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Editorial

You may likely be aware that ALCTS, LITA, and LLAMA have been discussing the possibility of a merger. A question that I have frequently received (and for which I myself do not have an answer) after this information was shared with members is about the future of *LRTS*. Although my term as editor ends in June 2020, the future of *LRTS* is also very important to me. It is one of our division's flagship publications and respected within our profession.

During an ALCTS e-Forum to discuss the potential merger that included participants from all three divisions, it was clear that the division publications are important and of value to members. As professionals, it is critical for us to have access to research and information in our profession to stay current and grow professionally. *LRTS* also provides a means for technical services professionals to share the outcomes of their research and ideas to benefit others. It can be a first step towards publishing for some authors, a collaboration among two or more authors, or a submission from an individual who has held a long career and is regarded as an expert.

Publishing a research paper is one way that professionals can have an impact and contribute to the profession. They may be motivated by a job requirement such as promotion and/or tenure, they may be invited to submit a paper, or may enjoy writing and have ideas to share. I recently had the pleasure of co-presenting with Sandy Roe, the editor-in-chief of *Cataloging and Classification Quarterly*, for an ALCTS sponsored webinar on writing and publishing research results. The webinar was part 3 in the series "Research and Publications Basics." Something that Sandy and I emphasized is the role of the editor, both during the research and writing process and also during the submission and review process. I encourage anyone who has an idea for a paper to reach out to an editor to discuss it. An editor can provide feedback on your potential idea and help guide how you may structure your research paper. I am often asked for help by my Rutgers colleagues and am happy to provide input and also review their papers prior to submission.

A published paper may continue to be cited by others long after an author moved on to other things. This is another way that publications have value for our profession by enabling research. *LRTS* makes archives of past issues available with the exception of the six most current issues. Those are available only to ALCTS members and subscribers. I am often asked why *LRTS* is not open access (OA), yet it does support green OA. ALCTS's OA statement is available at http://www.ala.org/alcts/sites/ala.org.alcts/files/content/ianda/ALCTS_Statement_onOpenAccess.pdf. This enables authors who have had papers published in *LRTS* to deposit their works in their institutional repositories that are OAI-PMH-compliant. An ALCTS long-term goal is to transition *LRTS* to gold OA with no embargo period. Bear in mind, however, that this requires a sustainable business model that will offset production costs and offset the loss of subscription income while also not increasing membership dues or implementing article process fees. This is particularly important as the possibility of the merger is considered.

As one of ALCTS's editors, I also serve on the ALCTS Publications Committee. One of our goals is to solicit publications and to support authors in the process. ALCTS publishes a diverse group of resources, so there are numerous

opportunities for those interested. The division also handles publicity to promote its publications. This is done through press releases, promotional flyers and handouts available at the ALA booth during ALA Midwinter and Annual, Twitter and Facebook announcements, and advertisements in prominent publications.

This leads me to preview for you the contents of this issue of *LRTS*:

- Juleah Swanson and Philip B. White explore the possibility of using data-driven decisions to accept gifts-in-kind. Their paper "Using the WorldCat API to Develop Data-Driven Decision-Making for Gifts-in-Kind" outlines new methods to support data-driven decisions for accepting gifts, and the authors focus on the concept of rarity and scarcity using OCLC holdings, the WorldCat API, and geospatial methods.
- "Making Beautiful Music Metadata Together" recounts how the Howard B. Waltz Music Library and the University of Colorado Boulder's Metadata Services Department revived and completed a long-dormant retrospective conversion cataloging project for music scores and vinyl records.
- In their paper "Enhancing the Discovery of Tabletop Games," authors Diane Robson, Catherine Sassen, Jason Thomale, and Kevin Yanowski discuss how the lack of adequate metadata can be an obstacle to discovery of collections of three-dimensional materials. They outline how librarians at their institution increased access to a large collection of tabletop games.
- Books reviews courtesy of *LRTS* Book Review Editor Elyssa Gould for your professional reading.

Using the WorldCat API to Develop Data-Driven Decision-Making for Gifts-in-Kind

Juleah Swanson and Philip B. White

In practice, evaluation and acceptance of books donated to a library (gifts-in-kind) often lack the same data-driven decision-making that libraries apply to purchased materials. Factors of "specialness" or "uniqueness" that are important components of why libraries still seek donations are not necessarily data-driven. This practice may be especially true for items located within a library's general collection, rather than special collections or archives. The research presented here develops new methods that support data-driven decision-making in evaluating gifts-in-kind, particularly for items for the general collection. The authors focus on the concept of rarity and geographic scarcity using OCLC holdings, the WorldCat API, and geospatial methods. They retroactively examined monographs added to the general collection as gifts over a ten-year period at the University of Colorado Boulder (UCB) that are an initial dataset of sixteen thousand or more books. The majority of items are neither unique or rare in holdings, nor are they geographically scarce. However, some are, and the shared characteristics of many of these rare or geographically scarce items may be relevant to Area Studies faculty, students, and researchers. While the results of this study are localized in scope, the methods developed could be easily replicated by libraries seeking to evaluate uniqueness and proximity of current or future gifts-in-kind with high efficiency and objectivity.

Donations, also referred to as gifts-in-kind, have long been an acquisition source used to build and enhance library collections. Though donors give books and materials to libraries without monetary exchange, libraries recognize that gifts are not "free."[1] In the current context of data and patron-driven collection development and acquisitions strategies, shortages of physical spaces, and increases in digital collections of materials and e-books, are gifts-in-kind an antiquated means of collection development and acquisition?

Anecdotal reports of donors with exquisite collections continue to circulate as library lore. A donation from a local chess enthusiast or a gift of five thousand-plus volumes of British literature including rare items from notable authors such as Virginia Woolf, D.H. Lawrence, and T.S. Eliot may appear.[2] Perhaps the appeal of continuing to pursue gifts-in-kind is the prospect of obtaining something truly special, items that could not otherwise be acquired on the open market. Librarians who have worked with gifts-in-kind understand that acquiring items through donation is often a matter of sifting through "trash" versus "treasure."[3] One must determine which books, if any, will bring meaning and value to patrons, researchers, and the community.

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The University of Colorado Boulder Libraries' gift policy states that donations of interest "are often unique, rare or special collections and may include books, maps, media, archives/personal papers, artifacts, digital content and other scholarly material."[4] Columbia University Libraries "welcomes gifts of materials that will significantly advance the scholarly, research, and teaching mission of the University."[5] The Hesburgh Libraries at the University of Notre Dame acknowledges that although "materials may have value to the donor or potential value to the university, not every collection is a good fit for the Libraries."[6] These examples from academic library gift policies reflect the ongoing tension between a desire to obtain materials of unique, rare, or significant value to libraries versus the often burdensome task of determining whether a potential gift meets that criteria.

This study stems from these questions and challenges faced by librarians when considering donations. How can the task of determining what is unique, rare, or of significant value from a potential donation become less burdensome for evaluators? This research explores whether new methods are available that could support the creation of more data-driven decision making in evaluating gifts-in-kind, particularly for items for the general collection, rather than Special Collections or Archives. The authors focused on the concept of rarity and geographic scarcity using WorldCat holdings, the WorldCat Application Programming Interface (API), and geospatial methods. Additionally, they chose to retroactively examine a large dataset of over sixteen thousand books acquired as gifts-in-kind, to determine whether the additional data on rarity and geographic scarcity can further highlight characteristics that may suggest an item's status as "treasure."

Literature Review

The decision to continue gift-in-kind donation programs and if the effort, labor, and material cost is worth adding "free" items to a collection is a topic of debate in the professional literature. The Colorado State University Libraries disbanded their gift-in-kind donation program for all materials except special collections and archives materials.[7] The authors of a study of the Colorado State program, argued that, "in this environment, adding general gift books to a physical collection must be seen at best as a secondary or tertiary collecting strategy given limited resources, limited space, and the growing demand for access to electronic content."[8] Researchers who authored another study of New York State public, academic, and special libraries found that the majority of libraries surveyed still felt that gift-in-kind donations are valuable in serving the library's mission and community.[9] At the University of Florida, a re-examination of collection development and acquisition policies and practices led to limiting just-in-case collection development to the library's preeminent collections, such as the University of Florida's Latin America and Florida History collections.[10] The tightening of gifts policies by emphasizing gifts for their preeminent collections led to a reduction of donations reviewed by half and a greater percentage of acceptance. After assessing its program, librarians at the University of Saskatchewan changed their program by de-emphasizing gifts-in-kind functions and providing more explicit guidelines while still remaining "delighted to receive unique treasures that fall within its collecting parameters."[11]

The literature on gift-in-kind donations has long addressed this tension between evaluating donations of questionable value versus finding gems among those materials. According to O'Hare and Smith,

Academic research libraries are always looking for potential collection enhancing treasures, and gifts-in-kind can be the source for those unique items which distinguish collections. The reality, however, is that the average gift-in-kind is often just average and, more often, not required.[12]

O'Hare and Smith outline types of unwanted donations, drilling down to specific titles, that plague libraries including donations of *National Geographic Magazine*, *Reader's Digest*, and donations that literally and figuratively "smell bad" due to poor condition, the presence of mold, or have questionable provenance.[13] As an evaluator of donations, Burgett affectionately ruminates on finding forgotten masterpieces for today's scholars among donated books, "which of these unrecognized titles . . . will one day assume a pivotal position at the center of a new circle of thinking?"[14]

Differences in perceived value of materials between donors and librarians exacerbate the challenge of reviewing gifts for valuable items. In a special issue of *Acquisitions Librarian* on gifts-in-kind, Denning aptly writes, "well-meaning donors, thinking every book is valuable to any library, often fail to realize how marginal their gifts may be; while others simply wish to unload unwanted books and perhaps take a tax deduction."[15] The University of Saskatchewan Library found that gift-in-kind donations were not leading to monetary gifts as was once assumed, but instead to more gifts-in-kind of minimal value to the library.[16] Similarly, East Carolina University Libraries compared the donor records for both gift-in-kind and monetary donations, and though records were incomplete, they found minimal overlap between the two groups of donors, suggesting that gift-in-kind donors and monetary donors are separate groups of people.[17]

Automated Tools for Evaluation

To minimize the impact of gifts-in-kind on resources, librarians have sought automated tools for evaluating and

processing donations. In 1999, Johnson reviewed tools and processes, utilizing online catalogs, databases, and integrated library systems that allowed for electronic record keeping, plus the advent of email to communicate about gifts and exchanges as advantageous advances in how libraries could better manage gift-in-kind processes and donations. That paper does not address tools or automation for the upfront evaluation of potential gift-in-kind donations.[18] The Getting It System Toolkit (GIST) Gift and Deselection Manager (GDM), developed at the State University of New York Geneseo, was an open-source software application developed to optimize workflows specifically for evaluating gifts-in-kind and address workflows for deselection, weeding, and withdrawal.[19] It automates and gathers data from a number of sources using third-party APIs, is interoperable with OCLC Connexion, and provides the ability to automate the creation of donation thank you letters. Unfortunately, a May 29, 2018 message on the GIST website indicated that there was a discontinuation of support for all GIST applications, including a beta version of GMD Online.[20]

The concept behind GIST's GDM was to provide users with data to evaluate donated items against an institution's collection and other libraries' collections. This utility speaks to the type of intra-library collection analysis librarians often seek to perform. Some researchers have turned to OCLC's WorldCat database to answer these types of collection comparison questions. In a 2006 paper, Brewer described using WorldCat's advanced search function to conduct collection comparison of Russian language materials between two libraries.[21] Genone and Wright described how OCLC's WorldCat Collection Analysis software aided in conducting a collection comparison among research libraries in Australia to better understand the extent of duplication across Australian libraries.[22]

Holdings Analysis

Although no definitive threshold of OCLC holdings exists that determines an item's rarity, a number of projects and publications have sought to use holdings counts to provide context for rarity and specialness. In the 2016 ACRL *Guidelines on the Selection and Transfer of Materials from General Collections to Special Collections*, a series of examples help illustrate definitions of rarity and scarcity. One example includes "fewer than ten copies held in the United States."[23] At Eastern Michigan University Library, researchers analyzed the general collection to determine whether items should be transferred from the browsing collection to the library's off-site storage facility or to Archives and Special Collections.[24] A holdings analysis of fewer than ten OCLC holdings worldwide, or fewer than three OCLC holdings at Michigan institutions, plus other criteria, determined if items should be moved out of the general collection. In an analysis of Russian language materials at Indiana University and the University of Arizona, a study compared the number of items unique to these institutions, followed by the number of items held by four or fewer other institutions, and then items shared by five to twenty-four, twenty-five to forty-nine, fifty to one hundred, one hundred to five hundred and more than five hundred libraries.[25] The author used this analysis to gauge not only what were unique and more scarce items, but also what were the more prevalent and common items held in these collections. As previous analyses and guidelines have demonstrated, ten or less holdings worldwide may be a useful benchmark.

Methodology

Gift-in-Kind Item Data

This research examines monographs added to the general collection, meaning items available for circulation, during a ten-year period from 2006 to 2016 and acquired as gifts-in-kind. This also includes circulating items houses at off-site storage. All other formats are excluded from analysis, including music scores, serials, and maps; items housed in special collections, archives, or other non-general collection locations; and items with status codes for limited use, withdrawals, or other codes indicating unavailability.

Item records were identified through the following criteria: created between January 1, 2006, to December 31, 2016; uses the bibliographic code for format type as monograph; and contains the local item note used to identify items added to the collection via gift-in-kind donations. The initial set of items was generated through a query of records from CU Boulder Libraries' integrated library system, Innovative Interfaces' Sierra, generating a list of 17,934 items. Within this initial set of data, duplicate OCLC numbers were found, and the data was deduplicated down to 16,481 records.

