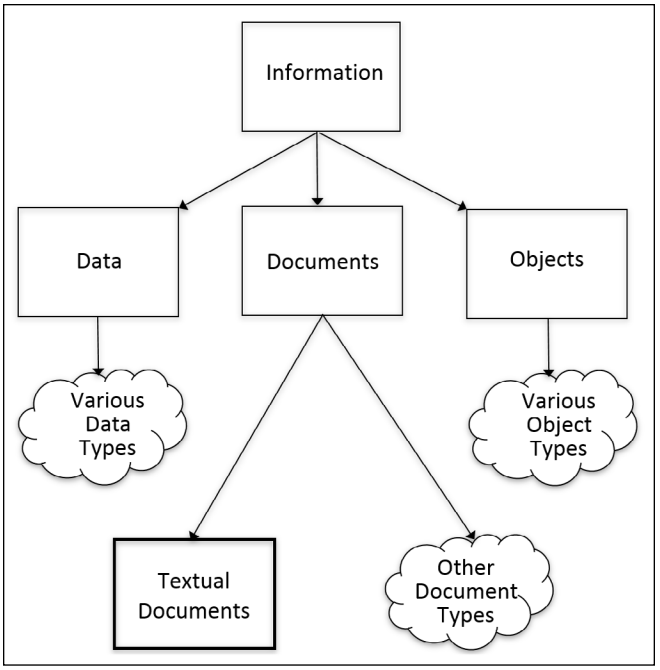

Figure 1. The Bibliographic Universe

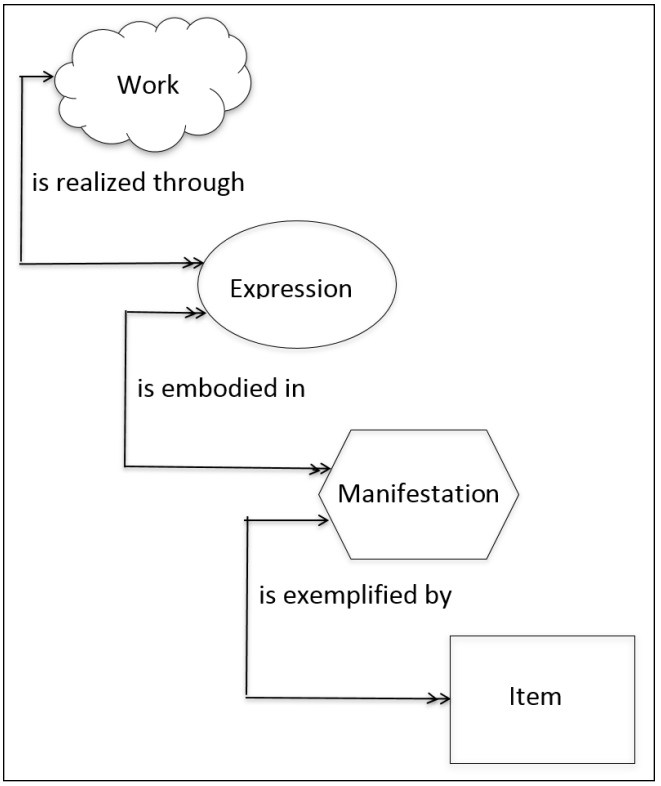

Figure 2. The WEMI Model

function rather than their physical attributes or the media on which they are recorded.

Svenonius used the term "superwork" to represent the set of works derived from a common source.[24] Although the term superwork is not used in FRBR, the concept can be represented with work-to-work relationships, provided that the derivation chain is known. A superwork encompasses all works (textual documents, motion pictures, music, etc.) derived from a common source. Smiraglia also discusses superworks, which he referred to as bibliographic families. He called the common source, "the first instantiation of a work," the progenitor.[25] Smiraglia gave the progenitor special status, and identifying it is key to understanding and describing a bibliographic family.

The work family is a narrower concept than the bibliographic family; it is the set of group 1 entities associated with a single work. In a work family, the focus is on how a single work is realized in different expressions and, in turn, embodied in manifestations. Most works are simple and are realized in a single expression: a single manifestation that embodies the expression and the set of items exemplifying the manifestation.

Bennett, Lavoie, and O'Neill found that in OCLC's WorldCat, 94 percent of the works had a single expression and 78 percent had a single manifestation.[26] Although their study was done prior to the revisions of definitions of expressions, their estimates are probably still reasonable. Even if only 6 percent of the work families contain multiple expressions, in absolute terms that is a very large number. Since their study, WorldCat has grown to over 380 million bibliographic records, and there could be close to twenty million work families with multiple expressions in WorldCat.[27]

These complex work families are generally important, highly held works. Some of these complex families have thousands of manifestations with millions of items. Understanding how these work families are formed and grow is essential to successfully applying the FRBR model. Work families typically start with a single expression with a single manifestation, the progenitor, and develop over time. The most common exceptions are multilingual publications that initially have expressions in different languages. The shift to digital has spurred the growth of new manifestations and expressions particularly for older, out-of-copyright works.

Works

In FRBR, "The *work* itself exists only in the commonality of content between and among the various *expressions* of the *work*."[28] The name associated with the progenitor usually serves as the name for the work and the entire set of associated documents. In most cases, documents derived from the progenitor are new expressions or manifestations of the work. FRBR acknowledges the difficulty of defining precise

boundaries for works and states, "when the modification of a work involves a significant degree of independent intellectual or artistic effort, the result is viewed, for the purpose of this study, as a new work."[29] Thus, paraphrases, rewritings, parodies, adaptations, abstracts, digests, and summaries are considered as new works. However, although new editions and translations also involve a significant degree of independent intellectual effort, they are not viewed as new works.

Expressions

An expression is defined as "the intellectual or artistic realization of a *work* in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms."[30] LRM states that it is "a distinct combination of signs conveying intellectual or artistic content."[31] For textual documents, FRBR specifies that an expression encompasses the specific content in the form of words, sentences, and paragraphs.[32] The expression boundaries exclude aspects of physical form (e.g., typeface and page layout) that are not integral to the intellectual or artistic realization of the work. Manifestations can embody multiple expressions, so the inclusion of nonintegral supplemental material such as illustrations, notes, and forewords embodied in the manifestation does not alter the primary expression. Such augmentations are considered separate expressions of their own separate work(s). FRBR further states, "If a text is revised or modified, the resulting *expression* is considered to be a new *expression* but minor changes, such as corrections of spelling and punctuation, etc., may be considered as variations within the same *expression*."[33]

While explicitly identifying some of the types of changes that constitute a new expression, as a conceptual model, FRBR only provides the general framework, leaving the details to the cataloging rules. Revised or updated expressions of the same work are considered new, as are translations from one language to another. Although FRBR is less specific, either the audio recording of a written document or the transcription of a speech also results in a new expressions by changing the form of the document.

Revision

When expressions are updated or revised, each revision is considered a new expression. When the original FRBR report was amended and corrected in 2009, the 2009 edition became a new expression. Nonfiction works are more frequently revised and updated than are works of fiction. A classic nonfiction work, *Gray's Anatomy*, was initially published in 1858 and is now in the forty-first edition.[34] Each edition is a distinct expression. During their publishing history, expressions can undergo extensive changes, including content revisions, title changes, and authorship changes.

A Guide to the Library of Congress Classification is another example. Immroth was the original author of the work, and it was initially published in 1968. The second edition, also by Immroth, was published three years later with the same title. With the third and fourth editions, the authorship was transferred to Chan, and the title was changed to *Immroth's Guide to the Library of Congress Classification*. The fifth edition, also by Chan, reverted back to the original title *A Guide to the Library of Congress Classification*. Following Chan's death in 2014, Intner and Weihs assumed responsibility for the work, and the sixth edition was published with the slightly modified title of *Guide to the Library of Congress Classification*, with Chan, Intner, and Weihs as the authors. Although both the title and authors have changed multiple times over its fifty-year history, it is a single work with six distinct expressions.

Translation

When expressions are translated, each translation becomes a new expression. The translation of the FRBR report from English to French was a new expression. When there are multiple translations in different languages, each translation becomes a distinct expression. There are at least two French translations of *The Expedition of Humphry Clinker*, the first by Giono and d'Iver, and another later translation by Kleiman-Lafon. Each of these translations is a distinct expression.

For fiction, the progenitor is typically the source for the translation. However, for nonfiction, the progenitor is less likely to be the source. When a work has multiple revised or updated editions, the latest original-language edition is likely to be the source for the translation. If the source expression is different, even translations by the same person into the same language will result in a different expression.

Form

Textual documents can be written or spoken. There is often an audio edition of best sellers and other popular works. Additionally, many audiobooks are available for the blind and visually impaired. Through its National Library Service for the Blind and Physically Handicapped, the Library of Congress "administers a free library program of Braille and audio materials circulated to eligible borrowers …"[35] Audible, an Amazon company, claims to be the world's largest library of audiobooks. Audible targets a broad audience of listeners with "Anywhere, anytime listening … at home, in the car, at the gym."[36] A recorded reading of a written document is a distinct expression. Typically, the print edition will be the progenitor, and the audio edition will be

a reading. However, the progenitor sometimes will be an audio expression, particularly for the transcription of legal proceedings, speeches, addresses, lectures, etc.

Extensive changes to a textual document will result in a different document type (e.g., a motion picture, a play, or a video game) and generate a new work. When a book is adapted for a motion picture or a video game, the resulting product is a new work, since the resulting product is no longer a textual document. Translations and revisions are generally easy to recognize. Although possible, it is atypical for a textual document to be translated and revised in a single step.

Manifestations

In terms of intellectual content and physical form, a manifestation normally reflects the items it exemplifies. Variations may occur between items if those variations are the result of actions that occurred after the item(s) were published (e.g., defacement, margin notes, highlighting, rebinding, etc.). Changes in the manufacturing process resulting in minor variations between items (e.g., worn type, different paper, binding, etc.) do not create a new manifestation unless such changes were substantive or intentional. Items from different printings exemplify the same manifestation unless there are also significant changes to the content or physical form.

As FRBR explains:

> The boundaries between one *manifestation* and another are drawn on the basis of both intellectual content and physical form. When the production process involves changes in physical form, the resulting product is considered a new *manifestation*. Changes in physical form include changes affecting display characteristics (e.g., a change in typeface, size of font, page layout, etc.), differences in physical medium (e.g., a change from paper to microfilm as the medium of conveyance) and changes in the container (e.g., a change from cassette to cartridge as the container for a tape). Where the production process involves a publisher, producer, distributor, etc., and there are changes signaled in the product that are related to publication, marketing, etc. (e.g., a change in publisher, repackaging, etc.), the resulting product may be considered a new *manifestation*.[37]

From the intended reader's perspective, an expression embodied in any manifestation will have the equivalent content. Manifestations can differ in media type (e.g., printed book, e-book, microform), in their encoding (e.g., Word, Portable Document Format (PDF), Hypertext Markup Language (HTML)), in their layout/presentation (e.g., font, pagination, page size), and/or in the other expressions embodied in it, but by definition, the manifestation will contain the equivalent content. Significant changes to an expression's content will result in a new expression. A user may prefer a particular manifestation for its physical form (print, e-book, microform), but all manifestations embodying the expression will have equivalent content. The following sections identify and describe the changes that could signify a new manifestation.

Media

FRBR specifies that "changes in physical medium (e.g., a change from paper to microfilm as the medium of conveyance) and changes in the container (e.g., a change from cassette to cartridge as the container for a tape)" will result in a new manifestation.[38] A wide variety of media have been used to embody expressions, including:

- Paper (paper, parchment, scrolls, etc.);
- Film (transparent media);
- Magnetic media (tape, disks, etc.);
- Electronic media (flash memory, computer RAM);
- Optical media (CDs, DVDs, etc.); and
- Cloud storage (non-specific online storage)

Paper and film have commonly been used to record analog documents, while electronic, optical media, and cloud storage have been used primarily for digital documents. Magnetic media has been widely used for both analog documents (audio tapes) and digital documents, both those born digitally and those created from analog.