OCLC Holdings Data

The WorldCat Search API was used to examine the location and number of holdings for each item in the data set. OCLC maintains over twenty APIs for library use.[26] The APIs are available to all OCLC contributing libraries with holdings in WorldCat.[27] The WorldCat Search API provides bibliographic and location information for items in the WorldCat database. It is a Representational State Transfer (REST) API, whereby REST is a set of principles used in the design of web services.[28] The WorldCat Search API is queried by constructing a URL containing the search parameters and the API's base URL.[29] REST is a protocol and method for data exchange on the web, and these types of APIs are

easily queried by entering a query in a web browser. To determine the location of a particular item by its OCLC number in WorldCat, the "GetByOCLCNumber" method was used for this study. OCLC offers two levels of access to its APIs: Sandbox and Production. Users must request an API key from OCLC to use its APIs at either level. API keys are a common method of authentication for REST APIs. Because the Sandbox key is limited to a hundred requests per day, a production key was obtained. Users can obtain a production key by submitting a request with project justification.[30] A location query using the "GetByOCLCNumber" method requires an OCLC number, library's zip code, and API key. An example query would appear as:

> http://www.worldcat.org/webservices/catalog/content/libraries/{OCLC-NUMBER}?location={ZIP-CODE}&maximumLibraries=50&wskey={API-KEY}.

This type of query shows the fifty nearest libraries holding the particular item and each library's city, state, and zip code. The WorldCat Search API returns response data in XML format. If the item queried is owned by a local library (in this case, CU Boulder Libraries), it is the first result. For the purpose of this research, identifying each holding location for every item was unnecessary and unwieldy. However, limiting to ten holdings locations did not present sufficient information. The authors obtained the first fifty nearest holdings locations, with the intent of analyzing items with holdings at one to forty-nine institutions, and the location of the nearest copy for all items. An alternative to the "GetByOCLCNumber" method is the "GetByISBN" method, which returns the same results. The "GetByISBN" method may be useful in cases when books are unprocessed and not yet cataloged, such as with donations that are still under consideration.

The benefit of obtaining location data via the WorldCat Search API is the ability to automate the data gathering process. A Python script was developed to interact with the API. Beginning with the list of 16,481 OCLC numbers, the script inserted each number into a query formatted as a URL, iteratively queried the WorldCat Search API, and parsed each XML response into a comma separated value (CSV) file. This process was fully automated. Use of OCLC's APIs must comply with the WorldShare Platform Terms and Conditions.[31] The resulting CSV contained up to the fifty libraries nearest to the CU Boulder Libraries zip code (80309) for each OCLC number that was queried.[32]

Geospatial Methods

Since distance from the queried zip code is not included in response data from the WorldCat Search API, these measures were calculated using geospatial techniques. Each unique library in the response data was compiled into a new CSV file. The CSV file contained the zip code-level address information for each library in the dataset.[33] The MapQuest Geocoding API was then used to assign latitude and longitude coordinates to each library.[34] Geocoding is a geospatial operation that assigns latitude and longitude coordinates based on street addresses.[35] The geocoding process was automated in a similar process to the API methods described above. The MapQuest Geocoding API returns data in JavaScript Object Notation (JSON) format, and the response coordinate data for each library were parsed into a CSV file. Depending on the accuracy of the address database queried, a small amount of error is expected when geocoding. The resulting coordinate data were visually inspected in the CSV file and in a map interface for quality control. Most libraries were geocoded to the highest-level possible (zip code); some were geocoded to city-level accuracy; and a small number were geocoded to the country-level. Once coordinate data were assigned to each library, the distance of each of those libraries from the CU Boulder Library were calculated using Python. The Python library GeoPy contains a function for calculating geodesic distance. The geodesic distance calculation method is preferred for data that is global in scale (as opposed to normal planar calculations, which do not take into effect the Earth's curvature). These distance calculations were inputted into a final CSV file that contained coordinate data and distance from CU Boulder for each library in the data. Finally, the CSV file containing distance and coordinate information was merged with the file containing the OCLC item location data to create a master table with which further analyses were conducted.

Additional data used in the analysis included bibliographic data attributed to each item retrieved from the bibliographic records found in the University of Colorado Boulder's (UCB) integrated library system. The additional data fields retrieved included publication language and call number. Call numbers were further analyzed by attributing the Library of Congress (LC) call numbers to the applicable LC classification subclass using the LC classification outline.[36] Item, bibliographic, and LC classification subclass data was compiled in Excel and analyzed through pivot tables.

Results

The dataset analyzed contained 16,481 items, of which 244 were unique to CU Boulder Libraries, and 16,237 were held at UCB and at least one other library. A total of 8,641 items (52 percent) were held at forty-nine or fewer libraries. The remaining 7,838 items (48 percent) were held at fifty or more libraries.

Figure 1 plots the count of items held at institution by the number of holdings from items unique to UCB to items held at forty-nine institutions. As the figure illustrates, the number of items held at between one and nine libraries steadily increases, peaking at nine. After nine libraries, the number of items held decreases. Because of this spike, and of similar analysis that used ten or less holdings, for the analysis of unique, rare, and scarce items, the authors focused on items held at nine or fewer libraries, including UCB.

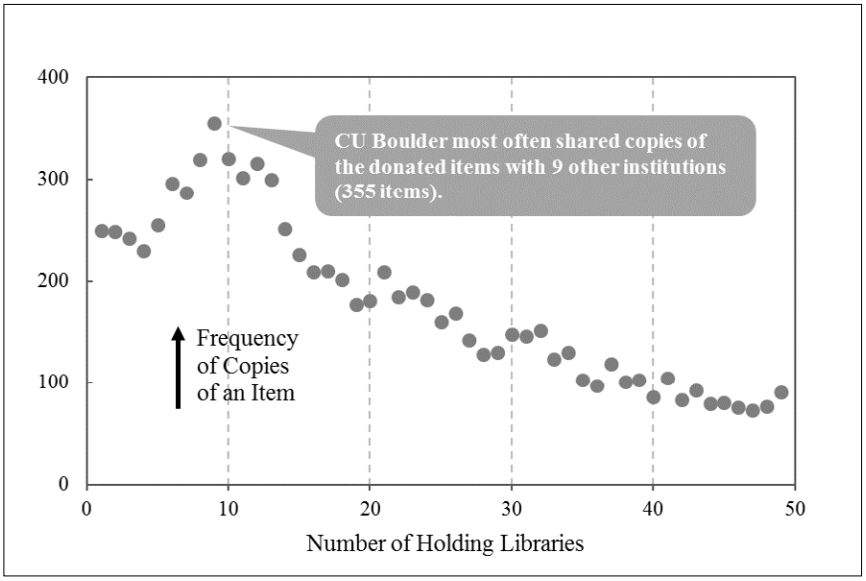

Figure 1. Frequency of number of copies of an item existing at CU Boulder and other institutions.

Top Twenty-Five Institutions With Two to Nine Holdings that Share Items with UBC

Some of the largest, most prominent libraries in the United States represented the top libraries with shared items between two to nine holdings, including the Library of Congress, Harvard, and the University of California Berkeley. The closest of these locations was the University of Minnesota, Minneapolis, approximately seven hundred miles away. Of the twenty-five libraries, six were outside North America, including Japan, Germany, Spain, South Africa, and Australia (see table 1).

Only five libraries shared six or more items uniquely with UCB. The top two locations in this group were international, meaning that of the fifty-two items in this set, UCB's copy was the only copy held in the United States (see table 2).

Characteristics of Items Held at Nine or Fewer Libraries

In total, 905 items (36 percent) were in English, with the remaining 63.5 percent in a range of other languages. Japanese, Spanish, and Persian were the next most prevalent languages. Table 3 also shows the percentage of items within the set that were unique items only found at UBC. Twenty-one percent of the Spanish language materials are unique, while thirteen percent of both the Persian and Chinese language materials are unique. Nine percent of the English language materials are unique.

Four of the top five LC classifications describe subject areas relevant to area studies research, with Indo-Iranian languages and literatures as the top LC classification. The second most prevalent LC classification was the theory and practice of education (see table 4).

Nearest Copies in the Full Dataset

Within a 200-mile Radius

In comparing items also held by other institutions, 5,978 items (37 percent) were held at an institution within a 200-mile radius. The University of Denver shared the most overlap (1,000), followed by the Auraria Library, which serves a sister campus, the University of Colorado, Denver (944), and Regis University (898), also located in Denver (see figure 2).

Within a 550-mile Radius

A total of 10,165 of the items (63 percent) were held at institutions within a 550-mile radius. Brigham Young University in Provo, Utah was the nearest location in this radius with the most overlap (1,136), followed by the University of Kansas (1,108), and again, the University of Denver (1,000) (see fiure 2).

Outside North America

Nearly all items (98 percent) were held at institutions in North America, including Canada and Mexico. Brigham Young University, the University of Kansas, and the University of Denver continued to be the top three institutions across North America with shared holdings. However, 279 items were held by institutions outside of North America in addition to being held at UCB. These included institutions in Europe, Australia, and Japan (see figure 3).

Discussion

If holdings and locations are used as a measure of "specialness" or "uniqueness," the majority of items UBC added to the general collection as gifts were not unique, nor were they particularly rare or geographically scarce. Abandoning a gifts-in-kind program altogether based on these results would not be prudent, however, as some items were unique or geographically scarce. For example, some items were the only copy found in the United States or in North America or were one of nine or fewer holdings worldwide. As librarians have long recognized, treasure can be found hidden among the "trash," but the process of evaluation may warrant additional data to better assess value. Using WorldCat holdings and geospatial data may help libraries like UCB to better evaluate potential donations at the time of inquiry from the donor, rather than after acceptance and processing of gift-in-kind items.

Table 1. The top 25 institutions with whom the University of Colorado Boulder Libraries shares items with between 1-9 holdings.

Institution	Country	Total Shared Items, Holdings 1–9
Library of Congress	USA	464
Harvard University	USA	372
UC Berkeley Libraries	USA	370
University of Illinois at Urbana Champaign	USA	350
National Diet Library	Japan	310
University of Washington Libraries	USA	298
University of Chicago Library	USA	275
University of Minnesota, Minneapolis	USA	264
Columbia University in the City of New York	USA	261
HCL Technical Services	USA	182
University of Erlangen-Nuremberg	Germany	175
University of California, NRLF	USA	175
HathiTrust Digital Library	USA	169
Yale University Library	USA	161
University of Sydney Library	Australia	157
University of Kentucky Libraries	USA	155
Biblioteca Nacional de España	Spain	144
Unisa: Muckleneuk Campus	South Africa	141
University of Texas Libraries	USA	135
Princeton University Library	USA	124
University of Toronto Robarts Library	Canada	123
International Research Center for Japanese Studies	Japan	116
University of British Columbia Library	Canada	112
University of California, Los Angeles	USA	107
Stanford University Libraries	USA	104

Table 2. Libraries sharing the most unique items with the University of Colorado Boulder Libraries.

Institution and Location	Count of Shared Items
Biblioteca Nacional de España; Madrid, Spain	31
National Diet Library; Tokyo, Japan	21
Library of Congress; Washington, DC, United States	11
Alibris; Emeryville, California, United States	8
University of Texas Libraries; Austin, Texas, United States	6

OCLC Holdings and the WorldCat Search API

Leveraging data science techniques streamlined several phases of this research. Automating the data collection process via the WorldCat Search API opened paths of inquiry that were previously unavailable. Collecting information about the nearest copies of more than sixteen thousand books manually is almost impossible. Running a script to obtain this data—even when slowing the speed of the script down to maintain a "polite" request rate—took a few hours to complete. Whereas libraries have long relied on OCLC's catalog and metadata services, few have leveraged the rich data content of what is perhaps the world's most comprehensive library catalog. By taking advantage of the WorldCat Search API, the authors added the new data points of uniqueness and distance of copies to the decision matrix for assessing gift items—improving upon the standard assessment of "do we have it?"

An added benefit of the data science approach is the ability to reproduce this type of analysis with ease and on a variety of scales. For a collection of gift items totaling more than a few dozen books, querying the WorldCat Search API for the items' library locations amounts to a significant time-saving. For small collections (i.e., fewer than several hundred), adding these metrics to the decision process takes seconds or minutes to complete. All that is needed is a list of the items' OCLC numbers or ISBNs. Using program

Table 3. Top 10 Languages by Item Count.

Language	Item count	Percentage of holdings 1-9	Unique items (holdings only at CU Boulder)	Percentage of unique items by language
English	905	36%	83	9%
Japanese	395	16%	10	3%
Spanish	311	13%	64	21%
Persian	248	10%	33	13%
Chinese	178	7%	23	13%
Hindi	73	3%	4	5%
Urdu	72	3%	4	6%
Portuguese	64	3%	3	5%
Korean	58	2%	4	7%
German	40	2%	4	10%

Table 4. Top 10 LC classifications for items held at 1-9 institutions.

LC Classification	Classification Description	Item Count
PK	Indo-Iranian languages and literatures	300
LB	Theory and practice of education	285
PQ	French literature - Italian literature - Spanish literature - Portuguese literature	259
PL	Languages and literatures of Eastern Asia, Africa, Oceania	186
DS	Asia	97
PS	American literature	82
PN	Literature (general)	62
N	Visual arts	54
F	All Americas	47
QA	Mathematics	46

code instead of proprietary software, documentation of the methodology is essentially built into the scripts. Beyond an OCLC subscription and basic programming knowledge, those wishing to repeat these methods need only to install Python and the related code libraries—all of which are free and open source. Use of OCLC's suite of APIs is ripe with potential for collection analyses, and librarians that regularly conduct collection assessments should explore the multitude of data and uses available to them.

Geospatial Data Techniques for Collections Analysis

As previously noted, evaluating OCLC holdings to analyze collections and to make evaluation decisions for potential donations is not uncommon. What many previous methods have not used in the same manner as this research is the inclusion of geospatial techniques to provide additional data and context to the process. The GIST tool offers information about the number of holdings within specific groupings of libraries, for example, the number of libraries in the state of New York within a specific interlibrary loan network. For libraries in geographically dispersed regions, such as the West, the Great Plains, or the Rocky Mountain region, physical distance may be a consideration, knowing not only the location of the nearest copy of an item, but also the distance to that next copy. While interlibrary loan is a consideration when reviewing data for individual items, geospatial analysis may be important in considering collections as a whole. The geospatial techniques used in this research to provide more data for gift-in-kind collection analysis could also be used to in collection analysis and evaluation for purchased materials.