Analog documents generally are tightly bound to the media embodying them. Digital documents may be tightly bound to their media (an audiobook on CD or Braille) or loosely bound (an e-book stored in the cloud). Tightly bound documents are distributed on their media, while loosely bound documents are distributed online. In the latter case, we rarely know or care about the particular media on which they were stored prior to being distributed. For online documents, it is appropriate to consider cloud storage to be a single media type regardless of its actual physical form.

Encoding

A document can be recorded in either an analog (print) or digital form. Print documents consist of a sequence of visual characters and symbols, traditionally in the form of ink on paper. Spoken documents are recorded as sound waves. For analog spoken recordings on magnetic tape, the sound waves are converted into a magnetic field of varying strength that is stored as magnetized areas. Recording on other media,

such as vinyl records, follows a similar pattern. Regardless of the recording medium, all analog recordings are stored such that they can be converted to acoustic sound waves.

To record a spoken document digitally, the sound wave must first be digitized. The digital recording is stored as a series of numbers representing samples of the amplitude of the sound wave over time. The resulting digitized audio can be stored on any media compatible with digital data. Like analog recordings, digital audio must be converted back to an analog sound wave to be heard. While the concept of digitization is simple, a variety of different formats (.wav, .mp3, .aac, .m4a, etc.) have been used to encode sound. These formats differ in the quality of the recording (fidelity), the size of digital image, and digital rights management (DRM). Each of the formats requires specific software to convert the digital file back to a sound wave. Although many devices (newer CD players, portable media players, computers, etc.) are compatible with multiple formats, none are compatible with all. Most older CD players are only compatible with the .wav format and are unable to play the newer formats.

Written documents can also be digitally encoded using a variety of different schemas. PDF, HTML, ePub, Mobi, and Word are widely used standards for textual documents. Word is commonly used to create documents, and some documents are distributed as Word files. Scholarly journals often use PDF and HTML, and PDF, ePub, and Mobi are widely used for e-books. Many e-books add DRM to control their use and prevent unlicensed distribution. The use of DRM further limits the compatibility of digital documents.

Braille materials, while digital, are a unique type of textual document intended for the blind and visually impaired. Braille is the only form of digital encoding that is intended to be read. It was developed in the early nineteenth century and is generally considered to be the first digital form of writing.[39] Although Braille predates computers by more than a century, Braille encoding is similar to binary-coded decimal (BCD) schemas used in early computers that used six bits to encode a character. This limits the number of possible characters to sixty-four: twenty-six letters, ten digits, plus various special characters.

When identifying manifestation boundaries, each unique encoding format (including any DRM layers) is a distinct manifestation. A book in Braille is a different manifestation from the printed edition on which it was based. An expression encoded in PDF is a different manifestation from the Word document from which it was derived.

Publisher

When the publisher changes, a new manifestation is created even when there are no other apparent changes in the document.

Appearance

When the production process involves changes in a document's appearance, the result is a new manifestation. But the operative term—production process—for digital documents differs from that of print documents. The process for print documents includes fixing the final appearance and producing items that are identical in terms of font, page size, and layout. For digital documents, however, the production process does not include creating the final page images that will be rendered post-production to meet the needs of the reader and capability of the display. Generally, either the apparent font size or the page layout is fixed during production and the other is set when the document is rendered. PDFs and ePubs are examples of these two approaches to document rendering.

PDF "is a file format used to present documents in a manner independent of application software, hardware, and operating systems. Each PDF file encapsulates a complete description of a fixed-layout flat document, including the text, fonts, graphics, and other information needed to display it. A PDF file also captures the formatting of documents from a variety of applications."[40] The image of a PDF document will have a consistent appearance regardless of the device used to display it. The size of the image and the apparent font size is device dependent. On phone sized screens, the apparent font size will be small, making reading a PDF document difficult.

The PDF mimics print in appearance by maintaining the typeface, page layout, and pagination across display devices. For selected applications (such as rendering journal articles), this works well and can produce an item that is virtually indistinguishable from its print equivalent. However, because the size of the image is scaled for the device, displaying a PDF on a small display can result in an image with an unreadable small font. Because the font size changes depending on the size of the display, a strict interpretation of FRBR would imply that simply changing the size of the display creates a new manifestation. However, considering variant displays as distinct manifestations is contrary to the functional view of manifestations and results in the inconsistent treatment of print and digital documents.

In contrast, ePub documents used with iBooks, Apple's e-book application, are designed so that the image can be optimized for the particular device: an iPad, iPhone, iPod, or Mac. "Read one page at a time, or turn your iPad on its side and view two pages at once. Read everything full screen, with no distractions, or read in white-on-black nighttime mode. Alter the look of most books by changing their text size and font."[41] Instead of generating consistent images, iBooks adjusts the page layout to match the capabilities of the display and the reader's requirements.

Figure 3 shows a page image on the left as it appears in print. The same text is shown in the upper right as a PDF document and in the lower right as an iBooks document as they would be rendered on an iPhone 7. In the image of the PDF document, the layout is unchanged from the print but reduced in size to the point that it is almost unreadable. In the iBooks image, the layout is quite different and includes only a small portion of the text from the page image in a larger readable font. The image can be extensively modified by the reader; visually impaired readers can select a font size suitable for their needs. Documents can be rendered negatively in a white-on-black, a choice of fonts, different background page colors (white, sepia, gray, and black), or as a scroll.

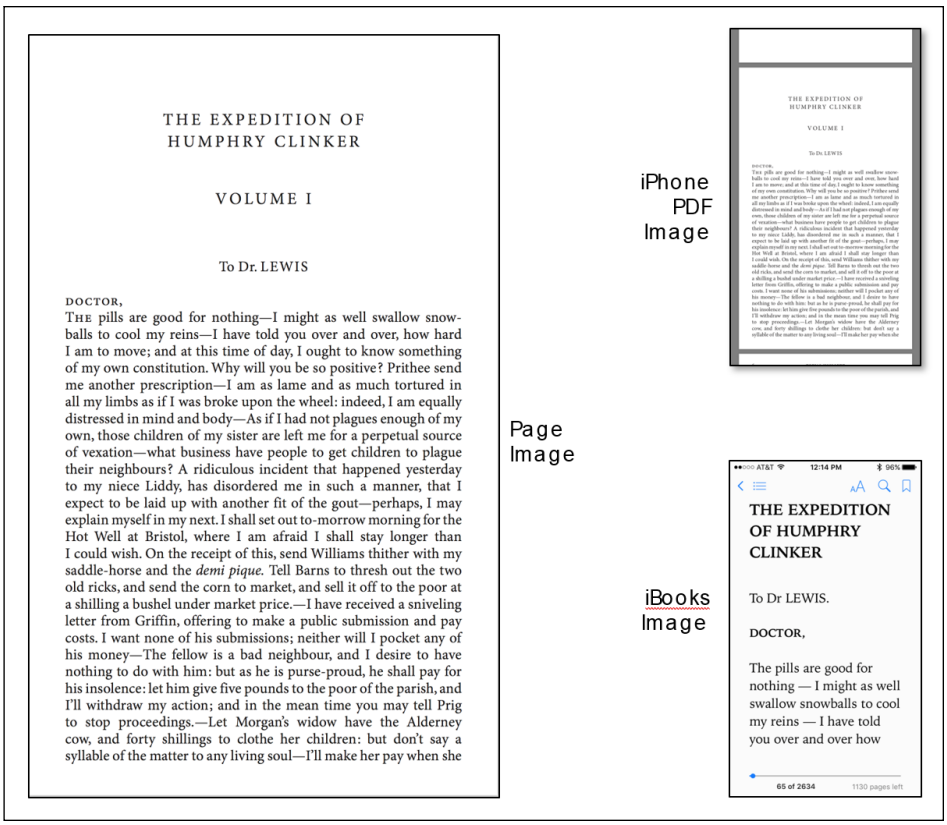

Figure 3. Various Image Renderings

The final appearance of digital documents is not fixed until they are displayed or printed, a process that occurs after the document has been distributed and over which the publisher has only limited control. Therefore, changes affecting the appearance that are made subsequent to its distribution should not be considered when determining whether the item is a new manifestation. It is assumed that allowing some changes in appearance is part of the publication/production plan and thus intrinsic to the manifestation and does not result in new manifestations.

Aggregation

The many-to-many relationship between expressions and manifestations in the FRBR model shown in figure 2 explicitly allows multiple expressions to be embodied in a single manifestation. When two or more independent expressions are published together in a single manifestation, an aggregate is formed. Modeling aggregates has been problematic because FRBR did not address them consistently or in sufficient detail. This lack of attention is somewhat surprising since aggregates are very common. O'Neill, Žumer, and Mixter estimated that over 20 percent of the items in library collections are aggregates.[42]

The Working Group on Aggregates was charged with analyzing and defining aggregates and proposing how they should be modeled. They defined an aggregate as "a manifestation embodying multiple distinct expressions" and identified three types of aggregates:[43]

- **Collections** are aggregates of expressions of works that are similar in form, genre, or type. Examples include selected and collected works, anthologies, journals.
- **Augmentations** are aggregates that are formed when an expression is published with nonintegral supplemental materials such as illustrations, forewords, introductions, biographical notes, etc., because such supplemental materials are considered to be distinct expressions of their own separate work(s).
- **Parallels** are aggregates of expressions of the same work. Common examples include multilingual editions of poetry, multilingual official publications, and user manuals.

The intellectual effort of creating an aggregate is a distinct intellectual effort that creates a special type of work called an *aggregating work*. While the expression of an aggregating work will always be embodied in an aggregate manifestation, it need not be specifically described unless it is considered significant. An aggregating work is distinct

from and excludes the works aggregated. This approach, originally proposed by the Working Group on Aggregates, was later incorporated into LRM. Even after the report was accepted by the FRBR Review Group, there continues to be occasional examples of improper modeling, possibly due to vagueness and inconsistency of examples of aggregates in FRBR and lack of visibility of the Aggregates Report.[44]

Items

Although often neglected, items are very relevant. Almost everything known about manifestations, expressions, and works is inferred from observing items. In FRBR, an item is described as a tangible object. For analog documents, it can either be a single physical object (a single volume monograph, a spoken recording on single CD), or it can be comprised of multiple objects (a multiple-volume monograph or a spoken recording on several cassettes). Coyle points out that the item is neglected in most discussions of group 1 entities "possibly because it is also the most clear" but that clarity does not extend to digital items.[45] The item is the only WEMI object that is human readable—it is what the reader "sees" or the listener "hears."

Digital documents, with the exception of Braille, require additional processing to become readable. There is no digital entity similar in both function and form to an analog item. LRM stresses that the publishing of digital documents is specific because the resulting items are not necessarily identical and "the production plan will involve aspects that are not fully specified as they are not under direct control of the producer," such as the specific device used to store or display the item.[46] In LRM, some variations among items are allowed because they are considered to be exemplars of the same manifestation. Different investigators have investigated digital items and a number of criteria for identifying digital items have been suggested.

Physical Objects

Floyd and Renear may have been the first investigators to explore the concept of an item in the digital world. They argue that because an item is defined as a concrete entity, identifying an item stored online is problematic. They note, "In most scenarios of information use in the digital world there is no visible, discrete, concrete physical object comparable to a copy of a book."[47] They proposed PMEs [patterned matter and energy] as one of two possible views of items in the digital world. Floyd and Renear argue that PMEs, the individual physical states of the relevant portions of the computing system, are an appropriate candidate to be an item.