For example, UCB houses a large East Asian studies research collection. The next closest comparable collections are at Brigham Young University and the University of Kansas, both more than five hundred miles from Boulder. Is there a maximum distance to the next closest copy that may be considered when building a collection, acquiring new material, or considering donations? Is over five hundred miles acceptable, or should a library consider adding items when they are not found within a five hundred-mile radius? What is an appropriate distance to consider, particularly for libraries located in geographically dispersed regions? Data-driven geospatial techniques provide new methods of analysis and techniques to consider, particularly for large collections and datasets that require efficient methods of analysis.

Retroactive Analysis

What can a retroactive analysis of a set of donated materials reveal about the future of gifts-in-kind? The shared characteristics of items held at nine or fewer libraries, including the items unique to UCB, may help illustrate why these are rare. Many of these items held at nine or fewer institutions are materials in languages other than English, and some are also found in LC classifications relevant to Area Studies researchers. Area Studies collections, like Special Collections, have qualities of distinctiveness.[37] Language and subject area, particularly emphasizing the areas of international studies relevant to a library's students, faculty, and researchers, could become significant factors in evaluating potential gifts-in-kind in the future. Furthermore, because historic means of acquiring Area Studies and international materials are no longer feasible for many libraries, with federal funding grants supporting materials to teach foreign languages in higher education increasingly limited and international acquisitions trips financially unviable, donated materials may offer an alternative means to obtain difficult to acquire materials.[38]

Since the acceptance of items evaluated in this research (2006-2016), the manner in which UCB staff communicate with potential donors has changed, and includes intial questions on describing a donation, and whether a donation includes items in languages other than English. These types of questions have enabled prioritization for review and processing of donations that have more potential of being unique or special, and has resulted in recently accepted gifts of Tibetan manuscripts and noir and crime fiction novels from Japan. Additionally, implementing the automated techniques for compiling OCLC holdings and geospatial data is currently being explored to incorporate into student employee workflows, as they do the bulk of data collection for the evaluation process.

What this research did not analyze, but would be beneficial for future research, is to more closely examine the characteristics of items that are both commonly held across many institutions, plus items that are prevalent within the geographic region. An analysis of LC classifications or other characteristics may reveal the types of items or subject areas that are the least desirable as gifts-in-kind. Better understanding

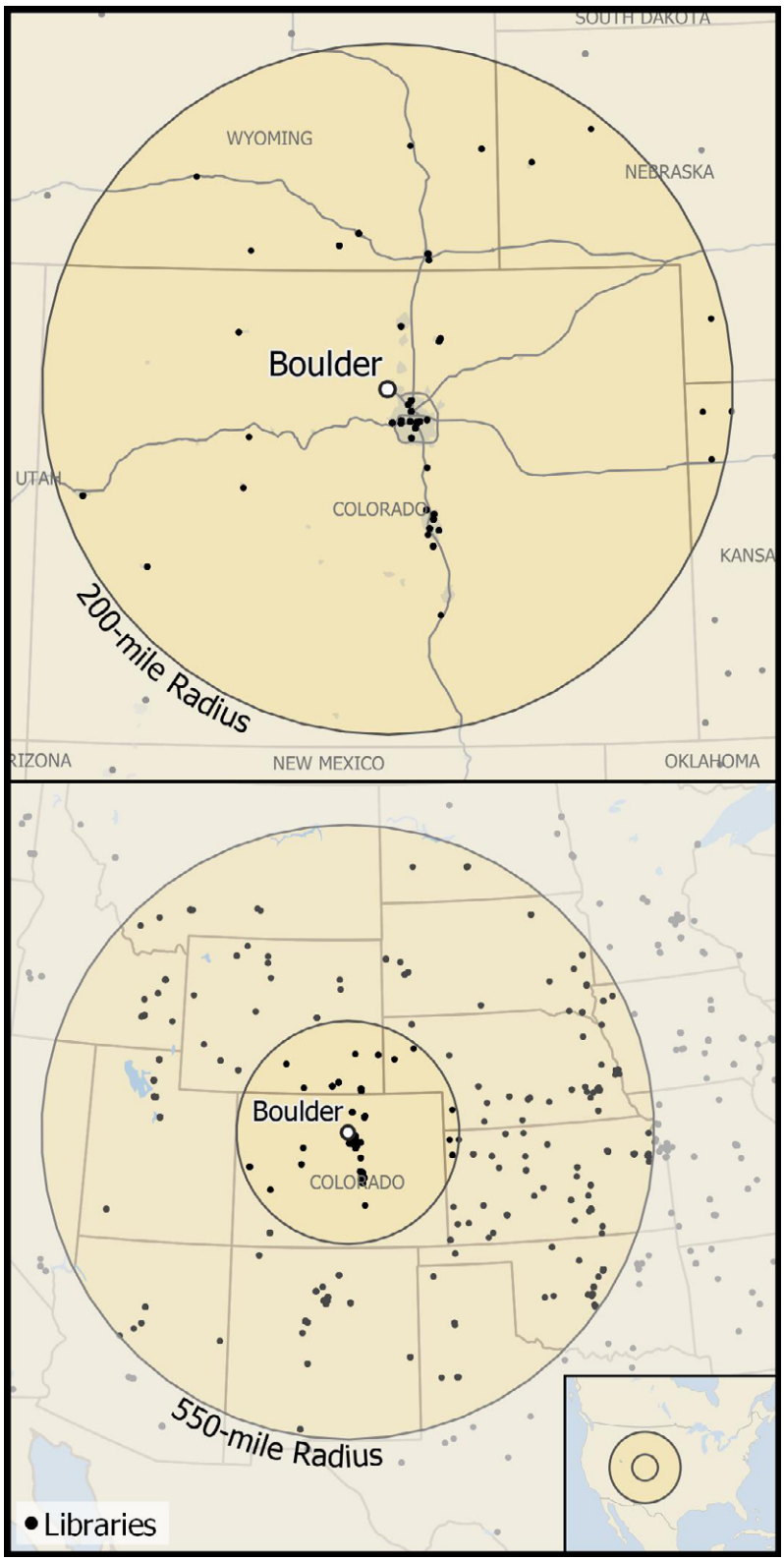

Figure 2. Map depicting libraries that held the nearest copies of any of the donated items within 200-and 550-mile radii.

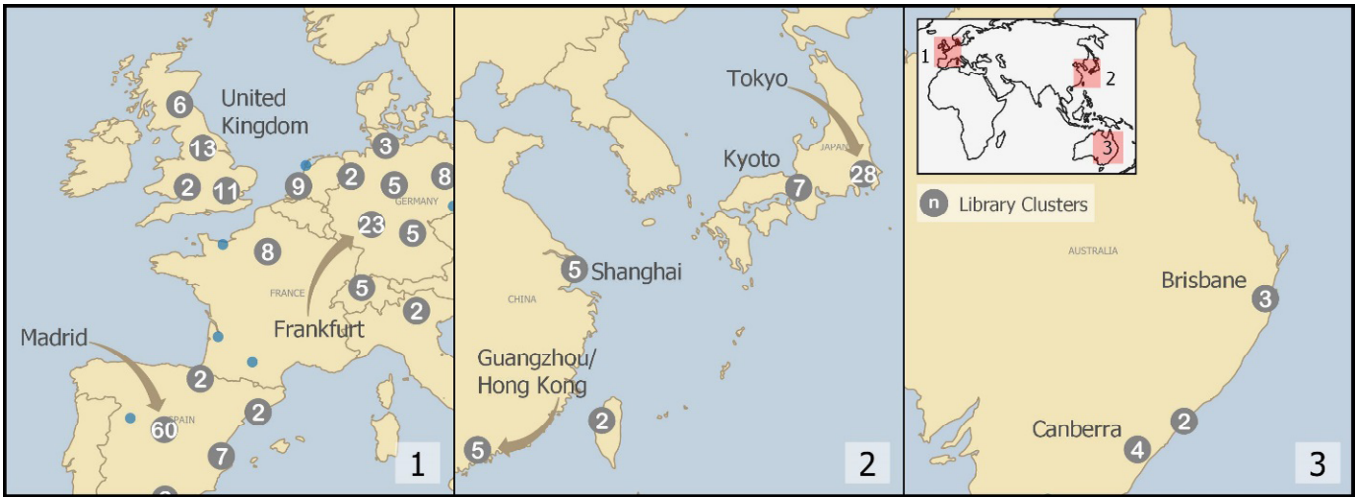

Figure 3. Map depicting clusters of libraries in areas beyond North America where nearest copies of items most often occurred. 1. Western Europe; 2. East Asia; 3. Australia.

of commonly held or regionally prevalent items may further help libraries to limit the amount of upfront work needed, and perhaps minimize the need to compile additional data on OCLC holdings or geographic scarcity for this subset of materials.

Finally, future research on gifts-in-kind evaluation would benefit from applying evaluation methods that are emerging in collection development and assessment, focused on evaluating materials for inclusion of traditionally underrepresented and marginalized communities. This may involve analysis of subject headings, author bibliographic information, plus considerations for small and independent presses, or non-traditional or author-published works. Are there additional ways techniques developed in this research using the WorldCat Search API could provide data that can highlight works from traditionally underrepresented communities?

Limitations

Although the methods and resulting analyses presented were highly effective and beneficial to the authors' gift-in-kind assessment efforts, they acknowledge that limitations exist. First, using the graphic distance of other item copies was important to UCB but may be irrelevant to others, depending on location. UCB serves a region with a relatively low-density of large academic or research libraries. Beyond the greater Denver area, distances between institutions in the Rocky Mountain Region are high—underscoring the importance that UCB retains local copies of relatively unique items. For libraries in regions encompassing many research libraries (e.g., the Northeast, the West Coast), retaining local copies may not be important if several nearby libraries hold the items. Assessing distance and uniqueness, however, could still be relevant to libraries in these high-density areas as points of decision for adding items to the collection. Although others may easily replicate this study's assessment approach, the results produced are only relevant locally. Future studies could further develop the techniques presented to compare multiple institutions or regional borrowing networks to draw broader conclusions regarding collection uniqueness and geographic scarcity.

Another limitation of this study is its reliance on OCLC's systems and assumptions about its data quality. In addressing the study's repeatability, the authors assert that most libraries have access to OCLC services. Whereas this may be true for large US research libraries, this is not a fair assumption for libraries without an OCLC subscription such as small, specialized, or international libraries. The WorldCat Search API is inaccessible to such libraries and their catalog records may not be a part of the WorldCat database. The authors acknowledge this inherent limitation and partiality toward libraries in the US and broader western world. Additionally, the authors recognize that this research relies on the quality of OCLC's data. It should be noted that multiple OCLC numbers could be assigned to a unique item, which may affect the results of this study. More research inquiring about how frequently unique items are assigned multiple OCLC numbers would be useful. Future researchers looking to mitigate this factor may choose to query the WorldCat Search API with ISBNs, and not OCLC numbers. Older, unique, and rare materials, however, may lack an OCLC number, an ISBN, or both. Thus, some materials without any identifies could not be analyzed using the WorldCat Search API.

Conclusion

Although the results of this study were localized, the methods developed could be easily replicated by any library seeking to develop data-driven decision-making in the gift-in-kind process with high efficiency and objectivity. Retroactive analysis can offer insight into improvements on future evaluation criteria for potential donations, while the methods themselves both using the WorldCat Search API and geospatial analysis techniques could be applied to large offerings, if OCLC numbers or ISBNs are collected. Researchers could replicate these methods on datasets beyond donated materials, offering new ways of analyzing collections and similarly developing new criteria for acquisitions and collection development policies and scope in the future. Sifting through "trash" versus "treasure" does not have to be a highly subjective, labor-intensive process. The methods applied in this research can be used to build data-driven decision-making into the gift-in-kind process.

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Notes on Operations Making Beautiful Music Metadata Together

Chris Evin Long, Stephanie Bonjack, and James Kalwara

This paper discusses how the Howard B. Waltz Music Library and the University of Colorado Boulder's Metadata Services Department cooperated to resurrect and complete a long-dormant retrospective conversion cataloging project involving musical scores and vinyl records. It addresses the resources that both groups brought to the relationship; the collaborative process by which decisions were made; the implementation plan and challenges; and how fostering a culture of customer service within the Metadata Services Department contributed to the project's success. It also contrasts Colorado's project with two other cooperative music cataloging projects and explains how its approach can serve as a model to other libraries who have significant cataloging backlogs or hidden collections but may feel hindered by the lack of specialized in-house cataloging expertise.

It has been almost twenty years since the Association of Research Libraries (ARL)'s Task Force on Special Collections released its white paper on the problem of "hidden collections" within libraries, material that is inaccessible to library users because it is uncataloged, unprocessed, or underprocessed.[1] Although this paper focused on special collections, other library resources have suffered the same fate, including media materials.[2] Many specialized library units have a limited number of staff with the necessary training or the time to deal with this problem, forcing them to look elsewhere for assistance. Often that "elsewhere" is the library's general cataloging department.[3] That was the case at the University of Colorado Boulder (CUB) Libraries.

In 2015, the Head of the Howard B. Waltz Music Library at CUB had a major dilemma in the form of a card catalog prominently located in the Music Library's public services area. The card catalog posed two types of access problems—physical and intellectual. Since its placement impeded ADA accessibility to the card catalog and the reference stacks, it was critical to reorganize that part of the library to accommodate wheelchair access. Removing the card catalog was not possible since some of the Music Library's scores and vinyl records were not represented in the online catalog. Furthermore, it was not clear to patrons why they needed to use the card catalog to find these materials since most of the Music Library's other content was discoverable in the online catalog. The scores and vinyl records that were accessible solely via the card catalog were virtually undiscoverable, and the situation was compounded by the fact that many of these items are unique pieces held by few other libraries. The card catalog therefore contained a hidden collection that was physically housed on the Music Library's shelves yet undiscoverable and ultimately underused. This paper discusses how the Music Library and the Metadata Services Department (MSD) collaborated to resolve this access issue through retrospectively converting the uncataloged scores and vinyl records despite MSD's lack of music cataloging skills.

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Literature Review

The perception that technical services librarians, particularly catalogers, are not collaborative is widespread, and technical services librarians are themselves complicit in fostering this stereotype.[4] The longevity of large-scale institutional partnerships such as the Program for Cooperative Cataloging (PCC) and library networks that host shared catalogs such as OhioLink and the Orbis Cascade Alliance belies this unflattering stereotype. Recent research has highlighted several collaborative initiatives undertaken by smaller groups of catalogers. Several instances of cooperation among catalogers from different institutions exist, but the most natural opportunities for partnership are frequently within the same organization, as was the case at CUB.[5] Falk, Hertenstein, and Hunker describe a successful collaborative effort among catalogers from various cataloging units at Bowling Green State University to create a new cataloging manual, resulting in more transparency among the decentralized units.[6] A similar endeavor was undertaken at Troy University, where catalogers across three campuses collaborated to create an online policy and procedures manual.[7] In both cases, catalogers that historically worked in isolation from each other found that collaboration achieved greater transparency and more standardized procedures. Schroeder and Williamsen's paper relating Brigham Young University's experience in providing streaming video services to their patrons demonstrates how catalogers effectively work in concert with other departments in the library.[8]

More directly relevant to CUB's undertaking are two recent papers about the collaborative cataloging of music materials. One describes the cooperation between the University of California San Diego (UCSD) and the University of California Santa Barbara (UCSB). This project used specialized cataloging expertise from UCSD staff to catalog backlogged audio CDs held by UCSB through the implementation of a workflow using packets of files containing surrogate information from these items. The surrogates contained scans of key components of the publication and a form document that included size and pagination information. The surrogate packets were shipped to UCSD catalogers to create catalog records in OCLC. While this process was cost-effective in that it did not require outsourcing to a vendor, batches of thirty to fifty surrogate items took an average of three weeks to complete. Although the project was still ongoing at the time of the paper's publication, the authors deemed it a success.[9]

Lorimer described another project in which previously hidden music materials were made discoverable through cataloger cooperation. Yale, Stanford, and the New York Public Library received a joint Mellon Foundation grant to catalog an estimated three hundred thousand 78 rpm sound recordings with little or no bibliographic access in their respective local catalogs. Grant participants created high-quality original cataloging records and used batch searching techniques to find cataloging copy for the items. By the conclusion of the grant, approximately twenty-four thousand catalog records were added to WorldCat, although much work remained.[10] Contrasts between CUB's project and the two cited will be discussed later in the paper.

Collaborative cataloging projects such as those undertaken by UCSD and UCSB and Yale, Stanford, and the New York Public Library, in which hidden material was made discoverable for users through the efforts of catalogers working together, are examples of the increased attention in library literature to the customer service aspects of cataloging. Cataloging as a customer service focuses on meeting end user needs and emphasizes the importance of perceiving users as clients or customers, and carefully considering their search techniques, information needs, and access to unique collections when establishing cataloging policies and practices.[11] Hoffman emphasizes the importance of customizing bibliographic records to meet local user needs.[12] Embracing a customer service model may also be useful for librarians facing increased expectations of high-quality services and access to resources from diverse customers, who may range from fellow staff members, professors, or community patrons.[13] Moreover, to meet growing customer expectations, Walters emphasizes that by recognizing fellow staff members as potential customers, libraries can promote a culture of customer service within their organization.[14] Adopting a customer-focused approach along with a culture of assessment has been proposed as a critical method for libraries to accommodate changing user expectations and demonstrate their value.[15] Additionally, to develop a user-oriented library catalog along with a "new relationship between the cataloguer and the user," library staff at the University of Florence formed a work group for the management and maintenance of the catalog to create a "sense of service" among catalogers and implement cooperative authority control practices.[16] Finally, after surveying the literature on quality in cataloging, Paiste describes how in addition to knowing user expectations and needs, it is critical to regularly measure, evaluate, and adjust cataloging workflows to meet service-oriented goals, as opposed to simply meeting production standards.[17]

The projects discussed above, in which catalogers cooperate to meet their own or their users' needs, illustrate one way to use collaboration as a means of providing cataloging customer service. An alternate model, absent in library literature but an emerging theme in the business world, is the concept of co-creation, in which businesses and customers collaborate directly to determine both the process and the outcome of an end product. In co-creation, consumers are no longer passive recipients of a firm's goods

and services but are actively engaged in both defining and creating value. Prahalad and Ramaswamy, widely regarded as the originators of the idea of co-creation, identify four key building blocks in the process of co-creation between firms and customers: dialogue, access, risk assessment, and transparency.[18] This paper explains how MSD and the Music Library incorporated some of co-creation's building blocks to use collaboration as an essential factor in providing excellent customer service and achieve a successful project outcome.

Institutional Context

The CUB University Libraries' MSD has been a longstanding participant in all the Program for Cooperative Cataloging (PCC) programs (BIBCO, NACO, SACO, and CONSER), and recently became an Electronic CIP Program (ECIP) partner and metadata and cataloging contributor to the US Government Publishing Office (GPO) Partnership Program. MSD's Monographic and Special Materials Cataloging Unit consists of twelve full-time and one part-time staff: three faculty librarians (including the unit head), three cataloging managers, and seven catalogers. Seven unit members provide original and complex copy cataloging and are trained BIBCO/NACO/SACO contributors. The remaining staff concentrate on complex and copy cataloging. As its name implies, the unit catalogs monographs (including e-books), media materials, government publications, and maps. Some staff also create non-MARC metadata for digital projects. Although each cataloger has a primary area of responsibility, there are not rigidly defined expectations about the types of materials or projects on which they work. The collective ethos is one of embracing challenges. This has enabled the unit to foster strong cataloging partnerships both internally with other library departments and branch libraries such as the Music Library, the Special Collections, Archives, and Preservation Department, the Government Information Library, and the Maps Library, and externally with campus units such as the Classics Department and the School of Education.

The Howard B. Waltz Music Library is one of four branches of CUB University Libraries. The Music Library has a relatively short history, starting as a small collection of music scores and recordings in Norlin Library (the main campus library) in the 1940s, which grew following the hire of its champion, music faculty member Howard B. Waltz. After a series of moves within Norlin Library, the collection was relocated to its current location on the second floor of the Imig Music building in 1979. From then until 2015, the Music Library experienced very little change beyond the growth of its collections, the transition to an online catalog, and an update in playback equipment.

Administratively, the Waltz Music Library is funded and managed by the CUB Libraries. However, the original and subsequent leadership of the Waltz Music Library (all musicologists embedded in the College of Music faculty) and the library's physical location, led to a blurring of boundaries between the College of Music and the Music Library. Many music faculty members regarded the Music Library as an extension of the College of Music, not a branch within a larger system. Music Library leadership reinforced this perception through restrictive circulation policies and procedures that kept more materials in the building for easy access, a primary concern for patrons, despite the fact that these policies conflicted with those of the rest of the Libraries.

This insular environment explains why cataloging for a portion of the Music Library's scores and vinyl records lagged behind that of CUB's other libraries, which had mostly completed their retrospective conversion almost two decades earlier. The Waltz Music Library was the last library in the system to convert its holdings to the online catalog. In the early 1990s, the centralized Catalog Department undertook a retrospective conversion project to convert all book records in the Libraries, including the Music Library, to the OPAC, and other formats were to be handled by the individual units. In 1995, the Music Library began a retrospective conversion project to convert records from the card catalog to the online catalog. Temporary staff were hired to handle print scores, microform scores, and LPs. At the conclusion of the funding period in 1997, approximately 10 percent of the scores shelf list and 15 percent of the LP shelf list were unconverted due to the lack of available copy in OCLC. Rather than develop a workflow to create original records for these items, the Music Library leadership halted the project. Thus, the public card catalog and shelf list remained in the Music Library, providing the only intellectual access to these items.

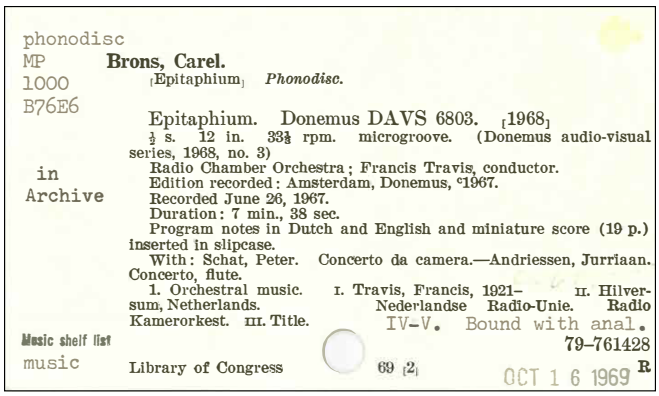
The Head of the Howard B. Waltz Music Library is a faculty librarian who reports to the Director of the Arts and Humanities division of the University Libraries. The current staffing model in the Music Library includes the faculty head, and four full-time staff members; two in public services, two in technical services. One of the technical services staff oversees processing, workflow, and copy cataloging. The other is responsible for original cataloging, complex copy cataloging, and database maintenance. The Music Cataloging Specialist position includes responsibilities formerly held by a faculty librarian cataloger position that was eliminated in 2013. Fortunately, the individual in the Music Cataloging Specialist position had longevity in the organization and had contributed to the retrospective conversion project in the 1990s. She was instrumental in helping participants to understand the project's history and the nature of the outstanding work.

Cooperation Between the Music Library and MSD

MSD and the Music Library's contributions were symbiotic. MSD had skilled catalogers and the capacity to dedicate staff time that the Music Library lacked, while the Music Library could supply music cataloging expertise that was lacking in MSD. Together, the Head of MSD's Monographic and Special Materials Cataloging Unit and the Music Cataloging Specialist assessed the project's requirements.

In keeping with the department's PCC legacy, MSD's policy is to provide the fullest level of cataloging possible. It became clear, however, that this project presented serious challenges that made it impractical to adhere to this rule. Despite the expert guidance that the Music Cataloging Specialist could offer, the MSD unit head and she realized that MSD's catalogers lacked time to develop the specialized music cataloging skills necessary to contribute full level records to OCLC, particularly RDA-compliant preferred titles for music and assigning appropriate Library of Congress subject headings. An even greater obstacle was the absence of physical access to the scores and LPs. At the project's outset, the Music Library had limited staff workspace, making it difficult for MSD catalogers to work on-site and consult the items. Nor was it feasible to transport the materials to MSD's workspace in the Norlin Library since that area was undergoing renovation. The biggest hindrance was that a considerable number of items already had been relocated to offsite storage and were impractical to retrieve.

These factors led the project leaders to determine that the best course of action was to forgo having catalogers physically examine each piece and instead use the Music Library's shelf list cards as the chief source of information for cataloging. Existing OCLC records were used when available, and either AACR2 or RDA records were acceptable. If copy cataloging was not found, catalogers were expected to create original records based on the shelf list card data using RDA rules. Core data elements were identified for each format and were to be included in both copy and original catalog records. All persons, corporate bodies, preferred titles, and LC subject headings found on the shelf list card would be recorded. In response to concerns expressed in previous research that the lack of subject headings hinders effective retrieval, catalogers were instructed to provide at least one general LC subject heading if the card did not include any subject headings.[19] All access points were checked for validity and corrected as needed. Access points with no corresponding authority records were recorded as found on the shelf list card. LC classification numbers found on the shelf list cards were input into the library's catalog but were not included in original records contributed to OCLC since the numbers on the shelf list cards were often outdated or locally devised.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[Epitaphium] *Phonodisc.*
Epitaphium. Donemus DAVS 6803. [1968]
⅓ s. 12 in. 33⅓ rpm. microgroove. (Donemus audio-visual series, 1968, no. 3)
Radio Chamber Orchestra; Francis Travis, conductor.
Edition recorded: Amsterdam, Donemus, c1967.
Recorded June 26, 1967.
Duration: 7 min., 38 sec.
Program notes in Dutch and English and miniature score (19 p.) inserted in slipcase.
With: Schat, Peter. Concerto da camera.—Andriessen, Jurriaan. Concerto, flute.
1. Orchestral music. I. Travis, Francis, 1921– II. Hilversum, Netherlands. Nederlandse Radio-Unie. Radio Kamerorkest. III. Title.
IV–V. Bound with anal.
Music shelf list
79–761428
music
Library of Congress 69 [2]
OCT 1 6 1969 R

Figure 1. Library of Congress shelf list card

The project was conducted in two phases: scores were cataloged first, then LPs. Separate procedures for copy and original cataloging were developed for each phase. The MSD unit head drafted general instructions for each phase, which the Music Cataloging Specialist enhanced with music cataloging best practices and local policies. Copy cataloging procedures included OCLC searching strategies and a list of elements used to identify matching records. Original cataloging procedures offered guidance on typical fixed field and MARC 007 values. Extensive directions were provided for coding content, media, and carrier (CMC) types (i.e., the 33X MARC fields) and constructing RDA-compliant access points for preferred titles. NACO authority work was not done for unauthorized access points since it would unduly delay the project's completion. Additionally, none of the catalogers had the requisite expertise to create authority records for music preferred titles.

The decision to use shelf list card information as the basis for description had consequences for original cataloging. The quality of data on the shelf list cards varied greatly. Having been created over a long time span, the shelf list cards incorporated a variety of cataloging rules, or in many instances there were no discernable rules. Some cards presented a full description, as in the case of Library of Congress cards (see figure 1). More commonly, however, the cards followed local treatment and contained scant information (see figure 2).