However, they state that PMEs, although they are concrete, are not usually considered to be bibliographic objects because of their brief existence. Floyd and Renear note that "careful analysis of other common item-level attributes, such as item identifier, condition, etc., will also reveal that these are rarely applied, strictly speaking, to a PME, but rather to some related abstract object, perhaps corresponding manifestation or expression."[48] Reinforcing their concern, PMEs are not human readable and appear to represent an intermediate step in the information delivery process—the rough equivalent to printing plates or stencils.

Files

Floyd and Renear also propose files as an alternate to PMEs but question what constitutes a file. They state that "there are patterns of practice and discourse around the word 'file' but it is far from clear whether there is a single univocal concept behind them, much less what that concept is."[49] They suggest several possibilities with their assessments:

- Files are abstract objects, a sequence of bits or characters. This is clear, but would make the rhetoric of creation, destruction, and location metaphorical and would blur the distinction between item and manifestation.
- Files are logical fictions. Logical fictions such as the "the average plumber," raises the question of what entities will be involved in their explication.
- Files are "freestanding" social objects, like a debt or a corporation, but the nature of such social objects is controversial.

Like PMEs, files are not readable—they are not the final product in the information delivery process. If files are items, what is the object that is actually delivered to the reader? Files, at least as the term is used in computing, do not necessarily correspond to what are typically considered to be documents. For some types of digital documents, such as PDFs, there may be a one-to-one correspondence between a document and file, while other types of documents may consist of multiple files and, in those cases, an individual file is not a complete document.

Function

In their attempt to identify digital items, Floyd and Renear focused on the physical characteristics based on FRBR's description of items as tangible or concrete objects. It is somewhat ironic that the *Functional Requirements for Bibliographic Records* focuses on the item's physical form, not its function. An item, at least for print documents, is the object that the reader actually uses: the book or journal.

What then is the functional equivalent to the item for digital documents? Because digital documents are not

readable, they cannot be the final exemplar. To become readable, a digital document must be transformed into an analog image and either printed or displayed. A printed copy of a digital document may appear identical to its print equivalent. If the printed copy is an item, does it not follow that a printed image of the digital document is also an item? Is an image of the document displayed on a monitor also an item? The function of the displayed image is the same as that of the printed page, but it is difficult to argue that an image displayed on a computer monitor, tablet, smartphone, or other type of display is physical, tangible, or concrete.

While LRM does not specifically drop tangibility as a requirement, it recognizes that applying the definition developed for analog items to digital resources is problematic. FRBR defines an item as "a single exemplar of a *manifestation*."[50] The definition itself does not require items to be tangible objects, but FRBR continues to state that "an *item* is a concrete entity."[51] For analog documents, associating items with physical objects is logical, but it fails for digital documents. If the requirement that items must be concrete physical objects is dropped, the original definition can be extended to both analog and digital documents.

Identifying an item by its function rather than by its physical properties ensures that analog and digital resources are treated consistently. For textual documents, an item would be the entity that is actually used by the reader or listener. This revision has little, if any, impact on analog documents while clarifying that an image displayed on a monitor or similar device is also an item.

Conclusion

Twenty years after the adoption of the FRBR model, there is still confusion, and some aspects remain controversial. This can be attributed to several causes:

- FRBR is vague and imprecise, leading to different interpretations.
- When the FRBR model was initially developed, the terminology was still very print oriented.
- The three different functional requirements models (FRBR, FRAD, and FRSAD) were developed over an extended period.
- Developments such as RDA and, more recently, LRM, have reduced but not eliminated much of the confusion and ambiguity.

This study focused on textual documents, the most common type of library resources. Buckland's concept of documents was adopted to be compatible with FRBR, and a new approach to categorize information resources was proposed. After defining documents, the modeling of textual documents was analyzed. In principle, conceptual models provide the bibliographic framework by defining, in the context of entity-relationship formalism, the entities, attributes, and relationships. The line between the conceptual model and the cataloging rules is often fuzzy. Clear guidelines in the form of cataloging rules must also be developed to successfully implement FRBR. When examples are used to illustrate the conceptual model, they frequently reflect implicit implementation assumptions influenced by current cataloging rules and practice.

FRBR aims to satisfy two conflicting goals: providing sufficient flexibility to allow cataloging rules that satisfy local needs, expectations, and practice while establishing standards to encourage and support the exchange and reuse of bibliographic data. Sharing bibliographic data in today's global environment is only practical if the data are created according to consistent standards.

The criteria used to determine when expressions or manifestations should be considered distinct were explored. Particular focus was given to two particularly difficult issues: aggregates and digital publishing. For textual documents, aggregates can be successfully modeled following the recommendations in the Aggregates Report. Issues arising from digital publishing have been more difficult to resolve because there has been little agreement regarding how the concrete entity requirement should be applied. The proposed solution is to focus on function rather than physical form. Viewing the item as a human readable entity that can be read or listened to provides a consistent approach for both analog and digital resources.

The FRBR models propose a new paradigm and should be implemented as soon as possible. LRM, the consolidated model, is a big step forward. This analysis of textual documents in the FRBR contexts is another step, but the other types of documents (music, video, images, etc.) also need to identified and analyzed to better understand FRBR and guide its application.

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Notes on Operations

Competencies through Community Engagement

Developing the *Core Competencies for Cataloging and Metadata Professional Librarians*

Bruce J. Evans, Karen Snow, Elizabeth Shoemaker, Maurine McCourry, Allison Yanos, Jennifer A. Liss, and Susan Rathbun-Grubb

In 2015 the Association for Library Collections and Technical Services Cataloging and Metadata Management Section (ALCTS CaMMS) Competencies for a Career in Cataloging Interest Group (CECCIG) charged a task force to create a core competencies document for catalogers. The process leading to the final document, the Core Competencies for Cataloging and Metadata Professional Librarians*, involved researching the use of competencies documents, envisioning an accessible final product, and engaging in collaborative writing. Additionally, the task force took certain measures to solicit and incorporate feedback from the cataloging community throughout the entire process. The Competencies document was approved by the ALCTS Board of Directors in January 2017. Task force members who were involved in the final stages of the document's creation detail their processes and purposes in this paper and provide recommendations for groups approaching similar tasks.*

Bruce J. Evans (bruceevans@baylor.edu) is Assistant Director for Library Collections Services, Cataloging and Metadata, Baylor University Libraries, **Jennifer A. Liss** (jaliss@indiana.edu) is Head, Monographic Image Cataloging, Indiana University Libraries, **Maurine McCourry** (rnmccomry@hillsdale.edu) is Technical Services Librarian, Hillsdale College, Mossey Library. **Susan Rathbun-Grubb** (srathbun@mailbox.sc.edu) is Associate Professor, School of Library and Information Science, University of South Carolina. **Elizabeth Shoemaker** (elizabeth.shoemaker@demory.edu) is a Rare Book Cataloger, Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University. **Karen Snow** (ksnow@dorn.edu) is Associate Professor, School ofInformation Studies, Dominican University. **Allison Yanos** (allisonyanos@baylor.edu) is Catalog and Database Maintenance Librarian, Baylor University Libraries.

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In 2015, the Association for Library Collections and Technical Services Cataloging and Metadata Management Section (ALCTS CaMMS) Competencies for a Career in Cataloging Interest Group (CECCIG) charged a task force to create a core competencies document for catalogers. The initial charge asked the task force to "enumerat[e] the skills and knowledge required for a career in cataloging for use by cataloging practitioners and educators."[1] The process that the task force followed was ultimately successful, and the final draft of the *Core Competencies for Cataloging and Metadata Professional Librarians* was formally approved by the ALCTS Board of Directors and made publicly available via the American Library Association Institutional Repository (ALAIR) in January 2017.[2] The task force conducted research into the use of competencies documents, envisioned community needs and requirements for such a document, undertook collaborative writing to draft the document, and solicited and incorporated feedback from the cataloging community throughout the process of creating the final product.

Through its research, the task force found that competencies documents exist for many professions, and librarianship has developed several, including a *Core Competences of Librarianship* adopted by the American Library Association (ALA) in 2009. Although that document addresses some competencies needed by catalogers, by 2015 it had become clear to the CECCIG that there

was a strong need for a similar document specifically for catalogers and that the cataloging community desired such a tool. The task force appointed to create this cataloging competencies document successfully involved the broader cataloging and metadata community in the process of collaborative research and writing and learned a great deal about facilitating such involvement. By detailing this process and its outcomes, the task force hopes to aid other groups in writing competencies documents and to offer suggestions for successful collaboration that effectively engages the community for which the document is written.

Literature Review

The development of the *Core Competencies* document was informed by an extensive review of relevant literature. First, the task force found it helpful to define what is meant by "competencies" in this context. Discussion of core competencies in library literature grew out of a broader effort to define "competency" in the early 1990s, beginning with Prahalad and Hamel's paper in the *Harvard Business Review* on core competencies for organizations.[3] Their definition of "competency" focused largely on the resources, skills, and techniques needed to distinguish an organization from its competitors.[4] Within the library and information sciences (LIS) profession, "competency" refers primarily to an individual's characteristics, not those of an organization. Dole notes "there is no standard universally accepted definition of core competencies in libraries," but there are common threads.[5] Fisher asserts that one should not view competencies monolithically, but as composed of three main categories: professional, personal, and educational.[6] Professional competencies are "occupation-related knowledge and skills that make one technically proficient at the tasks that comprise one's job and are needed for success in a particular work setting."[7] Personal competencies are "individual traits, attitudes, and behaviors needed for success in almost any venue."[8] Educational competencies are "those skills, traits, and attitudes that result from studying a body of knowledge on a given topic as one learns how to learn."[9] Fisher emphasizes that these competencies will evolve over time as jobs and knowledge adapt to continually changing information environments.

Others have defined "competencies" using many of the same descriptors as Fisher but have not broken down their definitions into discreet categories. For example, the European Council of Information Associations defines "competency" as "the set of skills necessary to perform professional activity and the understanding of the professional behaviour which encompasses them."[10] Competencies should be observable and therefore analyzable in some way. Dole, Hurych, and Liebst define "competencies" narrowly as a "specific range of skills, abilities, or knowledge that enable or qualify someone to perform a particular function or to carry out selected responsibilities."[11] They are careful to note that they do not necessarily consider "behavioral characteristics or personality traits" as part of a definition of competencies, perhaps because they are more difficult to learn and measure.[12]

A typical way to present competencies is through a "competencies" or "core competencies" document. Lester and Van Fleet explain that LIS competencies documents "are those statements of desired knowledge, skills, and attitudes evidenced by practitioners and promulgated by national associations whose missions support and advance the professions related to the discipline of library and information studies."[13] Numerous core competencies documents have been produced in areas of LIS specialization. Special librarians were the first to define core competencies for their respective area in a series of documents in the early and mid-1990s.[14] ALA began work on a core competencies document for librarians in 1999 that sought to define "the basic knowledge to be possessed by all persons graduating from an ALA-accredited master's program in library and information studies."[15] The completed document was approved and adopted as policy by the ALA Council in 2009. WebJunction produced a "competency index" in 2009 (subsequently updated in 2014) that was designed to "[help] staff identify and obtain the knowledge, skills and support needed to power relevant and vibrant libraries."[16] Other areas of specialty in LIS have produced competency documents, including the Art Libraries Society of North America, the Music Library Association, and NASIG.[17] Hirsh writes that such documents can be beneficial for stakeholders, including library leaders creating position descriptions and evaluating performance, and LIS schools updating their curriculum.[18]

ALA's *Core Competences of Librarianship* contains forty-one specific competencies listed under eight broad categories. The third broad category, "Organization of Recorded Knowledge and Information," provides three specific competencies:

3A. The principles involved in the organization and representation of recorded knowledge and information.
3B. The developmental, descriptive, and evaluative skills needed to organize recorded knowledge and information resources.
3C. The systems of cataloging, metadata, indexing, and classification standards and methods used to organize recorded knowledge and information.[19]

WebJunction's 2014 *Competency Index for the Library Field* contains two "essential library competencies: technology and personal/interpersonal." It breaks down further

competencies by area of focus: library collection, library management, public services, and systems and IT.[20] Cataloging competencies are cited specifically in the "library collection competencies" category. Although there is greater detail in WebJunction's cataloging competencies than ALA's document, it is not fully serviceable as a comprehensive list of competencies for cataloging and metadata professionals. Listing cataloging-specific competencies in isolation from other competencies may give the impression that other, non-cataloging-specific competencies are less important to the work of the modern cataloger, which is not the case.