Given these factors, the project leaders decided that participants would input original records created using OCLC encoding level K, which are minimal-level. The pros and cons of using minimal-level cataloging (MLC) are an ongoing topic of debate. Proponents of MLC reference growing backlogs and the ability to make "hidden" collections discoverable as justification for providing less-than-full bibliographic descriptions. Faced with fewer staff to address these problems, many technical services managers have concluded that "some access, in a minimally defined format, is better than no access at all."[20] Those who object

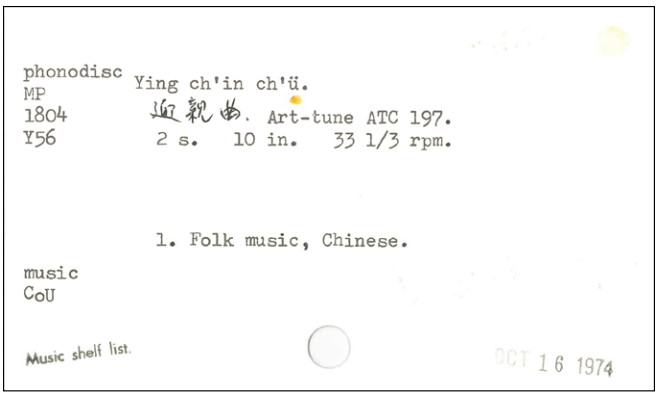

Figure 2. Local shelf list card

to this approach typically counter that, while MLC provides access, it is not enough to benefit users, particularly if subject headings are not included.[21] The approach CUB adopted, however, proved successful for the University of Nevada, Reno to catalog several hundred Basque sound recordings despite lacking staff expertise in either the language or format, and as noted previously, the concern about deficient subject access was ameliorated by instructing CUB catalogers to assign at least one subject heading.[22]

To reach agreement on the project's key decision points (level of cataloging, chief source of cataloging information, and provision of authority work), the MSD unit head and the Music Library, primarily with the assistance of the Music Cataloging Specialist, relied on two of the co-creation building blocks: dialogue and transparency. For Prahalad and Ramaswamy, dialogue implies shared learning and communication between two equal problem solvers, while transparency of information is necessary to create trust between institutions and individuals.[23] The MSD unit head and the Music Library Head and Music Cataloging Specialist viewed themselves as co-equals, each dependent on the other's expertise and resources to complete the project. The Music Library shared its music cataloging expertise with the unit head, who in turn shared his knowledge of his catalogers' capabilities. The Music Library was transparent about the level of access that the catalog records needed to provide, while the MSD unit head was forthcoming about the amount of staff time he could devote to this endeavor and what his group of catalogers could reasonably achieve.

Implementation and Challenges

A team of four MSD catalogers was quickly assembled. Two of the catalogers selected possessed the foreign language skills essential for these materials, and another had extensive experience with special collections resources. Each cataloger was initially expected to contribute four hours weekly to the project, although the time varied when there were other departmental assignments. The MSD unit head cataloged items and reviewed the other catalogers' work. A faculty cataloger joined the team later in the project. He helped with cataloging the LPs and assumed the MSD unit head's reviewing responsibilities.

A few catalogers initially had difficulty limiting their descriptions to the information recorded on the shelf list cards and sometimes did extensive online research to resolve problems. The tendency to "agonize about the adequacy of each brief record" and to enhance it with fuller data was noted in previous research and, while understandable, it threatened to undermine the increased productivity hoped for with MLC.[24] This behavior abated with time, due to occasional reminders from the MSD unit head about the project's goals.

When the copy cataloging of scores was complete, the catalogers had gained sufficient familiarity with the format to more confidently tackle original cataloging. In the beginning stages of both copy and original cataloging, the MSD unit head reviewed every record created to correct inconsistent practices and clarify points of confusion. This was reduced to spot-checking as the project progressed**.** The catalogers completed scores cataloging in December 2016. They cataloged 1,076 items, 586 (55 percent) of which required original cataloging. The LP cataloging phase proceeded similarly, with an exception: the catalogers believed that dividing the work by copy and original cataloging segments was not necessary, which simplified the process. Work commenced on this phase in March 2017 and concluded in December 2017. A total of 622 LPs were cataloged, 257 (41 percent) of which needed original cataloging.

Extensive revision of the catalogers' work was needed during the preliminary stages of each phase as they adjusted to cataloging unfamiliar formats and tapered off as they gained experience. The diverse array of foreign languages in the scores and LP collections posed a problem. The cataloging team included members with Asian and Slavic language expertise, but some staff were less acquainted with the Romance and Germanic languages. This was compounded by the fact that catalogers were usually transcribing information from shelf list cards that were created on typewriters that lacked the ability to represent all diacritics. To simplify matters, the catalogers were instructed to record the information as found on the shelf list cards and ignore diacritics when they could not be deciphered.

The policy of accepting cataloging copy as found had consequences, particularly for post-cataloging database maintenance. As noted, the shelf list cards were created over time and followed different cataloging rules. When reviewing names, preferred titles, and subject headings, catalogers were expected to consult the LC authority file and record the authorized form. The authorized form often

could not be ascertained, and in such cases, catalogers were instructed to record the information as found on the shelf list card. When the library's bibliographic records were sent to its authority control vendor Backstage, many of the access points were subsequently reported as errors. It then became the task of the Music Cataloging Specialist to review and revise these errors when possible.

Project Assessment

The partnership between MSD and the Music Library proved to be quite effective, but it was not without challenges. The Music Cataloging Specialist's input on documentation compensated for MSD's music cataloging inexperience by creating a streamlined cataloging process while ensuring that the major data elements in the bibliographic records needed for effective access were present. Although all the catalogers, including the MSD unit head, were initially out of their comfort zones, most eventually viewed the work as an interesting, challenging puzzle. Although the catalog records were minimally cataloged, the authors believe that they provide effective access to these items. They include access points for personal and corporate names, preferred titles, and at least one LC subject heading. This is underscored by the fact that, even after fifty or more years, no OCLC records yet existed for almost 50 percent of the items in the project.

Another hurdle was the shift in the catalogers' conception of what constituted quality cataloging. Although the provider-customer relationship between MSD and the Music Library was never made explicit, and the Music Library undoubtedly did not see itself as MSD's customer, a customer service ethos underlies all of MSD's relationships with its cataloging partners: MSD surveys the scope of the work, coordinates with the client to understand their needs, and allocates resources to the project until it is complete. The persistent emphasis throughout the project of viewing their cataloging work through a customer-focused lens was useful to revise MSD catalogers' expectations and to understand their limitations for this project. It was critical for catalogers to remember that completing the project in a way that was satisfactory to the Music Library while simultaneously balancing the time demands of this task with MSD's other work was more important than continuing MSD's tradition of creating PCC-like work, which would have substantially hindered progress in this case. The successful mindset change of MSD's catalogers demonstrated their commitment to providing quality customer service, and consequently MSD has expanded its relationship with the Music Library by agreeing to provide media cataloging services for rush requests.

Comparison with Similar Music Cataloging Projects

As noted, two recent projects involving the collaborative cataloging of music materials directly relate to CUB's undertaking: UCSD and UCSB's collaboration as described by Nyun, Peters, and Devore, and the partnership among the sound archives of Yale, Stanford, and the New York Public Library, detailed by Lorimer. There were significant differences between CUB's project and the other two. Both UCSD and the sound archive collaborative employed music catalogers, some with advanced degrees in music. In contrast, CUB used only general catalogers, although they received music cataloging guidance from the Music Cataloging Specialist. The different levels of music cataloging expertise drove different decisions about the level of cataloging to provide. UCSD provided full-level cataloging and the sound archive catalogers agreed to provide the "fullest level of cataloging possible," while CUB decided K-level cataloging records were sufficient to support access and discovery. UCSD catalogers' expert knowledge of music cataloging likely also enabled them to transition to new cataloging standards several months into the project, whereas CUB followed the same standard throughout. Furthermore, there were disparities in funding for the projects. Yale, Stanford, and the New York Public Library received a Mellon Foundation grant, allowing them to employ temporary and student workers and devise a batch search process to increase productivity. CUB received no additional funding and members of the cataloging team balanced the music retrospective conversion with other departmental priorities.

Despite the major differences between these projects, there were several interesting similarities that may be useful for other institutions to consider when establishing workflows and standards for their own retrospective projects. None of the projects included the creation of authority records in their workflow, although UCSD and CUB catalogers were instructed to control headings and verify access points. Creating new authority records would have inevitably slowed progress. Additionally, the UCSD and CUB projects conducted their cataloging using surrogates, but with some variations: UCSD catalogers used scans from items and other accompanying material to perform its cataloging, while CUB used shelf list cards.

Conclusion

The project's success underscores the fundamental notion behind the concept of co-creation: collaboration is a key element in providing excellent customer service. It is

recognized, however, that this collaboration was not a true co-creation experience. The Music Library, although an essential intermediary between MSD and music library users, is not the ultimate end user of the catalog records; it is library users. Further research might explore how catalogers could co-create directly with end users to produce more effective catalog records. Nevertheless, the model CUB employed illustrates how institutions lacking specialized cataloging expertise and funding can still coordinate with other library units to accommodate user needs when approaching retrospective cataloging projects. Using catalogers who lacked music cataloging experience, the Music Library and MSD collaborated to complete a long dormant retrospective conversion project that included many unique scores and LPs. While MSD was fortunate to have a music cataloging expert on campus, similar assistance could also be garnered by reaching out to specialized cataloging communities via email discussion lists. Although the cataloging provided is less-than-full level, the Music Library's physical and intellectual access problems were solved. Key factors in the project's success were MSD's adoption of a customer-first mindset and acceptance of a lower level of cataloging for this particular project—traits that were already present in the catalogers but which needed to be periodically reinforced. Had MSD not employed a customer service approach for the retrospective conversion project, the Music Library may have pursued other options to meet its cataloging needs. As the cataloging community faces seemingly constant change in its standards and rules, employing a customer service approach may serve as a lasting model for cataloging units to foster meaningful relationships with clients both locally and beyond.

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Notes on Operations Enhancing the Discovery of Tabletop Games

Diane Robson, Catherine Sassen, Jason Thomale, and Kevin Yanowski

Collections of three-dimensional materials may not be discoverable to library users if they lack adequate metadata. Discovery of these collections may be enhanced through the application of relevant cataloging standards and controlled vocabularies. This paper outlines how librarians at the University of North Texas Libraries used these strategies to increase access to a large collection of tabletop games.

Books are for use," declares Ranganathan's first law of Library Science.[1] However, many unique library collections, particularly those containing three-dimensional materials, violate this belief because they are not readily accessible. Catalogers often perceive these items as overly complex and are reluctant to catalog them. Without detailed metadata, discovery interfaces cannot filter them from the thousands or millions of other items within a local system. Therefore, users cannot discover or access them.

Even large academic libraries have issues with these types of collections. The University of North Texas is the largest public university in the Dallas-Fort Worth area, with over thirty-five thousand students. The University Libraries' cataloged holdings include seven million print and digital items housed in six facilities. The university's Media Library houses a game collection that includes games in all formats. This paper focuses on the library's collection of over six hundred tabletop games, including board games, dice games, collectible card games, and role playing games.[2]

The authors began exploring the aforementioned issues surrounding discovery and access of three-dimensional materials within the context of this tabletop game collection: what concrete steps could they take to help users more easily discover and use these items? Ensuring that the items were cataloged appropriately was only the first step. Because the collection is so small relative to other collections within the library, the authors feared that finding the items would pose a challenge. Therefore, they enhanced the records with locally-developed, tabletop-game-specific genre terms plus metadata to allow filtering based on tabletop-game-specific dimensions. Their goal was to enable users searching for games to find the collection more easily through keywords and to narrow their search results to find specific games to meet their specific needs.

Local record enhancements alone were not sufficient to accomplish these goals. The discovery layer was locally customized to provide appropriate end-user-facing features based on the new data that the records would provide. The

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Libraries were in the process of exploring Blacklight, a customizable, open-source discovery layer, working on top of Apache Solr, an open-source enterprise search index, to replace their ILS's more traditional online catalog.[3] To help with local development and to serve as a template for similar collections, the authors implemented the tabletop game record enhancements as custom Blacklight facets. Although that system was still under development at the time of writing, the Libraries' programmers built and deployed the described enhancements in a working, prerelease version.

Through their efforts, the authors learned that improving access to collections via discovery interfaces requires close collaboration between catalogers, technologists, and systems librarians. Catalogers who wish to learn what metadata will provide the best return on their efforts cannot insulate themselves from technological concerns. Likewise, technologists and systems librarians cannot assume that library metadata will support the features they want to build; they must seek catalogers' guidance to interpret the metadata appropriately and address practicalities of what catalogers can easily record and maintain. This paper documents the collective effort required at the authors' institution to enhance access to their tabletop game collection.

Literature Review

This review explains why the appropriate type of cataloging is necessary to ensure access to library collections. It covers two strategies used to enhance access to collections, namely assigning genre terms to catalog records and implementing faceted searching. Finally, the review explores literature on cataloging tabletop games within the context of non-book resources and discusses enhancements beyond descriptive cataloging.

Cataloging

Jones provides several cogent answers regarding why it is important to catalog collections.[4] First, uncataloged collections are hidden from users. Access to these collections is uneven because it depends on the institutional memory of the staff on duty at a given time. Additionally, uncataloged collections are more vulnerable to loss and theft. If items are lost or stolen, the lack of documentation may make them impossible to recover. Furthermore, collection development of an uncataloged collection is problematic and may result in the purchase of duplicate items. Even when an item is represented by a full bibliographic record, it may still not be easily found in the catalog. As previously stated, the use of genre/form terms and facets can enhance discovery.

Genre/Form Terms

The Library of Congress (LC) defines genres as "categories of works that are characterized by similar plots, themes, settings, situations, and characters" and form as "a characteristic of works with a particular format and/or purpose."[5] A genre/form term identifies the nature of an item, while a subject heading describes what the item is about. Examples of genre/form terms include "Encyclopedias" and "Topographic maps." A genre/form term is tagged as a 655 field in MARC bibliographic records. The American Library Association (ALA)'s Machine-Readable Bibliographic Information Committee (MARBI) defined this field in 1979.[6] However, the associated authority record fields for genre/form terms were not defined until 1995.[7]

The form of a work may also be designated in the $v subfield of an LC subject heading. The USMARC Advisory Group approved the definition of subfield $v for form subdivisions in 1995, and LC began using this subfield in 1999.[8] Examples of form subdivisions include "Biography" and "Indexes."