To gain a better sense of what should be included in a competencies document drafted specifically for cataloging and metadata professional librarians, the task force reviewed cataloging and metadata literature published from 2010 through 2015. In addition to knowing and applying various standards, such as Resource Description and Access (RDA) and Machine-Readable Cataloging (MARC), Joudrey and McGinnis cite the need for cataloging and metadata professionals to be aware of the broader information environment and trends, both within and external to libraries.[21] Other papers cite the importance for cataloging and metadata librarians to have "soft skills." These skills often include effective communication (writing, speaking, and listening) and collaboration, self-motivation, the ability to work independently, open-mindedness, flexibility, and a desire to continue learning new skills and acquiring knowledge throughout one's career.[22] According to Han and Hswe, these desirable soft skills cut across the cataloging and metadata job positions they studied.[23] The main difference Han and Hswe discerned between announcements for cataloging positions and those for metadata positions was an increased emphasis on "emerging technologies" knowledge in the metadata positions.[24] Mitchell adds that metadata professionals will likely need more understanding of and experience with programming languages and metadata transformation than cataloging professionals, but that the skills and knowledge needed for metadata positions are also becoming increasingly desirable in traditional cataloging positions.[25]

Boyd and Gould, in a book chapter about needed skills for technical services librarians, reference the importance of tech savviness, time management, creativity, advocacy, and professional networking in addition to the previously noted soft skills. It is critical for cataloging and metadata professionals to understand that they will need to contribute more than just metadata as library work becomes less siloed.[26] Diao and Hernández emphasize the need to understand quality issues, provide authority control, and approach metadata creation creatively (e.g., using pragmatic solutions rather than relying solely on cataloging standards to solve problems).[27]

Several presentations given between 2013 and 2015 confirm conclusions made in the literature and add additional areas of consideration. Carlyle emphasizes the need to understand marketing and advocacy, project management, and metadata and ontology design.[28] Bothmann highlights soft skills (e.g., negotiation, curiosity, critical thinking), leadership, and proficiency in multiple languages.[29] Panchyshyn focuses on the need for catalogers and metadata librarians to be fluent in current (RDA) and emerging (BIBFRAME) metadata standards, plus batch processing.[30] O'Dell stresses that the next generation "Cataloger 3.0" must know and apply traditional cataloging standards, and also be comfortable with Semantic Web standards and the programming and transformation languages mentioned by Mitchell, in part to facilitate communicating and collaborating with communities external to libraries.[31]

To further clarify needed competencies, the task force examined advertisements for professional cataloging and metadata positions posted between 2010 and 2015. This study verified much of what was discovered in the LIS literature and presentations. Experience working with various metadata standards, such as MARC, RDA, and Dublin Core, was most frequently cited, with communication, collaboration, and general soft skills (critical thinking, time management, open-minded listening, ability to work in a diverse setting, etc.) following closely behind. Most position announcements desired experience rather than knowledge of standards, systems, etc., and this also applied to soft skills. Employers seek candidates who provide concreate examples that demonstrate competencies such as being communicators and collaborators rather than simply stating that they have mastered those competencies.

Task Force Formation

The Cataloging Competencies Task Force was created to address a need clarified during the CECCIG business meeting at the 2015 ALA Midwinter Meeting. During that meeting, the interest group chair led a discussion to explore use cases for a cataloging competencies document, to learn about similar efforts to produce this type of document, and to identity potential stakeholders. The CECCIG leaders collected crucial feedback during the meeting regarding what the cataloging community sought in a competencies document. Meeting participants advised CECCIG leadership to focus on foundational principles of cataloging, rather than specific applications, operating systems, standards, etc., which are quickly superseded, and made clear that the document needed to be useful to both cataloging educators and practitioners. Meeting attendees suggested developing a competencies statement that would encompass a cataloger's total career development, rather than one that outlines the competencies required for new catalogers. Finally, participants requested that the core competencies document

be extensible, allowing specialized domains (such as serials, audio-visual materials, cartographic resources, music, law, and special collections cataloging) to adapt or build upon the document to address their respective areas' needs.

Following the meeting, the CECCIG chair consulted with the CaMMS Executive Committee, which recommended that the CECCIG charge a task force to complete this work. CECCIG leadership drafted the following charge:

> The Cataloging Competencies Task Force is charged to draft a core competencies document enumerating the skills and knowledge required for a career in cataloging for use by cataloging practitioners and educators. The Task Force will identify competencies that are broad enough to be applicable to all concerned with metadata creation, with the intent that specialized communities will extend the document in the future.
>
> The Task Force will ensure that the document focuses on the foundational principles of cataloging and metadata creation and avoid recommending specific tools and standards (tools and standards may be referenced in examples, if desired). Finally, the competencies document should acknowledge catalogers' total education and career-long development, rather than identifying a basic set of skills for new library and information science graduates.
>
> The Task Force will submit a first draft to the Competencies and Education for a Career in Cataloging Interest Group (CECCIG) by Friday, December 4, 2015. The Task Force chair will distribute the draft for community comment by December 11, in advance of the ALA Midwinter Meeting. A public comment forum will be held during the CECCIG's Midwinter meeting on Friday, January 8, 2016.

The CECCIG leadership appointed Bruce Evans as chair of the Cataloging Competencies Task Force. During the CECCIG business meeting at the 2015 ALA Annual Conference, the CECCIG incoming co-chairs, on behalf of the newly appointed task force chair, solicited volunteers to serve on the task force. They were successful in recruiting several interested members, including the current and incoming interest group vice co-chairs. With the task force membership thus identified, Evans led a series of conference calls to design the research methodology and divide the work.

Method

The task force began with the literature and position announcement review summarized above to understand the nature of competencies documents generally, and to determine the specific core competencies expected of catalogers. Position announcements examined were limited to professional positions, and included specialist areas, such as serials and media cataloging. The task force included "blended" jobs in the analysis but rejected advertisements that did not include at least half-time responsibility for cataloging. A total of 203 advertisements posted between 2010 and 2015 were examined. Of those 203, 108 advertisements were for entry-level positions, 33 were mid-level, and 62 were management positions.

A content analysis of the data collected from the LIS literature review provided a list of core competencies categories.[32] A companion document defining each category was created to ensure consistent interpretation of the categories.[33] The competencies in the list were then categorized, counted, and evaluated.

The task force found that many advertisements did not distinguish whether knowledge or experience was required, or if a criterion was required or preferred. The announcements often used an activity, such as "original cataloging" or "copy cataloging," as shorthand to refer to an entire suite of knowledge, skills, and abilities, making it impossible for the task force to determine which competencies were expected. Tasks such as classification and authority work were often omitted from advertisements, although the experience of the task force members confirmed that these tasks are central to the work of all professional catalogers.

Position announcements often included exhaustive lists of standards and technologies without indicating the desired outcome of the use of those tools, leaving the task force to speculate regarding the required competency. Many advertisements listed a preference for knowledge of advanced technologies such as RDF, SKOS, and SPARQL, while it was clear from the listed responsibilities that the advertising library had not implemented those technologies when the position was posted. The inclusion of competence with such tools suggests that advertisements are frequently aspirational in nature, detailing the work a library would like to do in the future, in addition to listing required competencies for current work.

The task force presented its work in analyzing the literature and position announcements at the 2016 ALA Midwinter Meeting.[34] To encourage discussion and solicit feedback, Evans shared two possible models for framing a competencies document, a Draft Competency Job Duty Correlation and a Draft Cataloging Competencies Blueprint. The correlation model mapped job duties taken from the evaluated position advertisements to specific competencies.[35] The blueprint model categorized competencies into ten areas, including Intellectual access and information organization, Standards for description of information resources, and Soft skills. The competencies in those ten

areas were subdivided into "Fundamental," "Intermediate," and "Advanced" categories.[36]

Discussion with the cataloging community members present at the meeting revealed gaps, potential pitfalls, and use cases for a core competencies document. Participants wanted the document to address competencies needed to conduct ancillary duties, such as selecting an integrated library system or consulting about metadata in digital collections platforms (i.e., metadata outside of the catalog). Soft skills, such as communication and time management, were suggested, as well as behavior-based competencies, such as exhibiting curiosity, the ability to negotiate ambiguous metadata standards, and the ability to make independent judgments when faced with difficult cataloging situations.

Meeting participants also had suggestions regarding how the task force might structure the document. The proposed levels of core competency—"Fundamental," "Intermediate," and "Advanced"—were considered problematic, since those categories are artificial and vary widely across different organizations. Boundaries between those levels are fluid, and their use in the document would require more frequent updates. Some participants suggested broadening the document's scope to include paraprofessional catalogers, since they undertake a wide range of work, including everything from purely clerical processing tasks to producing Program for Cooperative Cataloging Monographic Bibliographic Record Cooperative Program/Cooperative Online Serials Program (PCC BIBCO/CONSER) records.

The discussion revealed concerns that a core competencies document could be interpreted as a comprehensive checklist, potentially discouraging cataloging educators and those wishing to embark on metadata and cataloging work. A participant asked the task force to consider that the document might be used punitively against a cataloger by administrators or tenure committees. For example, a cataloger could be unfairly penalized for not pursuing continuing education when his/her institution does not provide financial support or time off for such activities, and a failure to meet certain competencies might be used as an argument against the granting of promotion or tenure.

Despite concerns, several use cases for a core competencies document emerged from the discussion. Participants anticipating hiring were eager to have a competencies document to aid in writing position descriptions and preparing interview questions, while others hoped to use the document as an advocacy tool. Several attendees specifically commented on the need to address diversity concerns and the conflicts between the existence of tools and equitable availability of access to those tools. A few participants expressed interest in a forward-looking core competencies document that would help shift the focus of the profession toward creating metadata for unique, local collections, especially on platforms that use a wider array of metadata standards than is currently found in most institutions. Finally, participants requested that this document be brought before the ALCTS Executive Board to be adopted, reviewed regularly, and incorporated into ALCTS training and professional development activities.

Phase 2

The task force entered a new phase of work on the project following the discussion at the 2016 ALA Midwinter Meeting. This phase was known to task force members as "Phase Two." Due to the feedback received, the task force needed to make a number of decisions about directions for the group's work. Shortly after the Midwinter Meeting, Evans held a conference call with CECCIG co-chairs Jennifer Liss and Karen Snow to discuss next steps. They concluded that since the upcoming work required processing and synthesizing of the research and discussion into a finely tuned and polished competencies document, it would be useful to revise the task force membership into a smaller and more focused group. The smaller group eventually included only current and former CECCIG chairs, co-chairs, and incoming co-chairs.

For the first virtual meeting of the revised task force membership, the group decided that a free, web-based meeting tool that allowed participants to use video was preferable to a more traditional audio-only conference call. Since most of the task force members had previously used Google Hangouts, that platform was selected. The group found meeting via Google Hangouts was successful and continued to use the platform for all subsequent virtual meetings. There were occasional technical difficulties, but those experiences helped to establish rapport and community within the group and helped hone the group's ability to solve problems as a team. Task force members appreciated the ability to see each other's facial expressions during the calls both to improve communication regarding the work at hand and to facilitate the overcoming of technical issues collaboratively.