Specialized thesauri of genre terms have been used for many years. One of the best-known is the *Art and Architecture Thesaurus* (*AAT*), published by the Getty Research Institute.[9] *Genre Terms: A Thesaurus for Use in Rare Book and Special Collections Cataloguing*, published by the Rare Book and Manuscript Section of the Association of College and Research Libraries (ACRL) in 1991, is another.[10] Other examples include *Thesaurus for Graphic Materials, The Moving Image Genre-Form Guide*, and *Radio Form/Genre Terms Guide*, all published by LC.[11]

LC began developing its *Genre/Form Terms for Library and Archival Materials* in 2007.[12] This thesaurus is "intended to fulfill the need for a unified, cohesive, multidisciplinary list of genre/form terms that provide for enhanced resource discovery."[13] The developers are taking a project-based approach in building the thesaurus by addressing one discipline at a time. As of February 2018, LC completed projects for cartographic materials, general materials, law materials, literature, moving images, music, non-musical sound recordings, religious materials, and artistic and visual works.[14] The projects for moving images, non-musical sound recordings, and cartographic materials stemmed from collaboration within LC.[15] Other projects involved partnerships with external groups, including the American Association of Law Libraries, the American Theological Library Association, and the Music Library Association.[16]

Ongoing communication between LC and the library community is necessary to make progress in developing genre/form terms. Some of this communication has been fostered by the Subcommittee on Genre/Form

Implementation, a unit of the Association for Library Collections and Technical Services's (ALCTS) Subject Analysis Committee. The Subcommittee on Genre/Form Implementation was charged with facilitating communication between the LC Cataloging Policy and Support Office and the cataloging communities concerned with genre/form headings.[17]

In some cases, librarians have developed their own lists of genre terms when existing thesauri did not meet their needs. For example, librarians at Virginia Commonwealth University developed a book art genre terms index.[18] Librarians at the University of Florida developed genre terms for chemistry and engineering property data.[19] Participants in a special topics course at the University of Washington Information School developed video game genre terms for the Seattle Interactive Media Museum.[20]

Facets

Faceted navigation is another strategy used to enhance online catalog searching. The *ALA Glossary of Library and Information Science* defines a facet as "a distinct metadata element that can be used to describe one characteristic."[21] Examples used in online catalogs include publication date, language of publication, availability, media type, geographic area, topical subject, and genre. By applying various facets, users can incrementally refine search results to obtain a narrowly defined set of items. Many users are already familiar with faceted navigation because of its widespread implementation in e-commerce websites.

Faceted applications are a current concern of the library community, as evidenced by the work of two groups in the ALCTS Cataloging and Metadata Management Section (CaMMS). The CaMMS Faceted Subject Access Interest Group is charged with discussing "theory and applications related to subject terminology intended for faceted application, including FAST (faceted application of subject terminology), AAT (Art and Architecture Thesaurus), LCGFT (Library of Congress genre/from terms), and others."[22] The Subject Analysis Committee Subcommittee on Genre/Form Implementation includes a Working Group on Full Implementation of Library of Congress Faceted Vocabularies that recently published a white paper entitled *A Brave New (Faceted) World: Towards Full Implementation of Library of Congress Faceted Vocabularies*.[23]

Faceted navigation in online catalogs has been implemented through a variety of discovery layers. Endeca was originally developed as a navigation system for e-commerce websites, and later used as a search engine in library online catalogs.[24] Two examples of open-source discovery layers include Blacklight, developed at the University of Virginia, and VuFind, created at Villanova University.[25] Discovery layers developed by online catalog vendors include Encore from Innovative Interfaces, Inc. and Ex Libris' Primo.[26]

Many studies have been conducted to evaluate the effect of faceted navigation on online catalog searching. Fagan published a literature review in 2010, examining studies of faceted searching in library catalogs and in interfaces created by information science researchers.[27] Experimental studies in the information science literature indicated that faceted navigation enhanced user searching. Users reported that faceted navigation helped them find relevant results quickly and efficiently. However, studies of faceted navigation in library catalogs provided inconclusive results. Fagan found it difficult to summarize the results of the library studies because results varied according to how faceting was implemented in various online catalogs.

In more recent studies, researchers have indicated that faceted navigation is helpful to users.[28] However, users have identified issues that have interfered with their searching in faceted systems. The most frequently cited problem was understanding the terminology used for certain facets.[29] Other issues varied widely, stemming from how faceting was implemented in individual catalogs. In one study, users recommended a decrease in the number of facets because the length of the list caused some facets to be hidden.[30] Users also expressed concern that some facets—such as "Collection" and "Resource type"—were too similar.[31] In another study, users expressed frustration that they were not able to limit searches to the DVD format.[32]

Cataloging Tabletop Games

For optimal discovery, tabletop games should receive full bibliographic records enhanced with genre terms and facets. Unfortunately, many tabletop game collections are simply not cataloged. Slobuski, Robson, and Bentley conducted a survey of public, academic, school, and special libraries with tabletop games collections in 2015.[33] Only 31 percent of the respondents reported that they always cataloged their tabletop games, and 18 percent reported cataloging these materials "sometimes." The authors identified "perceived complexity of cataloguing with a dearth of standards" as barriers to full cataloging.[34]

In an earlier study, Bierbaum investigated the cataloging of nonbook resources in public libraries, and also found a variance in cataloging practices.[35] Of 379 respondents, 218 collected audiovisual resources and three-dimensional objects. Toys and games constituted the largest subcategory of three-dimensional objects. Of the 218 libraries collecting three-dimensional objects, only 39 percent cataloged their collections. The author suggested that the low incidence of cataloging was related to a lack of guidance in earlier cataloging codes. Indeed, cataloging codes did not address

three-dimensional materials until the publication of *Anglo-American Cataloging Rules: North American Text, Chapter 12 Revised: Audiovisual Media and Special Instructional Materials* in 1975.[36]

Various authors have published guides to help catalogers interpret cataloging instructions for three-dimensional materials. Olson is one of the best known, with the publication of five editions of *Cataloging of Audiovisual Materials and Other Special Materials*, complete with clear instructions, helpful commentaries and well-chosen examples.[37] She included tabletop games in her discussions of cataloging three-dimensional materials with AACR2, and emphasized the importance of adding notes to catalog records for games to specify the number of players, the recommended age of players, and the purpose of the game.[38] More recently, McGrath and Moore provided information on tabletop games in their presentations on cataloging three-dimensional objects with RDA.[39] Both presentations offered step-by-step guidance for descriptive cataloging in RDA, illustrated with examples, and information about how RDA differs from AACR2.

A common theme in the literature about non-book cataloging is enhancing bibliographic records to meet user needs. Catalogers are using a variety of strategies to improve record retrieval and provide information to help users determine if the resources described will meet their needs. Some of these strategies are local practices, created in response to needs that have not been met by existing cataloging standards. As De Groat noted in her discussion of video games and non-book resources, "cataloging rules and practices have struggled to keep up and to find adequate ways of representing these materials."[40]

Some libraries have developed local vocabularies to facilitate the discovery of non-book resources. Over half of the respondents to a recent survey on tabletop game cataloging reported that they created local subject or genre term access points.[41] An example of a list of genre terms for tabletop games is the Langsdale Game Genre Headings.[42] Lyons and Tappeiner wrote that they were incorporating user-developed tags into a local thesaurus for video games and web resources at Hostos Community College Library.[43] Staff at Westchester County Public Library System created subject headings and general material designations to enhance catalog records for their collection of audiovisual materials.[44] Lee et al. developed a video game metadata schema for the Seattle Interactive Media Museum and included the elements of "genre/gameplay, style, plot/narrative, theme, setting, and mood/affect."[45] In another paper on the same project Welhouse, Lee, and Bancroft explained how they used domain analysis to develop a controlled vocabulary for video game plot metadata.[46]

Another way to enhance bibliographic records for non-book materials is to provide access to images of the items described. Moore illustrated this practice in a bibliographic record for an anatomical model.[47] At the University of Wyoming Libraries, bibliographic records for curriculum materials center resources include photographic previews.[48] Ferris State University Library also displays photographic previews in its bibliographic records for various collections of three-dimensional materials, including tabletop games.[49]

From the sources cited in this literature review, it is apparent that the use of full-level cataloging, genre/form terms, and faceted navigation can facilitate discovery in an online catalog. However, none of these sources focused on using these strategies together to enhance the discovery of tabletop game collections in libraries.

Cataloging Considerations for Tabletop Games

The UNT Media Library began cataloging games in 2010, but the authors' interest in enhancing these records occurred in 2015 when UNT's User Interfaces Unit began discussing a more dynamic discovery layer. The collection's size and use had grown, and discoverability beyond a brief or minimal record was needed to support research. The following cataloging overview covers the creation of an RDA core record with a few local practices used to enhance discoverability.

As noted in the literature review, providing at least a minimal bibliographic record is the best way to increase discoverability and use. These minimal records and their attached item records help with not only circulation, but also collection management and growth. A minimal record with a title, summary, and access point provide enough information to guide the user to the item in a small collection. An example of a basic or minimal record is provided below:

245 _ _ Archer : $b once you go blackmail… a love letter game.
246 3 _ Love letter
655 _ 7 Tabletop games. $2 gttg

Larger collections, particularly those used for research, will benefit from a fuller bibliographic record, such as an RDA core record. An RDA core record includes more information and access points to allow for more granular searching and sorting. Local user and collection needs should guide each library's cataloging practices. RDA core records include title proper, statement of responsibility, edition, date of production, publication statement, series statement, identifier, carrier type, extent, and access points

related to the entities and subject relationships (RDA 0.6).[50] Additional information and instances of core fields can be added to further increase discovery.

While tabletop games are composed of many parts, the game itself is cataloged as one whole (RDA 2.15.1).[51] This type of resource description is comprehensive according to RDA 2.1.2.[52] The preferred source of information for a tabletop game, according to RDA 2.2.2.1, can include the container.[53] If there is no container, another source of information, such as part of the accompanying material or other published descriptions of the manifestation, should be used (RDA 2.2.4).[54]

Identifiers

Identifiers are character strings such as the International Standard Book Number (ISBN) or Universal Product Code (UPC) that help identify each manifestation.[55] These numbers help when contacting publishers to replace lost games, parts, and pieces. Some tabletop games include an ISBN, but typically they include other standard numbers, such as a UPC. The following identifiers may appear on the preferred source:

The ISBN is a ten or thirteen digit number. It is recorded in the MARC 020 field.

020 _ _ 0786935405
020 _ _ 9780786935406

The UPC number is a twelve-digit number. This number is recorded in the Other Standard Identifier field, MARC 024. The first indicator for this identifier is 1.

024 1 _ 713757910521

The International Article Number (EAN) is a thirteen-digit number. This number is also recorded in the Other Standard Identifier field, MARC 024. The first indicator is 3 for an EAN.

024 3 _ 4260184330188

Unspecified numbers use the first indicator 8 in the MARC 024 field.

Publisher numbers are recorded in the Publisher or Distributor number field, MARC 028. The first indicator is 5 for other Publisher number or 6 for Distributor number. The second indicator is either 1 or 2, depending on a library's local practices regarding note generation for this field.

028 5 1 AYG 5375 $b Academy Games

Access points

RDA core requirements for a manifestation include the appropriate authorized access point(s) for the game's creator(s) and artist(s). If the preferred source, the container, includes the name of the designer(s), this name is an authorized access point for the creator. The game designer of a tabletop game is generally a person.

100 1 _ Coveyou, John J., $e designer.

This entry also includes a relationship designator. A relationship designator is additional information that specifies a relationship between a creator and a work, expression, manifestation, or item and is recorded in a $e.[56] This information is helpful when differentiating among works by a single creator. An example is a game designer who is also an artist for another designer's works. The level of specificity for this field can be determined by each library's user needs.

Title

RDA 2.3.1 provides basic instructions for recording titles. The container is typically the preferred source of information. However, if a container is lacking, RDA 2.17 requires that the source of title is noted.[57] This note appears in a MARC 500 field and can simply state the source of the title.

500 _ _ Title from publisher's website.

The statement of responsibility related to the title is taken from the same source as the title and appears exactly as shown on the source. RDA 2.4.1 lists the scope of the information to include, which consists of the "agents responsible for the creation of, or contributing to the realization of, the intellectual or artistic content of the resource."[58] Any edition statements on the preferred source are recorded in a MARC 250 as specified in RDA 2.5.1.4.[59] Examples of a title, statement of responsibility, and edition statement are provided below:

Information on game box lid (preferred source): *Betrayal at House on the Hill A Strategy Game* by Bruce Glassco -- 2nd Edition.

100 1 _ Glassco, Bruce, $e game designer.
245 1 0 Betrayal at house on the hill : $b a strategy game / $c by Bruce Glassco.
250 _ _ 2nd Edition.

Information from top card in deck (preferred

source): Behrooz *Bez* Shahriari, *Yogi*, Free demo version.

100 1 _ Shahriari, Behrooz, $e game designer.
245 1 0 Yogi / $c Behrooz Shahriari.
250 _ _ Free demo version.
500 _ _ Title from top deck card.

Production, Publication, Distribution, Manufacture, Copyright

RDA includes separate elements for recording the production, publication, distribution, manufacture, and copyright information of a manifestation. RDA 2.7.1 includes information on the place of production.[60] The production statement relates to the fabrication or construction of an unpublished item. This could be used for locally created but not formally published games. RDA 2.8.1 details recording a publication statement, including information about the place of publication, release, or issuance of the manifestation.[61] RDA 2.9 includes basic instructions on recording the place of distribution, including a statement on the distributor of a published manifestation.[62] RDA 2.10 includes basic instructions on the recording of the manufacture statement, which relates to the printing, duplicating, casting, or other manufacturing information.[63] Cataloger's judgment is necessary to determine which corporate entity applies to what element.

The corporate entity listed most prominently on the preferred source is likely the publisher and is recorded in the MARC 264, Production, Publication, Distribution, Manufacture, and Copyright Notice, with a second indicator 1 for publication. Local practices can guide additional access points related to the distribution or manufacture of the game, but only one statement is required for a core RDA record. Some additional access points to consider are the artist and game designer.

Place of publication is recorded in the MARC 264, and follows the same requirements as all other materials. RDA 2.7.2.3 requires the inclusion of the local place name and the name of the larger jurisdiction if present on the source of information.[64] If the place is not identified or may not be ascertained, the cataloger may supply it in brackets (RDA 2.7.2.6.1) or include the phrase *Place of publication not identified* in brackets (RDA 2.7.2.6.5).[65] Most games include a copyright notice date on the preferred source or rule book. This date is recorded in the MARC 264 with a second indicator 4 for copyright notice date.