At the first Hangout in February 2016, the task force concluded that most of the feedback and comments fell into two broad areas: (1) form and organization and (2) content. The group observed that while there were a number of concerns regarding how intermediate and advanced competencies were handled, the need for fundamental or foundational competencies was not a point of controversy.

A final major reflection on the Midwinter Meeting feedback concerned how to address diversity and ethical concerns. The task force sought advice from ALCTS CaMMS leadership, asking how ALCTS felt that a core competencies document should address cataloging ethics, including, but not limited to, cultural sensitivity regarding Library of Congress Subject Headings (LCSH) assignment or name authority record creation. The ALCTS leadership

emailed a thoughtful response stating that while they definitely agreed that identifying diversity and ethical concerns carried great importance, the topic was too extensive to address completely in a competency document. After consideration, the task force decided to primarily limit the discussion of ethics to the document's preamble.

As the task force began work on the document's content, it was decided that the competencies should be kept as general as possible. Since there would be no way to include every possible competency needed by all catalogers or metadata professionals, it was agreed that the competencies should represent a baseline.

In April 2016, they narrowed the document's scope to professional competencies, with a recommendation that a separate paraprofessional competencies document be completed in the future. This decision was made after considering: (1) Midwinter feedback on how the draft competencies chart was not scalable enough to cover both paraprofessional and professional positions, (2) the wide range of paraprofessional positions and responsibilities (ranging from checking descriptive information to doing BIBCO/CONSER work), and (3) the lack of paraprofessional representation on the current task force. The ALCTS CaMMS Copy Cataloging Interest Group and the ALA Library Support Staff Interests Round Table (LSSIRT) were identified as potential partners for this future effort.

In discussing the document's form and organization, the task force considered the models and approaches suggested by audience members at Midwinter, one of which was to adopt an "à la carte" approach. The task force determined that this approach was not appropriate for the core competencies due to their nature and would not accurately represent the progression of some of the intermediate and advanced competencies. In February 2016, task force members tried to organize the intermediate and advanced competencies within different career tracks, such as managerial or subject/material specialist, since administrative or managerial roles in a department require substantially different skills than those focused on complex cataloging and metadata creation.

In spring 2016, the task force hypothesized that a visual representation would make the competencies easier to understand and would better represent the different career paths of cataloging and metadata professionals. They decided on a tree visualization, with one tree representing Practitioner Knowledge and another representing Leadership Knowledge. The two trees were connected by the soil, which represented the foundational competencies, and intermediate and advanced competencies were represented by the tree branches. The plan was that the visualization would be accompanied by a document with terms and definitions. Each task force member created a tree visualization, with the intent that the various visualizations would be consolidated into a single agreed-upon version. Although the visualization strategy was a helpful tool for clarifying ideas and categorizing competencies, it was ultimately abandoned in favor of a traditional textual approach to organization. None of the team members believed that the visualizations communicated the competencies information clearly enough. The team agreed that a text-based competencies document would be more readily received by the wide audience who would be asked to analyze, critique, approve, and utilize it.

In late May 2016, Snow brought to the task force's attention a set of competency types, or categories, she had discovered on the Washington State Office of Management's website: "knowledge competencies (practical or theoretical understanding of subjects), skill and ability competencies (natural or learned capacities to perform acts), and behavioral competencies (patterns of action or conduct)."[37] The task force reframed the cataloging competencies into those three categories and transformed the intermediate and advanced competencies into a single category titled "Going Beyond the Foundation."

During a June 1, 2016, virtual meeting, the task force decided on a structure for the first draft of the document to be called the "DRAFT Cataloging Core Competencies for Professional Catalogers." The introduction would cover the scope and intended audience, plus address diversity concerns. The primary document's main body would provide explanations of the competency categories and list the core, or foundational, competencies with illustrative examples. An "epilogue" would cover the "Going Beyond the Foundation" competencies. Both the core and the "Going Beyond the Foundation" competencies were organized into the knowledge, skill and ability, and behavioral categories.

Task force members volunteered to write specific parts of the document and began work immediately. The entire document was stored in a Google Docs file, allowing task force members to simultaneously work on the same version of a document and hold simple discussions via comments. The Google Docs platform was effective for collaborative writing, although its formatting capabilities are lacking in comparison to more traditional word-processing software.

The task force created a first rough draft within a few days following the June meeting. Once the basic structure of the document was in place, members continued to contribute additional competencies and examples based on the group's earlier research and their own experiences. All task force members contributed in the iterative process of editing the complete document. Discussion regarding changes that were too complicated to be resolved via comments on the document were held through email. The task force chair also used email for regular progress reports.

Evans presented the completed first draft at the CEC-CIG meeting during the 2016 ALA Annual Conference. At

the conclusion of his presentation, he invited the audience to break into smaller groups to discuss the following questions:

1. Is this overall document relevant to practitioners/educators?
2. What skills/knowledge are we missing?
3. Where are we too granular/not granular enough?
4. Are we acknowledging the breadth of the whole career and life-long learning opportunities?

In addition to presenting the draft competencies document at the CECCIG session at ALA Annual 2016, the task force submitted it for online public comment via Google Docs during July 2016.

Phase 3

The task force spent the months following the 2016 ALA Annual Conference and the month-long open comment period in July 2016 analyzing the massive amounts of feedback received through both venues and incorporating it into a revised draft. Discussions regarding what to change and how were conducted via Google Hangouts calls and email. By this point, the group had worked together long enough to have a good sense of how to work together efficiently, and most matters were quickly resolved, with consensus within the group being reached very quickly in most cases.

While there were various types of feedback, the majority of comments fell into broad overall themes. Many people expressed concerns with the "Going Beyond the Foundation" section, with some suggesting the creation of a separate document or recommending scrapping it entirely. Those who commented noted the following: (1) many of the competencies within the section were not specific to catalogers, (2) the optional and more advanced competencies could potentially be misconstrued as core competencies by managers and human resource personnel since they were in a core competencies document, and (3) it might be preferable to refer to other resources, such as one in development by the Library Leadership and Management Association (LLAMA), for leadership and managerial related competencies. After considering the issues, the task force decided to incorporate content from the "Going Beyond the Foundation" section that members felt needed to remain in the "Core Competencies" section and remove the rest.

The behavioral competencies raised similar concerns, such as how many of these "soft skills" are expected of *all* librarians, not just catalog and metadata librarians. Those who provided comments questioned how these competencies could be taught or learned. The task force felt strongly that the behavioral competencies should be included as they were necessary for a successful career in cataloging and metadata and are often included in position advertisements. The behavioral competencies were retained and rewritten to use active tense.

Feedback concerning the diversity statement in the preamble was divided. In the draft competencies document, a preamble was inserted to emphasize the importance of diversity in cataloging and metadata work. Some of those who provided feedback felt the preamble was sufficient for addressing this importance, while others felt that it should be included as one of the core competencies and not included in the document's introduction. Following an e-mail discussion of this feedback, the task force decided to keep the diversity preamble and added several competencies related to diversity in the "Behavioral Competencies" section.

Some people who had provided feedback expressed unease with the inclusion of examples in the document (for example, "Understands the nature and function of cooperative bibliographic databases, Examples: OCLC WorldCat, III SkyRiver").[38] The concern was that the presence of specific examples might be perceived as recommendations for, or endorsements of, certain standards, companies, or systems. Others felt that the examples were useful for helping to explain unfamiliar or abstract terms and concepts, which would be especially helpful to students and others new to cataloging and metadata. This opinion was shared by the task force and a decision was made to keep the examples. The task force made changes to ensure that the examples used were more diverse than those in the first draft, and that free and open source options were well represented. Additionally, the task force added a disclaimer that the examples "are for illustrative purposes only and should not be considered prescriptive, exhaustive, or as an endorsement of a particular product or service," and added an appendix containing the acronyms and initialisms used in the document.[39]

Once the final edits were complete, the document was presented to the CaMMS Executive Board. Upon approval by the CaMMS board, the document was forwarded to the ALCTS Board of Directors for their final approval. That approval was granted following the 2017 ALA Midwinter Meeting.

Lessons Learned

The task force makes the following recommendations for groups wishing to create a competencies document:

1. *Use the opportunity to have an ongoing dialogue with a diverse group of stakeholders. Recognize, value, and widely solicit their expertise and input throughout the*

entire course of document planning and writing. The task force used suggestions and affirmations to guide its work throughout the process, and the team gained critical knowledge and insight by broadening the conversation about competencies to the larger community that was interested in cataloging and metadata education, practice, and management. Attention to issues of diversity is one example in which community input was used to improve the document.

2. *Limit your primary writing team to a manageable number of people (six or seven) who represent the stakeholders and can provide multiple viewpoints (e.g., practitioners and educators). Select a project manager who can set deadlines, motivate team members, resolve disagreements, and achieve results*. Understand that team membership may change over time. For example, membership contracted in the task force when the nature of the work became more detailed, and member commitments shifted to other projects. Membership expanded when new CECCIG officers came on board with additional areas of expertise.
3. *Meet regularly using reliable technology to enable document sharing and feedback*. All team members should be reasonably comfortable and satisfied with the selected technology. The task force carefully selected and successfully used Google Docs and Hangouts for collaboration, but teams should get member input and consider past experience when selecting work-sharing tools.
4. *Be flexible, understanding that your goals and the end product may change during the course of the project*. The task force began the project with the knowledge that the undertaking was complex, the stakeholders were numerous, and that the work would be influenced by community needs and input. The likelihood was high that the project's scope could contract or expand based on new information. Understanding these potentialities kept the team from being resistant to criticism or the need for document modifications.
5. *Use professional association meetings and events to advance the project, share progress reports, and solicit feedback*. The task force used a portion of the meeting time allotted to it at the ALA Midwinter and Annual Conferences to obtain community input and to make official reports about the project progress, and conference programs focused on topics aligned with the project mission to stimulate conversation and discuss issues related to the competencies. Team members also met face-to-face at the conferences to plan and work on the project, and used listservs and discussion lists to inform stakeholders about the project's progress and to encourage them to provide feedback through a variety of venues. The task force found using professional conference meeting times as hard deadlines for project deliverables to be very effective.
6. *Formalize a plan for a regular review and revision, since a completed and approved competencies document immediately runs the risk of becoming irrelevant and inaccurate*. The CECCIG plans to incorporate as part of its mission the regular review and revision of the competencies document, with all formal changes to be approved by the ALCTS Board of Directors.
7. *Celebrate milestones by meeting in person to socialize whenever possible! A meal or toast shared can make the hard work seem like fun.*

Conclusion

The Cataloging Competencies Task Force was given the pragmatic charge to create a competencies document to meet multiple criteria; it would need to be formulated with the practitioner and educator in mind, be based on foundational principles, be relevant to individuals at a variety of career stages and be extensible to the full range of specific domains across cataloging and metadata jobs. As task force members contemplated the role of competencies in library and information science careers and beyond by reviewing relevant literature, analyzing job advertisements, and discussing possible competencies, the importance of hearing the ideas and concerns of the many potential users of such a document became clear. Position announcements and the voices of a vocal few could skew the relative importance of particular competencies. Soliciting the input of interested practitioners, educators, students, and others throughout the process is certainly a primary key to the successful creation of the document.

Although a core competencies document is a natural, and somewhat anticipated, output of an interest group dedicated to competencies and education, the process of its creation has been worthy of examination and reflection by the participants in its own right. At a minimum, the core competencies document could serve as a starting point for students, practitioners, educators, and managers to plan for an individual's growth and development across the span of a working life, from novice to mid-career professional and beyond. By the time that the document was approved by the ALCTS Board of Directors in January 2017, the CECCIG Task Force members had also realized its importance as a catalyst, common ground, and safe space for dialogue among diverse constituencies who are interested in the future of education and professional development for cataloging and metadata professionals.

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Appendix: Timeline of Events

Creation of CECCIG's Competencies for Professional Catalog and Metadata Professionals

- ALA Midwinter Meeting, 2015: The need for a task force to create a competencies document was identified. A charge was commissioned for ALA Annual.
- ALA Annual Conference, 2015: Bruce Evans was appointed task force Chair, and a call for volunteers went out.
- Fall, 2015: The task force reviewed professional literature and job advertisements.
- ALA Midwinter Meeting, 2016: The task force chair presented the work to date and solicited feedback on two possible document models.
- Winter, 2016: Task force membership was revised to a smaller group that processed the feedback from Midwinter.
- April, 2016: The task force narrows the scope of the document to professional (MLS degreed) competencies only.
- Spring, 2016: The task force experimented with visualizations of the competencies as an alternative to a text-based document. This avenue is later abandoned.
- June 1, 2016: The task force discussed the first draft of the competencies document at a virtual meeting.
- ALA Annual Conference, 2016: The task force chair presented a draft of the competencies document and solicited feedback on the draft.
- July, 2016: The draft document was opened for public comment as a Google document.
- Fall, 2016: The task force processed feedback from ALA Annual and the open comment period and finalized the competencies document.
- ALA Midwinter Meeting, 2017: The task force submitted the final document to CaMMS and subsequently ALCTS executive boards for approval. The final document was approved at this meeting.

Notes on Operations

Mobile Applications in Academic Libraries

Jamie Saragossi, Laura Costello, and Kathleen Kasten

Portions of this paper are based on a presentation delivered at the New York Library Association Annual Conference on Friday, November 4, 2016, at the Saratoga Hilton in Saratoga Springs, New York, and a virtual lightning talk delivered at the ALCTS Exchange on Thursday, May 11, 2017.

This paper explores the challenges and opportunities presented by mobile applications in the context of an academic library collection. This emerging format raises important questions about selection, acquisition, access, instruction, outreach, and evaluation as these practices have been applied to traditional resources. A more nuanced understanding of the content and format of mobile applications informs a collection development strategy for discovering, acquiring, and maintaining these resources. The development of an outreach program that includes liaison activity, instruction, and research consultations is also explored as a way to drive users to these new resources. Using Stony Brook University Libraries as a case study, this paper discusses the potential of mobile applications as academic library resources plus practical ways to promote usage and enhance academic engagement.

Providing access to library materials and services on mobile devices has become an imperative for libraries. A 2016 Pew Research survey estimated that 77 percent of adults in the United States now own and use smartphones. The ubiquity of mobile device ownership holds relatively steady even across traditional divisions like race and income.[1] Libraries have an opportunity to provide materials and services to a large population of users via mobile access, and new patterns of collection development and resource management have emerged to support this demand. Library mobile site optimization, acquiring mobile-ready or native mobile collections, nuancing selection practices to accommodate the evaluation of application content, and training and promotion for these activities are now essential practices for information professionals.

This paper explores the emerging processes of mobile application acquisition, support, and promotion at Stony Brook University Libraries. While the practice of adopting mobile applications and sharing them effectively with library communities is still developing, Stony Brook has endeavored to create strategies to acquire this new type of material and make it accessible and useable for patrons. As mobile applications (apps) become more integrated into the Libraries' resource landscape, they highlight challenges posed by traditional evaluation and acquisition models, prompting librarians to reconsider how users identify, access, and use information. Mobile applications may potentially serve a variety of functions in a library's collection, including expanding discovery or modes of access or functioning as point-of-need resources. Others contribute unique content not available through more traditional database subscriptions. In either case, mobile applications are a fundamental aspect of collection development in the modern academic library. Whether a particular app represents unique content,

Jamie Saragossi (jamie.saragossi@stonybrook.edu) is Head of Health Sciences Library, Stony Brook University Libraries. **Laura Costello** (laura.costello@rutgers.edu) is the Virtual Reference Services Librarian at Rutgers University Libraries in New Brunswick, New Jersey. **Kathleen Kasten** (kathleen.kasten@stonybrook.edu) is Head, Humanities and Social Sciences, Stony Brook University Libraries.

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the app format conditions the reader's experience to create a new, content-rich encounter with library content.

The need for clarity and praxis regarding mobile apps is crucial in the contemporary academic library because mobile apps represent both a new format and a new content type. Logistically integrating mobile apps into the collection development process requires communication and cooperation between departments and the establishment of new workflows. In this study, a review of the current literature is combined with practical strategy and case study to elucidate key questions, innovations, and future directions in the promotion and collection of mobile apps in academic libraries.

Literature Review

The current landscape of library participation in mobile initiatives spans a wide variety of institutions and practices. There are examples in the literature of libraries evaluating and optimizing their websites and collections for mobile access. Adelphi University Libraries examined their database content for mobile compatibility in 2015 and found that 28 percent of the services they reviewed were appropriate for mobile use.[2] Since this paper was written, many more databases have incorporated mobile optimization into their strategies. The authors concluded in their study that mobile-incompatible databases were inappropriate for an increasingly mobile instruction and resource landscape, and this is still accurate. Pressure on vendors by librarians to increase mobile compatibility might help push them towards providing a better mobile experience for end users. To exert that pressure, librarians could begin by optimizing their own websites and resources for mobile devices. Caniano and Catalano conducted a survey of mobile device preferences among students, faculty, and staff at Hofstra University, concluding that increased usage of mobile technologies mandate apps as a collection development priority of modern academic libraries.[3]

The effort to accommodate mobile users in libraries is far from complete. Bomhold investigated the library websites of academic institutions with very high research activity, as ranked by the Carnegie Foundation for the Advancement of Teaching, for evidence that these libraries had made an effort to accommodate mobile users.[4] She found that about 71.2 percent of these institutions had made some effort to provide mobile access, but that approaches varied. Slightly over half of the institutions provided a designated mobile app. The remainder offered a mobile optimized website or linked to a mobile website from the desktop homepage or from the institution's homepage. A significant number of institutions—28.7 percent of those studied—did not provide a mobile option for library resources. Her research raises another significant point, which is that mobile access is not just a different access format but also a different access philosophy. Mobile users want to be able to access help and content seamlessly, placing potentially different expectations on the role of the library in their research. Making the accommodation of mobile users essential in library website and app design is an important step in changing practice to meet these users' needs. To properly evaluate, acquire, and promote mobile content from external sources, access points through the library website for mobile users must be established. Creating a basic level of mobile access is the first step in facilitating app access, and it is a continuing effort. Wong developed a desktop website and mobile application for a library event. Usage was surprisingly similar between the two platforms.[5] Since this study, increased mobile adoption and patron outreach initiatives by libraries may have changed this trend to favor mobile users. At this time, it seems that library users have come to expect mobile access to library resources and increasingly demand access to mobile-ready and mobile-native content. Once users enjoy basic access to library resources through mobile platforms, libraries can begin to respond to demand from users for app acquisition. This transition has implications for library collection development policies and strategies, as demonstrated by DeRosa and Jewell.[6] Their study of mobile app collection development at Memorial Sloan Kettering Library emphasizes the need for a coherent, relevant set of procedures to facilitate the selection, testing, and ultimate evaluation of mobile resources. Though app evaluation relies on many of the same metrics that are useful when applied to more traditional library resources, this procedure necessitates increased consideration of factors such as user-friendliness, legal approaches when there is no contract or site license available, and questions of copyright and fair use.

Some early papers on mobile app acquisition in libraries are from the field of medical librarianship. Access to library content outside of the traditional formats has been a priority for clinicians and medical professionals for the past several years because access to information for these users frequently takes place during the course of their medical practice rather than within a library. The demand for immediacy is an important factor in the development of app acquisition in health sciences libraries. As early as 2012, Prince and O'Hagan published papers reviewing and describing emerging applications to assist medical librarians in developing collections in this area.[7]

While mobile apps offer complexity in collection development, cataloging, and other technical services workflows, the successful adoption of these technologies relies on access, and an effective strategy includes promotion, outreach, and patron-facing troubleshooting. Some institutions that include mobile apps in their collection strategy have

offered best practices for promotion and outreach. DeRosa and Jewell propose website-based promotion to appeal to users who are likely to be interested in apps, rather than flyers and other strategies based on visits to the physical library.[8] Research from Boopsie highlights the effectiveness of banner and web-based advertising for library mobile app adoption.[9] Other strategies recommended in this study include social media, instruction sessions, campus outreach, online video tutorials, and workshops, including app content on Springshare's LibGuides.

The inherent challenges in marketing mobile apps to library users are well defined by Swogger and Linares in their study of BrowZine.[10] The authors highlight the necessity of showing the app to users to market it, a task that is not always feasible on a retail basis. BrowZine is a platform that integrates existing electronic journal content into a mobile-ready wrapper so it does not function like a journal that can be added to an institution's catalog or index. They underscore the fact that BrowZine's creator, Third Iron, knows that marketing their product can be problematic for libraries. This understanding is demonstrated by the expected compatibility of the new web version of BrowZine with online learning platforms, and the company's commitment to creating materials and custom widget codes for libraries. Marketing BrowZine has prompted Third Iron to partner with academic libraries to make their platform more visible, thereby helping libraries to assess their outreach strategies in a targeted way.[11]

Academic librarians view app outreach as a component of the broader mission to educate patrons about emerging research modalities and technologies. In their survey of app usage in Canadian academic libraries, Canuel and Crichton insist that librarians have a responsibility to understand the app landscape and to guide users through it.[12] Apps offer opportunities to engage students learning information literacy principles in new ways, and to help researchers manage bibliographic data. Their survey demonstrates that many academic libraries are already promoting apps, while also engaging with important cost and collection development considerations raised by apps in academic libraries.[13] Furthermore, app outreach initiatives are consistent with librarians' broader mandate to communicate information and technological literacy.[14]

Collections

As academic libraries expand their collections to embrace mobile apps, they face challenges that echo those encountered with the arrival of e-books and streaming media. Similarly, apps present challenges with regard to evaluation, acquisitions, licensing, access, cataloging, and technical support. These challenges require creative solutions, updates to existing policy, and collaboration across library departments. DeRosa and Jewell outline the relevant considerations for collection development policies relating to the acquisition of mobile apps, underscoring the potential obstacles posed by the variability and instability of the content, format, and restrictions of mobile apps.[15] At Stony Brook University Libraries the move toward mobile apps was accompanied by reflections on the implications for the selection, budgeting, and support necessary to meet patron requests and expectations.

Collection development librarians at Stony Brook University Libraries do their own research on emerging app content and functionality within their disciplines. However, they also receive suggestions and requests from faculty and students in two additional ways, both of which highlight the importance of apps as both format and content. Patrons contact subject liaisons directly to request app content and other resources to support their research and teaching. They can also submit requests through the Libraries' Purchase Recommendation Form, an online form available on the website that gives users the option to select a format when making a recommendation. The documentation of these requests helps to provide a record of the frequency of requests and the ways that content and format intersect as components of patron interest. This informs policy by helping the library to gauge the relative importance of content and the means by which it is delivered and accessed. This agnostic attitude toward the consideration of format allows the Libraries to emphasize content and researcher experience when making collection development decisions within the broader context of the particular acquisitions and technical challenges posed by emerging formats such as apps. A prime example of this is type of demand was evident in the case of Stony Brook University Health Sciences Library's acquisition of the Visible Body Application. For several years the library had a standard version of the Visible Body Database. This reference tool consists of 3D anatomical images with the ability for the user to manipulate and review thousands of anatomical images, structures, and systems. The Visible Body has been hosted on the authors' database page and is accessible with proxy authentication. Many of Stony Brook's students are currently enrolled in courses that distribute iPads. It became necessary for students to be able to study for anatomy on their mobile devices. The library decided to also purchase the Visible Body Application. This standalone app can be downloaded through an institutional link hosted on the library's mobile app webpage. Once students authenticate, they have access to the anatomy app on their device for ninety days. As evidenced by increased downloads and frequently asked reference questions, this app continues to be in high demand. This duplication of content for the traditional desktop and mobile environments required careful consideration. This type of acquisition could be likened to

purchasing an electronic copy of a print resource and must be done in close consultation with collection development specialists, with the understanding of the anticipated usage and adoption of the product. However, there are often cases for the purchase of multiple copies or multiple formats of items and accessibility can be a consideration in the decision-making process and collection development implications for mobile applications.