The date of publication statement (RDA 2.8.1) relates to the publication, release, or issuance of a manifestation.[66] It is recorded as it appears on the preferred source. If the date of publication is inferred from the copyright date it is enclosed in brackets as noted in RDA 2.8.6.6.[67]

The tabletop game *Betrayal at House on the Hill* 2nd edition includes the following publisher logos: Wizards of the Coast, Hasbro, and Avalon Hill Games. Avalon Hill Games is now a subsidiary of Wizards of the Coast, which is also a subsidiary of Hasbro. If the box provides a statement of publication starting with "Wizards of the Coast," this information is sufficient to determine that Wizards of the Coast is the publisher of the game.

This manifestation of *Betrayal at House on the Hill* has a copyright date of 2010. RDA 2.11 instructs catalogers that the copyright date can be taken from any source.[68] Additionally, RDA 2.11.1.3 states that when recording the copyright date, precede the date with a copyright symbol (©).[69]

264 _ 2 Renton, WA : $b Wizards of the Coast, $c [2010].
264 _ 4 $c ©2010.
710 2 _ Wizards of the Coast, Inc., $e publisher.

The MARC 264 is repeatable, which allows multiple functions to be noted. Multiple functions might be information about the publication date in the first 264 and the distribution information in the second. In the example above, publication information is recorded in the first 264 _1 and the copyright information in the second, the 264 _4.

Describing carriers

The carrier is another core RDA field. The specificity of the information recorded in this field can be determined locally. RDA 3.0 includes information on how to transcribe the physical characteristics from the preferred source.[70] The description of a manifestation's carrier in the MARC 300 Physical Description field can be as simple as the word "game." For cataloging purposes, a game is a three-dimensional form. RDA 3.4.6 includes information about transcribing three-dimensional forms.[71] The typical extent of this type of the three-dimensional form is "1 game." Other types of three-dimensional artifacts and realia can include the number or types of component pieces in parenthesis after the carrier type. Three examples of specificity in the MARC 300 field subfield $a are provided below:

300 _ _ 1 game (various pieces)
300 _ _ 1 game (25 pieces)
300 _ _ 1 game (5 red coins, 10 blue tiles, 10 green marbles)

The MARC 300 field subfield $b details the composition of the materials. RDA 3.6.1.3 includes a list of base materials.[72] Catalogers can also create and use terms not on this list if necessary to describe the manifestation.

300 _ _ 1 game (various pieces) : $b plastic, cardboard

The MARC 300 field subfield $c provides the dimensions described by RDA 3.5.1.4.13.[73] The dimensions listed for a tabletop game are for the container, which is described by the height times width times depth in centimeters.

300 _ _ 1 game (various pieces) : $b plastic, cardboard ; $c in container 12 x 8 x 1 cm

Further descriptive RDA fields are the content type, media type, and carrier type. The content type (RDA 6.9) for a tabletop game is *three-dimensional form*, which is recorded in the MARC 336 field.[74] The media type (RDA 3.2.1.3) for tabletop games is *unmediated* since tabletop games do not need a device to view, play, or run.[75] This information is recorded in a MARC 337 field. The carrier type (RDA 3.3) for a tabletop game is *object* because it reflects the format of the storage medium and is recorded in the MARC 338 field.[76] These three fields are standard across all tabletop game core records. An example of the 3XX fields follows:

336 _ _ three-dimensional form $b tdf $2 rdacontent
337 _ _ unmediated $b n $2 rdamedia
338 _ _ object $b nr $2 rdacarrier

Additional content, media, and carrier types can be added to improve discoverability. Catalogers can also include the MARC control subfield $3, which specify the type of item before the $a subfield in the 336, 337, or 338. This example describes all materials included in a manifestation. The specificity of this information is set locally.

336 _ _ $3 game $a three-dimensional form $b tdf $2 rdacontent
336 _ _ $3 guide $a text $b txt $2 rdacontent
337 _ _ $3 game $a unmediated $b n $2 rdamedia
338 _ _ $3 game $a object $b nr $2 rdacarrier
338 _ _ $3 guide $a volume $b nc $2 rdacarrier

Another MARC field that also improves discoverability is the 380 form of work (RDA 6.3.1.3).[77] This information is core when distinguishing among different formats of a work.

380 _ _ Board games $2 lcgft

Beyond differentiating between formats of a work, this field is useful as a facet to show broad-level content types. Its use in the public display or searching can be set locally.

Notes

RDA core does not require note fields, but the following can be added to aid in discoverability: the title found note if applicable (RDA 2.17.2), language of content (RDA 7.12), related works (RDA 24.4.3), and intended audience for resources intended for children (RDA 7.7).[78] Local practices can also include more RDA fields: creation/production credits note (RDA 2.17.3), summary (RDA 7.10), the duration of play (7.22), and number of players.[79]

546 _ _ Rulebook in English, French, and German.
500 _ _ Title from website.
500 _ _ Duration of play: 60 minutes.
500 _ _ For 3 to 6 players.
521 _ _ Aged 10 and up.
520 _ _ This horror-themed tile game never plays the same way twice. You build the house tile by tile, room by room using 50 haunting scenarios. During the game, one player becomes the traitor and must be defeated.

RDA Core Access Points

The number of access points can be set locally, but RDA core requires the principal creator or corporate body be included to meet minimal requirements (RDA 19.2, 19.3).[80]

100 1 0 Glassco, Bruce, $e designer.
710 2 _ Wizards of the Coast, Inc., $e publisher.
710 2 _ Avalon Hill Games, $e production company.
710 2 _ Hasbro, Inc., $e distributor.

An example of a full-level RDA core record follows:

020 _ _ 0786935405
100 1 0 Glassco, Bruce, $e designer.
245 1 0 Betrayal at house on the hill : $b a strategy game / $c by Bruce Glassco.
250 _ _ 2nd edition.
264 _ 2 Renton, WA : $b Wizards of the Coast, $c ©2004.
264 _ 4 $c [2004]
300 _ _ 1 game (45 room tiles, 2 haunt books, 6 plastic figures, 6 double sided character cards, 80 cards (omen, item and event cards), 291 tokens, 30 plastic clips, 1 turn/damage track, 8 dice, 1 rulebook) : $b cardboard, paper and plastic ; $c in box 27 x 27 x 9 cm
336 _ _ three-dimensional form $b tdf $2 rdacontent.

337 _ _ unmediated $b n $2 rdamedia
338 _ _ object $b nr $2 rdacarrier
546 _ _ In English.
500 _ _ Duration of play: 60 minutes.
500 _ _ For 3 to 6 players.
521 _ _ Aged 10 and up.
520 _ _ Betrayal at House on the Hill continues the tradition of great Avalon Hill games. This horror-themed tile game never plays the same way twice. You build the house tile by tile, room by room using 50 haunting scenarios. During the game, one player becomes the traitor and must be defeated.
710 2 _ Wizards of the Coast, Inc., $e publisher.
710 2 _ Avalon Hill Games, $e production company.
710 2 _ Hasbro, Inc., $e distributor.

Additional fields

While discoverability is sufficient with a core record, the following fields can aid in further discoverability for medium to large collections. The MARC 046 Special Coded Date field includes creation date, which is the earliest known date of the manifestation (RDA 6.4.1.3) and is valuable for users interested in the history of games.[81] A more advanced discovery layer can display or include this information as a facet. The subfield delimiters vary for the type of date and the specificity in this field can be determined locally. For this instance, the $k for beginning or single date created was used.

046 _ _ $k 2004

The MARC 257 Country of Producing Entity field includes the location of the producing entity. This can help a researcher narrow a search by country of origin.

257 _ _ $a United States $2 naf

Expansions and editions

Expansions and new editions are often published for popular games. Expansions include new game content or characters, but sometimes require the base game (original manifestation) for play. The format and size of an expansion can vary from a few cards to a full box of new items. Catalogers typically address this on a case-by-case basis. The size of the expansion and how the game is played affects cataloging decisions. Smaller expansions requiring the base game to play can be combined into one box with the expansion information added to the base item's local bibliographic record. An example for the game *Gloom* follows:

020 _ _ 158978068X
020 _ _ 9781589780682
046 _ _ $k 2005
100 1 _ Baker, Keith, $e designer.
245 1 0 Gloom : $b the game of inauspicious incidents & grave consequences / $c by Keith Baker.
264 _ 1 [Roseville, Minn.] : $b Atlas Games,$c 2009.
300 _ _ 1 game (20 character cards, 58 modifier cards, 12 event cards, and 20 untimely death cards, 1 rule sheet) : $b plastic ; $c in box 9 x 14 x 2 cm. + $e 2 expansions (110 cards)
336 _ _ three-dimensional form $b tdf $2 rdacontent
337 _ _ unmediated $b n $2 rdamedia
338 _ _ object $b nr $2 rdacarrier
500 _ _ Title from box.
500 _ _ Expansion adds 1 player per expansion.
500 _ _ Duration of play: 60 minutes.
500 _ _ For 2 to 4 players.
500 _ _ Includes expansions Unfortunate expeditions (55 cards) and Unquiet dead (55 cards).
508 _ _ Concept and game design: Keith Baker ; editing and project coordination: Michelle Nephew ; art and graphic design : Scott Reeves & Michelle Nephew ; publisher : John Nephew.
521 _ _ For ages 13+.
520 _ _ Players assume control of the fate of an eccentric family of misfits and misanthropes. The goal of the game is for players' characters to suffer the greatest tragedies possible before dying. Game ends when an entire family is eliminated. Players total Pathos points on each character's Character cards, adding to get total Family Value. Player with lowest total Family Value wins.
520 _ _ Unfortunate expeditions adds 55 transparent cards to your game including morbid new Modifiers, Events, and Untimely Deaths, and another family -- intrepid explorers who've faced misfortune across the globe.
520 _ _ In Unquiet dead, the spooks come out to play. This expansion set adds 55 transparent cards to your game including morbid new Modifiers, Events, and Untimely Deaths, and introduce Stories, Undead, and Timing Symbols.
505 0 0 $t Gloom: unfortunate expeditions -- $t Gloom: unquiet dead.

700 1 _ Nephew, Michelle, $e editor.
700 1 _ Reeves, Scott, $e artist.
700 1 _ Nephew, John, $e artist.
710 2 _ Atlas Games (Firm), $e publisher.

Larger expansions, such as *Betrayal at House on the Hill*, *Widow's Walk*, typically receive their own bibliographic record and a note about their compatibility with other titles in the series.

020 _ _ 0786966084
024 1 _ 630509487592
100 1 _ Selinker, Mike, $e designer.
245 1 0 Betrayal at house on the hill. $p Widow's walk, an expansion / $c by Mike Selinker for the game designed by Bruce Glassco.
246 3 _ Widow's walk
264 _ 2 Renton, WA : $b Wizards of the Coast, $c [2016]
264 _ 4 $c ©2016
300 _ _ 1 game (1 rulebook, 2 haunt books, 20 room tiles, 30 cards (omen, event, item), 76 tokens) : $b cardboard, paper, color ; $c in box 27 x 27 x 5 cm
336 _ _ three-dimensional form $b tdf $2 rdacontent
337 _ _ unmediated $b n $2 rdamedia
338 _ _ object $b nr $2 rdacarrier
500 _ _ Title from container.
500 _ _ "You must have the Betrayal at House on the Hill base game to use this expansion" --Container.
500 _ _ Duration of play: 60 minutes.
500 _ _ For 3-6 players.
521 _ _ Ages 12+.
520 _ _ A new world of horror opens up with this expansion of the board game Betrayal at House on the Hill. New rooms, monsters, items, omens, events, an additional unexplored floor, and 50 new haunts are included.
100 1 0 Glassco, Bruce, $e designer.
710 2 _ Wizards of the Coast, Inc., $e publisher.

Titles are also released with different editions. An example is the game *Clue*. Many variations of the original game have been released, such as *Clue: Juicy Couture*, *Clue: Seinfeld*, and *Clue: Simpsons*. While the general play is the same, each game is a different stand-alone game not meant to be combined for play. In these cases, each edition or version should be cataloged with a separate record.

Genre Terms

When the UNT Media Library began cataloging games in 2010, there were few established genre terms to describe games. The library could manage with a few headings when the collection was small, but as it grew, more terms were necessary to facilitate use and circulation. To aid discoverability and collection use, the authors created a set of fifty genre terms in an open access resource entitled *Genre Terms for Tabletop Games*.[82]

This process started with an evaluation of the collection, its continued growth, and the perceived user needs. The authors wanted the chosen headings to work both for their collection and also for other libraries with similar collections. The headings needed to reflect the language of current tabletop gamers plus anyone new to tabletop gaming. This required terms that were broad enough for novices yet concise enough for experts.

The authors also wanted to use terms from a known source to ease cataloging and classification decisions for librarians who are not gamers. They used Board Game Geek, a crowd-sourced database/website with information on board games.[83] The site offers sufficiently accurate information for creating an RDA core bibliographic record with at least two general genre terms for most tabletop games. It provides a large list of terms, each with its own page of information about the term: name, description, linked forums, and linked items. The terms chosen to describe this collection drew from the type, category, and mechanisms lists with a few additions.

Each term chosen relates back to the specific content of the authors' collection and goals for its growth. Games support the education, recreation, and research interests of faculty, students, and staff. Specifically, one of UNT Libraries' goals is to support the use of games in curriculum development; therefore, the authors added broad education-related genre terms. However, the collection does not include many games for very young children, educational or otherwise, and it was decided that the broad term *Children's games* could sufficiently describe these types of games.

The broadest genre term in the UNT Libraries' genre list is *Tabletop games.* Everything in the tabletop game collection receives this heading. This term becomes more granular by including the terms *Board games*, *Card games*, *Dice games*, and *Roleplaying games*. Every game acquired specifically to support an educational goal also receives the heading *Educational games*. This term can be broken down into more granular genres of educational games such as *Math games*, *Language development games*, and *Physics games*. Each of the fifty genre terms received its own authority record with the appropriate variant and authorized access points for related entities, a note on its use, and information about the source data. This list is evaluated

annually as the collection grows, and new terms are added if warranted.