BrowZine, which was noted earlier, is a mobile app that provides access without necessarily offering unique content. It is subscription-based, allows researchers to browse journal content, and is a portal to content that already exists in the library's holdings. Nevertheless, BrowZine presents researchers with a reading experience that combines the serendipity of a print journal with the ease-of-access of an app. In the updated version of this product, users can curate their own reading lists and bookshelves, turning the app into an effective means of being alerted to new content in a particular field. Additionally, BrowZine's format, which privileges access to sequential issues of a journal, permits a juxtaposition of articles and ideas that is less likely to occur when researchers access journal content through an electronic database or discovery layer. Rather than seeing the article in isolation, the researcher encounters it within the context of a journal's editorial priorities, or even of the wider discourse of a particular field of inquiry. BrowZine offers the convenience and accessibility that are the hallmarks of well-designed mobile apps intended for academic research. However, the ways in which the content it makes accessible can be accessed and curated by the user underscore its utility as a tool. The potential for synthesis and discovery in BrowZine are critical factors that outweigh the apparent redundancy of its content. This consideration rests on the curatorial function of collection development librarians, while also creating important outreach and instruction opportunities to make users aware of the app's potential as both a discovery tool and an intellectually rich reading experience.

While the content available through Visible Body and BrowZine is accessible through other formats, apps that provide exclusive content have emerged as a format to consider for acquisition. These proprietary resources host content that may no longer be available in print or even as an e-book. For example, the Johns Hopkins' ABX Guide (https://www.hopkinsguides.com/hopkins/index/Johns_Hopkins_ABX_Guide/), a standard resource for clinicians, is now offered through a mobile app to help facilitate the continual updates that occur with clinical and drug information. Individual libraries should consider developing guidelines for the type of mobile applications that fit within their larger collection development policies and mechanisms for requesting materials in this new format. The necessity of fiscal restraint can mean making difficult choices between platform and content. To support and defend such difficult decisions, mobile applications should be included in an institutional collection development policy. According to DeRosa and Jewell, evaluative criteria for the selection of mobile apps should reflect the process used for other traditional formats: subject relevance, quality of content, reputation of publisher/provider, cost, access, legal issues, and copyright.[16]

Besides evaluating these resources intellectually, using liaison expertise and the Purchase Recommendation Form, librarians confront collection development decisions within a larger budgetary context. Many academic libraries are currently facing flat collections budgets at best. It is imperative that allocations and expenditures for electronic resources ensure greater impact than their traditional counterparts. Mobile apps typically provide frequent updates that alleviate the need to replace physical copies or maintain annual subscriptions with additional platform fees for individual titles. Furthermore, mobile app versions of some standard library resources are often available as part of a traditional subscription. Libraries should work to identify which resources in their current holdings offer mobile app versions and provide promotion and instruction, ensuring that they are taking full advantage of subscription benefits. Mobile application downloads and access have evolved greatly, making license administration less burdensome for the individual library.

Workflows should also be considered when deciding to implement the acquisitions of these new resources, including communications and work strategies of acquisitions, cataloging, and IT support. The profession may consider taking lessons from previous format transitions, such as the switch from analog (VHS and DVD) to streaming video. Explaining the transition to streaming video at Brigham Young University, Schroeder and Williamsen observed that it "required the unified expertise of subject librarians, acquisitions librarians, catalogers, and information technology personnel."[17] Consideration must be given to both the policies surrounding the collection and the workflows necessary to make these resources discoverable, accessible, and sustainable. In addition to the work necessary to catalog other formats, the mobile application may be hosted outside the integrated library system (ILS) and catalog, such as on a web page that requires metadata and IT support.

The ways that our end-users interact with mobile app providers can pose unique budgetary challenges to libraries. A recent example is Read by QxMD. Read is a product developed for physicians and medical students to address the need for immediacy and the need for quick access to evidence-based resources. This mobile application helps to aggregate newly published content in specific clinical disciplines and provide users with an easy way to connect to full text through the library's subscription. It was initially developed, launched, and marketed as a free tool. However, its use was adopted by clinicians and students at

several universities and medical centers. To continue supporting the needs of their growing user base, the company switched to a paid model. This led to a situation where the library was left with patrons unable to connect to the full text they had come to expect. At Stony Brook University, the demand was so great that the authors investigated whether they could identify funds to add this type of app. Although the functionality and use were clearly beneficial to patrons, from a collection development standpoint, it was important to identify that the app functions as an aggregator or mobile discovery layer that provides access to content already available through traditional mechanisms.

While the Read by QxMD app assists in discovery and facilitates article interaction in the mobile environment, Stony Brook University's Library is paying for this layer while also maintaining access to the full-text content from the individual publishers. As with the Visible Body application previously cited, accessibility to information and content will need to be considered as an evaluative criterion in the collection development process for mobile applications. Additionally, the authors learned through their review of mobile apps to be mindful of vendor platform compatibility and authentication issues. In the case of Read by QxMD, following rigorous review, including multiple vendor demonstrations to all health science librarians plus conversations with several faculty and clinicians, the authors decided to move forward with a one-year pilot subscription. The potential improvements to the clinical workflow using Read by QxMD and the possible increased access to their subscribed content were considered beneficial enough to justify the cost. The authors will closely track the number of downloads and usage through the app platform to evaluate their subscription after one year. Stony Brook University Libraries are currently working closely with the vendor to ensure proper integration using IP range for user authentication.

It is imperative for libraries to establish their own evaluative criteria, standard platform requirements, and methods for data capture for mobile applications. Most mobile app platforms are not standardized across publishers or developers. The authors have not identified any apps in their current research that are COUNTER compliant, as is the case with other subscribed database platforms. Libraries may need to monitor the number of downloads through their own web platform or work with vendors to provide meaningful statistics that will assist in future decisions and justification for continuing subscriptions.

Promotion of Mobile Applications

The adoption of mobile apps as an emerging format within the Libraries' collections necessitates a varied outreach strategy that endeavors to make apps accessible and approachable. Because barriers to app use in research include questions of content and technical issues, it is necessary to address user concerns by providing high-quality apps in conjunction with responsive services. This can be achieved through hands-on workshops or the creation of robust resources for online users.

The motivation for use of these applications must be considered when providing support for mobile applications. Each user has a different comfort level and understanding of the scope and use potential of these applications. Many users are interested in exploring the technology; others enjoy quick access to information. Still others prefer to fully integrate the applications into their research practice. While considering the aforementioned issues of access, technical services, and technical support, these varying levels of interest and motivation for use should be incorporated in the decision-making process.

The authors organized a workshop designed to help attendees use mobile apps for their research. The workshop focused on the rich and varied content contained in apps, the practicality and timeliness of their format, and how they allow users to access information. Additionally, the workshop addressed common access issues, such as downloading apps and using them on mobile devices. Held in a library computer classroom and simulcast online, this event focused on the process of downloading and using the Libraries' subscription apps from a student and faculty perspective plus the use of free apps and those that are available from the University independently of the Libraries.

Moreover, the Libraries host a LibGuide to help students discover the apps offered and how to use them effectively at Stony Brook University Libraries.[18] The authors will begin recording and hosting tutorials that can be accessed by patrons at the point of need. The tutorials will provide narration and visual step-by-step instructions about the download process for subscribed mobile applications. The instructions will present the processes for different types of devices. As the authors learned from their experiences with e-books, procedures can differ greatly with every publisher on each type of device. These guides, workshops, and tutorials were developed to close the technology gap for this new format and to help users connect to content through apps as easily as they access library content through our databases or discovery system.

Besides acquiring and promoting external app content, Stony Brook University Libraries is developing a native library app to help users access library content appropriate for their mobile devices, including both apps and traditional library offerings. This library app was developed in response to various iPad one-to-one initiatives across Stony Brook's campus. For the last two years, Stony Brook has provided iPads to students in the

Educational Opportunity and Advancement on Individual Merit Programs (EOP/AIM) through an initiative called Mobile/Digital Now. The EOP/AIM students are high-potential applicants from historically disadvantaged backgrounds, and the Mobile/Digital Now program gives these students a technology portal to scholarly content. The Libraries are working with the EOP/AIM program to ensure that the app is preloaded on the iPads so that students have direct access to the Libraries' resources. Similar programs are beginning in Stony Brook's School of Medicine and Athletics Programs, and the Libraries will partner with each of these programs to promote access to library resources via the library app.

Currently, Stony Brook Medicine is implementing an iPad initiative. All incoming students will be given an iPad, and instructors are encouraged to use interactive tools and mobile apps to deliver content that can be accessed by students remotely to support interactive learning and classroom engagement.[19] To respond to this initiative, the Libraries created a LibGuide for mobile applications with information on downloading library-supported and departmental apps. This provides the library with an opportunity to stay informed regarding the use of these resources and to proactively provide support and instruction for users in this program. This LibGuide is also a platform for course-integrated instruction. It allows the librarian to customize sessions to apps with a specific function or content focused towards particular disciplines or programs.

Conclusion

The need to develop acquisitions policies and promotion procedures for mobile apps arose from an understanding of the needs of Stony Brook University's researchers and students. The acquisition and evaluation of mobile apps are becoming increasingly crucial in academic libraries. Mobile-enabled patrons require library content that fit their devices and their needs. To create responsive collections, librarians must approach apps as an emerging resource type at the confluence of content and format. Documenting user requests and behavior with regard to point-of-need apps can help librarians demonstrate a demand for these resources as an emerging format capable of yielding new insight by virtue of its ability to on-demand access. Though mobile apps represent a collection development opportunity because of their ability to support new research modalities, they can also be an important means of accessing unique content only accessible through this format.

The body of literature addressing the acquisition and promotion of mobile apps is still limited. Many libraries are in the process of adapting their sites and traditional content to mobile users, and a growing number of institutions are working to license and distribute external app content. As we encounter and adjust our policies to adapt to this new format, we should be assessing and documenting effective practices to share with the field. Developing best practices to serve the mobile user will help librarians at all types of institutions build more responsive collections.

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Book Reviews

Elyssa M. Gould

Music Description and Access: Solving the Puzzle of Cataloging. By Jean Harden. Middleton, WI: A-R Editions, 2018. 354 p. $100.00 (ISBN 978-0-89579-848-0)

Note: The reviewer has known the author for over twenty years, regularly interacting with her at national music library conferences. The reviewer will strive to provide as impartial review of the book as possible.

In 2013 the rules for solving the puzzle changed with the implementation of Resource Description and Access (RDA), bringing new opportunities for providing improved access to information. As with any major change, people need assistance in understanding and incorporating new rules. This can be especially true when dealing with special formats, like printed or recorded music, where the basic rules do not always seem pertinent to the "puzzle" before you. This brings us the aptly titled new book *Music Description and Access: Solving the Puzzle of Cataloging* by Dr. Jean Harden. Harden is a long-time practitioner and educator in the field of music cataloging, and has been recognized nationally for her contributions to the profession. In her latest work, Harden attempts to solve the cataloging puzzle.

Harden describes her book as "both a textbook for students and a handbook and reference source for practicing catalogers" (back cover). The book is broken into two main parts: "Setting the Stage" and "Practical Cataloging." Part 1 begins with an introduction to concepts of cataloging, a description of the various musical formats currently available, and concludes with a brief history of cataloging in general and music cataloging in particular. Probably the most important section of this part centers on a discussion of what Harden refers to as the "Functional Requirements (FR) Family" (12). This is a collection of documents created by the International Federation of Library Associations and Institutions (IFLA) that includes Functional Requirements for Bibliographic Records (FRBR), Functional Requirements for Authority Data (FRAD), and Functional Requirements for Subject Authority Data (FRSAD). These documents, especially FRBR, are what RDA was based upon and basically make up the organizational structure for the remainder of this book. As Harden states, "FRBR is concerned with entities and attributes, plus the relationships among them, that are currently recorded in bibliographic records" (13). There are three groups of entities in FRBR, but this review focuses on those of Group 1 (Work, Expression, Manifestation, Item). Group 1 entities are listed in order of most abstract to most concrete. A practical example of these entities is Harden's book itself. The Work is the idea she had for the book, the Expression is the actual draft of the book, the Manifestation is the published book itself, and the Item is the copy of the published book from which this review was created. While all four entities are important in terms of cataloging, the reviewer believes that the most important are Manifestation and Item as they deal with the real-world items that we face on a regular basis.

Part 2 makes up the majority of the book and consists of eleven chapters. There is a final chapter on archival description by guest author Maristella Feustle. Harden issues a warning that catalogers should always have a copy of RDA and the appropriate best practice documents on hand and consult them regularly. This book should not be treated as a replacement for these works, but rather a supplement to them. Chapters 3 through 6 are used to identify the object being cataloged. Chapters 3 and 4 cover the transcription (copying the data exactly as it appears on the source) of information from an object, and the sources from which to take said information. Chapter 5 deals with the recording (adding the data but not in the same form as it appears on the source) of information, particularly in relation to the object's carrier (e.g., the physical format). Chapter 6 reiterates what was covered in the previous three chapters but couches it in terms of the Machine-Readable Cataloging (MARC) encoding standard. I believe that Dr. Harden chose this arrangement because the RDA content standard was created independent of any specific encoding schema, and in this manner readers can use the book with whatever encoding standard they choose to work. However, MARC is the schema currently used by the majority of libraries, and it makes sense to demonstrate how RDA appears when using it. Chapter 7 describes the work(s) and expression(s) present in this object, while chapter 8 looks at the persons or groups responsible for said object. Chapter 9 looks at the access points for all the entities present in an object, and chapter 10 discusses their relationships to one another. Finally, chapter 11 deals with classification and subjects. The book then concludes with appendices on MARC coded fields and online cataloging resources, a glossary, and a select bibliography.

Harden's recommendations are easy to follow and replete with numerous examples. Part 1 and the many

historical asides that appear throughout part 2 provide a context as to the where and why cataloging evolved in its current state. One problem the reviewer sees is that he wished it was available electronically—either as a whole, or at least the second part that addresses practical cataloging issues. Like many catalogers, the reviewer operates in an almost completely digital environment. The reviewer recommends this book to anyone who catalogs music materials on a regular basis.—*Robert Freeborn (rbf6@psu.edu), Penn State University*

Practical Preservation and Conservation Strategies for Libraries. By Brian J. Baird, illustrated by Jody Brown. Lanham, MD: Rowman & Littlefield, 2018. 137 p. $35.00 softcover (ISBN 978-1-5381-0959-5).

The rapid proliferation of electronic resources (e-resources) in library collections and the increasing use of digitization as a preservation tool has altered the preservation landscape. Despite these changes, the need for libraries to plan their preservation and conservation workflows and processes continues. Baird's *Practical Preservation and Conservation Strategies for Libraries* is intended as an overview of methods that can be used by small public and academic libraries where staff, funding, and time is at a premium. The book focuses on print materials, although limited attention is paid in the final two chapters to other types of materials. The book takes a holistic approach to the preservation and conservation cycle. Evaluation and assessment of preservation needs, development of preservation workflows, basic book repairs, disaster planning, and digital preservation are the topics covered in the book's eleven chapters.

In the first chapter, Baird discusses the impact of e-resources on the preservation landscape. Despite the increased percentage of e-resources as part of library's collections, Baird argues that most preservation work undertaken by libraries will be with print materials and that the preservation strategies outlined in the book focus on print. Each chapter is intended to build on the last one to provide readers a complete picture of each component involved. The first step is to evaluate your institution's preservation needs. Chapter 2 addresses the environmental considerations. Data on the optimum conditions for printed matter is shared. Different methods to evaluate temperature, humidity, and other environmental considerations that affect the life and longevity of a book are also discussed.

Usage of print materials is another element to be analyzed. Surveys are a useful method of collecting and evaluating information on the books in your collection, how they are bound, and how frequently they circulate to see what patterns occur. Random samples can be taken from the stacks or items set aside for repair. Recording and storing the information surveyed facilitates analysis of the data and enables it to be used for comparison in later surveys. Baird provides a sample survey that might be suitable for small academic libraries and discusses how to analyze survey results. The survey results will reveal information on how various book bindings endure wear and tear. In chapter 4, Baird stresses the need to integrate preservation strategies into collection development. Information on what book bindings fare best can be used when selecting new materials for purchase. Baird also walks readers through the steps involved in book training, and on affixing dust-jacket protectors and paperback stiffeners. Illustrations accompany his directions.

Chapter 5 briefly notes some of the preservation resources available to libraries once they have evaluated their needs and are ready to research how to meet those needs. Chapter 6 covers library binding. Baird suggests how to select a commercial bindery, how to select appropriate materials to be bound, and reviews different binding options. He discusses cooperative agreements between institutions and how they may be an advantageous way for libraries to pool their limited resources. In-house book repair is another option, especially if staff time and interest allows. Baird provides step-by-step instructions (with accompanying illustrations) on basic paper mending and spine repair techniques in chapter 7. In chapter 8, Baird discusses the means of making preservation treatment decisions, including using the Balanced Scorecard method developed by Kaplan and Norton. The number of preservation decisions that need to be made can be alleviated by training staff and patrons on the proper care of books. In chapter 9, Baird opines that incorporating guidelines on handling materials into workflows will enable materials to circulate longer and provides a bulleted list of guidelines to be used.

An integral part of preservation and conservation is being prepared for when disasters strike. All libraries should have a disaster plan at the ready. Many libraries' plans are accessible and can be consulted when drawing up your own. Baird touches on the effects of fire, smoke, and water damage on various types of library materials. While these are the primary things to consider when undertaking disaster planning, bedbugs and other kinds of insect damage are also worth factoring in, although insect-related emergencies are not discussed. Baird concludes by discussing how digital preservation issues differ from traditional preservation methods and describes how digitization can be a powerful tool for preservation. Metadata and storage and migration issues involved in digitization are briefly discussed. More information on the topic would have been a nice feature, though it may be beyond the scope of the book.

Overall, this concise and well-written book serves as a practical guide suitable for both public and academic libraries interested in reviewing or creating their preservation and conservation strategies. The step-by-step illustrated instructions of several basic repair methods are a nice feature and ensure that the book will be consulted regularly by libraries undertaking their own repairs. Baird succeeds in providing a comprehensive overview of preservation and conservation techniques and delivers a comprehensive introduction and overview to the topic.—*Sharon E. Reidt (sreidt@somd.lib.md.us), Southern Maryland Regional Library Association*

Licensing Digital Content: A Practical Guide for Librarians, Third Edition. By Lesley Ellen Harris. Chicago: ALA Editions, 2018. 176 p. $65.00 softcover (ISBN 978-0-8389-1630-8).

Who can use the content that a library licenses? What are e-rights? Can licensed digital content be distributed through interlibrary loan? The digital revolution has altered how libraries acquire and distribute content to patrons. Gone are the days in which libraries primarily purchased and owned physical materials. In the internet era, content can be temporarily leased electronically, which has led to unexpected legal issues for librarians and other non-lawyers to navigate (1). In *Licensing Digital Content: A Practical Guide for Librarians*, Harris provides a plain-language crash course in digital licensing intended to give inexperienced librarians the skills necessary to negotiate a digital license. The guide provides readers with a detailed description of the licensing experience from the development of a licensing needs assessment to the negotiation of the final agreement.

Harris draws from her unique experience as the owner of Copyrightlaws.com; she is not a librarian but has built a career demystifying copyright law and frequently works with libraries and other information services. She presents an unbiased, objective account of the licensing process. Throughout the guide, Harris reminds readers that a license must benefit both the library and the information provider. She instructs readers on the art of nonaggressive, rational negotiation, which can result in a win-win outcome for the licenser and the licensee: both parties want to "enter into a relationship in which the information provider is fairly compensated for the use of its electronic content while the [library has] the right to use that content in a manner necessary for [its] situation" (108). It is necessary to understand and accommodate the needs of both parties, and Harris has the vantage point to see the process from both sides.

The text's central theme can be summarized in "three simple steps": determine the needs of the library and its patrons, understand the needs of the information provider, and find a reasonable compromise between the two (17). In early chapters, Harris expounds upon these steps and details the work a library must do before entering into negotiations: developing a licensing needs assessment, creating a licensing policy, and understanding the technical jargon that will be included in the license agreement. Harris goes on to provide an examination of key clauses and boilerplate provisions related to indemnity, interlibrary loan, arbitration, confidentiality, etc., that can be added or omitted according to a library's unique needs and circumstances. Later chapters discuss the negotiation process and answer common questions that Harris has received, and the guide ends with instructions for maintaining the license once it is written and signed, taking into consideration the management of multiple licenses, changing technologies and needs, and ensuring that content users are aware of the terms and conditions outlined in the license.

Specific examples, definitions, check lists, and quicktips are embedded throughout these chapters. In the second chapter, Harris includes an entire sample licensing policy for readers to utilize and build upon. In the chapters on licensing clauses and boilerplate provisions, every defined clause and provision is accompanied by a licensing tip, which provides context and practical advice beyond the theoretical description. When describing portions of the license, Harris often provides specific examples describing how the license might be used by different types of libraries—for example, authorized use in an academic library will be related to teaching, scholarship, and research, while authorized use in a corporate library will be focused on internal use and employee research (66). The appendixes include a copy of Sections 107 and 108 of the US Copyright Act, which determines whether something is fair use or available for distribution through interlibrary loan; the final appendix is a digital licensing clause checklist to be consulted when reviewing and negotiating a license.

This book will be most useful to library professionals and students who are new to licensing. The guide provides a plain-English introduction to digital licensing and can walk inexperienced librarians through the process of drafting, organizing, and negotiating according to patrons' needs. Experienced readers may draw insight from certain portions of the book, specifically in regards to changing technologies, such as text and data mining, interlibrary loan, open access, and archiving and perpetual access. Supervisors may also find the book to be a useful tool when drafting language that will be used to teach others about the licensing process, i.e., the language provided in the sample licensing policy. Harris claims that "keeping it simple is the

premise of this book," and *Licensing Digital Content: A Practical Guide for Librarians* fulfills this statement (17). The book logically flows from an introductory ten-step course on licensing into a description of the basic components of a license, continues to get more granular as it progresses, and ends on a call to approach the licensing process with "an open mind" and "lots of patience" (143). This eases beginners into the more difficult content while being conscious of the difficulties that still lie ahead. Readers new to the licensing process can read the guide from cover to cover without feeling overwhelmed and will walk away confident and demystified.—*Nicole Wood (woodn@apsu.edu), Austin Peay State University, Clarksville, Tennessee*

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Association for Library Collections & Technical Services
a division of the American Library Association
50 East Huron Street, Chicago, IL 60611 • 312-280-5038
Fax: 312-280-5033 • Toll Free: 1-800-545-2433 • www.ala.org/alcts