Although the headings are specific to the Media Library's needs, they are broad enough to offer a starting point for other tabletop game collections. Catalogers using Board Game Geek as a resource and the UNT Library's *Genre Terms for Tabletop Games* list are set to increase potential discoverability and use of their collection. However, making sure the catalog effectively uses this information is equally important to aid users in their search for materials.

Facets

As the game collection grew, the authors observed that it could benefit from even greater discoverability in addition to full cataloging and the use of genre terms. Since the UNT Libraries planned to migrate to a faceted discovery layer, the authors found a unique opportunity to use the new genre terms and add a field specifically geared toward faceting on duration of play, number of players, and age of players.

These three data points are characteristically found on the preferred source and typically lack a uniform structure. Therefore, if this data was limited to a regular free text MARC 5XX note field, it would be difficult for a faceting system to collocate the terms and structure them correctly. This potential obstacle led the authors to create their own structure based on what would work best for their faceting system. They created common groupings around the three data points and assigned a unique code to each grouping as shown in table 1. Since the codes have a similar structure, they can easily be included in one field.

Because of the flexibility of the faceting system, the authors decided to record the codes in the MARC 590 Local Note field, separating each code by a semicolon. This allows for easy visual checking when entering or correcting codes in a record. It also allows for easy preparation of the codes outside the ILS to enable batch insertion into existing records in the library system.

590 _ _ d30t59; p2t4; p4t8; a5t9; a10t13; a14t16; a17t100

Since the UNT Libraries had already cataloged a few hundred titles, they needed a way to insert the facet codes without corrupting the quality of the records. To accomplish this, the authors created a master spreadsheet containing data about every game in the catalog. They reviewed each physical game, took the appropriate facet data from the preferred source, and coded it according to the predetermined groups. The spreadsheet data and the exported game records were merged using MarcEdit, which allows for easy manipulation of records and includes record cleanup functionality. The authors reloaded the merged and cleaned records into their ILS so that the faceting system could read the codes in the new MARC 590 fields and appropriately display the correct labels. Providing full-level bibliographic records, new genre access points, and a local MARC 590 field for faceting is only part of the way to improve discoverability. The final step was to add the new discovery layer Blacklight so that users could easily access the full data.

Table 1. Groupings, labels, and codes for the three data points

Grouping	Label	Code
Number of Players	One	p1
	Two to Four	p2t4
	Four to Eight	p4t8
	More Than Eight	p9t99
Duration of Play	Less Than 30 Minutes	d1t29
	30 Minutes to 1 Hour	d30t59
	1 to 2 Hours	d60t120
	Over 2 Hours	d120t500
Age of Players	1 – 4	a1t4
	5 – 9	a5t9
	10 – 13	a10t13
	14 – 16	a14t16
	17 and Up	a17t100

Implementing Custom Tabletop Games Facets in Solr and Blacklight

Age, *duration*, and *number of players* are important characteristics of tabletop games that library catalogs do not typically use for faceting or limiting search queries. Implementing them effectively as actionable fields requires the ability both to index the custom facet fields and to present them appropriately in the user interface—requirements that the Libraries' chosen software, Solr and Blacklight, capably address.

Apache Solr

Apache Solr is a Java-based, open-source, full-text search engine. It functions much like a database: it stores data records (or *documents*, in Solr parlance) and provides facilities for querying and retrieving the stored data. Unlike a typical database that stores information in a normalized,

structured form, Solr stores content in a flatter, de-normalized form that it pre-parses for easier (and faster) retrieval by full-text search applications.[84]

Solr is not a library-specific product and does not include everything needed to serve as a standalone library discovery system: it lacks an end-user interface, and it has no built-in facilities for transforming MARC 21 records into an acceptable format for indexing. However, it *is* highly configurable, and modifying its behavior does not require editing Java code. Instead, the system provides extensive configuration files, many of which are in an easy-to-edit and easy-to-read XML format, that control how information is stored and how it can be queried.

One such file is the *schema*, which tells Solr what fields to store, what type of data each field contains, how each field can be searched, and how to parse each field during indexing. Keyword searching involves matching individual words (or *tokens*) in a user's query to the words contained within an index, and the schema's data-type definitions specify precisely how Solr should break field data into words during indexing (a process called *tokenization*).[85] For instance, to match a user's keyword search for "bach," the software must index the author heading, "Bach, Johann Sebastian, 1685-1750," in a field with a data type that tokenizes the heading appropriately. To handle such common cases, creating a default *text* data type that removes punctuation, removes stop words, normalizes case, and tokenizes on whitespace (for example) is a common practice.

However, faceting, unlike searching, involves grouping sets of records based on complete, unbroken textual strings—such as terms or phrases from a controlled vocabulary. Grouping records on the entire author heading, "Bach, Johann Sebastian, 1685-1750," is more useful for helping users find resources by that author than having a separate group for each of the individual words, "Bach," "Johann," "Sebastian," "1685," and "1750." Attempting to facet on a tokenized field would result in the latter. Fields intended to be used for faceting therefore often use Solr's built-in *string* data type, which indexes field data as a single token.

Furthermore, grouping on the exact strings that appear in the indexed data is Solr's default approach to faceting, but generating human-readable facet groupings during indexing is not always practical. The approach is sound for faceting on a field such as author because the author headings in the catalog *are* (or are very close to) the strings likely to be used as human-readable labels in the end-user interface. However, for faceting on a field such as publication date, facet groupings are not so well-defined—one could use ranges of any number of years, for example, as categories. If catalogers are tasked both with creating the categories *and* storing the human-readable labels in the catalog records (before they are indexed), changing either the categories or the labels requires updating batches of catalog records. Even if the categories and labels are derived during indexing, they lack flexibility: changing them still requires re-indexing the affected catalog records, even if the data in the records has not been changed.

When hardcoding facet groups within the index is problematic, Solr allows front end applications to define the facet groups *dynamically* based on data stored in the index when an application submits a query. The application simply needs to issue a facet query telling Solr exactly what subqueries to use to construct each facet category. Often this is used to construct dynamic categories based on numeric data: if a Solr index stored a "publication year" field, an application could use a facet query to build dynamic facet categories out of numeric date ranges.[86] Additionally, facet queries can serve to generate human-readable facets based on encoded data—to translate coded values into human-readable labels, enabling the labels to be changed without requiring changes to the index.

The authors weighed these possibilities when considering how to assign and store tabletop games categories and how to structure the Solr schema to power their custom facets. They settled on a hybrid approach. The Media Library's catalogers developed the applicable facet categories for age ranges, durations, and numbers of players. They assigned these categories during cataloging to the MARC 590 field using coded values instead of human-readable category labels. This approach put catalogers in charge of assigning and maintaining the categories, and left the implementation flexible enough so that the labels could be changed without incurring the need to re-index. Additionally, because the coded game facet tokens do not overlap, the authors' approach allows storing all facet data in one multivalued string field in Solr (called *game_facet*) rather than storing *age*, *duration*, and *number of players* as separate fields.

Indexing Tabletop Games Facets from MARC in Solr

Building a Solr index for a custom library discovery system is useless without having the infrastructure to extract MARC 21 records from an ILS and load them into Solr. A general discussion about methods for interpreting and transforming standard MARC data programmatically is outside the scope of this paper. However, enabling the searching and faceting of non-standard fields requires creating customized processes to derive search index data from MARC, possibly in non-standard ways. Prior to implementing Blacklight at the UNT Libraries, the authors' institution had already built such a system for indexing MARC records in Solr from its ILS, Innovative Interfaces' Sierra. Their system allows writing export processes that pull data from Sierra's SQL database and convert it into a format to load into Solr. Different export processes use different mechanisms depending on

the nature of the data they export. Exporting data from bibliographic records, for example, involves converting records from the internal ILS data format to MARC and defining custom processes to convert the MARC records to the appropriate Solr fields.

To index the tabletop games facet codes, the MARC record indexing process first performs pattern matching on the custom values in the MARC 590 $a to ensure that it only loads data into the *game facet* field that conforms to the specification. When it finds matching data, it extracts the semicolon-delimited string of coded game facet tokens in the MARC 590$a, splits it into individual strings, and assigns each string to the Solr field as a separate value. For instance, a MARC record containing the string *d30t59; p2t4; p4t8; a5t9; a10t13; a14t16; a17t100* in a 590 $a translates to the below data structure in the Solr index.

```
"game_facet": [
    "d30t59",
    "p2t4",
    "p4t8",
    "a5t9",
    "a10t13",
    "a14t16",
    "a17t100"
]
```

Configuring Tabletop Games Facets in Blacklight

To serve as the user interface for their new discovery system, the UNT Libraries adopted Blacklight, an open-source application explicitly designed to provide library discovery features on top of a Solr index. Blacklight handles the interaction between end-users and the index—translating users' requests to Solr queries and Solr's results to readable displays. If a running Blacklight instance has access to a running Solr server, it queries the index by sending the correct query parameters to the appropriate URL; the Solr server returns results to Blacklight in JavaScript Object Notation (JSON) format.

Though Blacklight *is* a library-specific application, it is designed so that it does not impose library-specific requirements on how the underlying Solr index is set up, making it an excellent choice for libraries desiring highly custom systems (provided that they have the technical resources to implement and maintain it). Configuring a basic, working Blacklight instance on top of even a heavily customized Solr index is straightforward, provided one knows the details of how the Solr index is set up. The primary means for customizing the interaction between the interface and the index involves editing a configuration file instructing Blacklight on exactly what Solr fields and parameters it should use to provide features such as fielded searches, facets, and record views. Blacklight then tailors the queries it sends to Solr so that they use the Solr fields defined in the configuration file, and it processes results so that fields are displayed to the end-user using labels and options defined in the configuration file.

In Blacklight, each of the three tabletop games facets the authors developed is implemented as a facet query that queries the *game_facet* Solr field to find the appropriate coded value for a given grouping. The bulleted list below demonstrates how the Blacklight configuration file defines these. *Facet Label* is the label for the facet that displays in the user interface; each *Facet Value Label* is the string that displays for each facet value. Each *Solr Facet Query* is the subquery sent to Solr as part of the facet query defining how to derive each facet grouping.

- Facet Label: "Games - Duration"
  - Facet Value Label: "less than 30 minutes"
    Solr Facet Query: "game_facet:d1t29"
  - Facet Value Label: "30 minutes to 1 hour"
    Solr Facet Query: "game_facet:d30t59"
  - Facet Value Label: "1 to 2 hours"
    Solr Facet Query: "game_facet:d60t120"
  - Facet Value Label: "more than 2 hours"
    Solr Facet Query: "game_facet:d120t500"
- Facet Label: "Games - Number of Players"
  - Facet Value Label: "1 player"
    Solr Facet Query: "game_facet:p1"
  - Facet Value Label: "2 to 4 players"
    Solr Facet Query: "game_facet:p2t4"
  - Facet Value Label: "4 to 8 players"
    Solr Facet Query: "game_facet:p4t8"
  - Facet Value Label: "more than 8 players"
    Solr Facet Query: "game_facet:p9t99".
- Facet Label: "Games - Recommended Age"
  - Facet Value Label: "1 to 4 years"
    Solr Facet Query: "game_facet:a1t4"
  - Facet Value Label: "5 to 9 years"
    Solr Facet Query: "game_facet:a5t9"
  - Facet Value Label: "10 to 13 years"
    Solr Facet Query: "game_facet:a10t13"
  - Facet Value Label: "14 to 16 years"
    Solr Facet Query: "game_facet:a14t16"
  - Facet Value Label: "17 years and up"
    Solr Facet Query: "game_facet:a17t100"

By configuring these structures as query facets in Blacklight, the human-readable labels can be easily changed without re-indexing the affected records. However, changes to the underlying facet codes in the MARC 590 fields will still require re-indexing.

Customizing the End-User Discovery Experience Takes Teamwork

Effective resource discovery requires that the data and the systems work in tandem. Actively enhancing the discovery of library resources—especially collections of unique or nontraditional materials—requires catalogers, systems librarians, and Information Technology (IT) staff to collaborate to plan, design, and enact the required changes. Implementation will ultimately fail if systems and technology staff are not committed to maintaining the customizations over time. For many libraries, customizing systems to this degree is not possible, either because they lack the needed human and technological resources or because the organizational barriers that segregate librarians from systems and IT staff prevent such projects from emerging.[87]

The UNT Libraries recognize that meeting the needs of a twenty-first-century research university requires providing technology-based services tailored to the populations they serve, which in turn requires a better integration of technology into traditional librarian roles. They have attempted to structure their organization so that it buttresses more traditional roles in public services and cataloging with roles that enable and support local system development. Librarians and staff who develop and maintain local systems serve on cross-functional workgroups alongside librarians and staff with more traditional roles, encouraging informal collaboration among groups that may not otherwise tend to interact as equals. Figure 1 illustrates the structures most relevant to the UNT Libraries' faceted catalog implementation and development of tabletop games facets.

Cataloging at the UNT Libraries is largely decentralized. A main Cataloging and Metadata Services Department manages the cataloging of general collection resources, but other divisions and departments—such the Media Library, the Music Library, Government Documents, and Special Collections—have cataloging librarians and staff who maintain their own specialized materials. The Cataloging Workgroup exists so that representatives from each department can collaborate to address tasks and projects that require a more unified approach than decentralization would typically afford, such as maintaining consistent standards and ensuring that user facing systems and interfaces utilize those standards effectively.

The Digital Libraries Division drives many of the Libraries' web and discovery projects; it develops and maintains the UNT Digital Library, the library's website, and most of the major discovery systems that the library uses. This division employs a staff of software developers and librarians with software and web development experience, including the Resource Discovery Systems (RDS) Librarian. The RDS Librarian serves as the ILS administrator, the administrator of the Libraries' Web-Scale Discovery platform, and is co-administrator of the Libraries' website in conjunction with other members of its department, the User Interfaces Unit. This position is responsible for working collaboratively with staff throughout the library to ensure the Libraries' public-facing discovery interfaces serve library users well and is therefore a permanent member of the Cataloging Workgroup.

Finally, a dedicated Facilities and Systems department manages the Libraries' IT infrastructure and serves as a liaison to campus IT. Staff in this department manage the most fundamental levels of library technology, providing systems, server, and network administration along with helpdesk support. Though they rarely serve directly on cross-functional workgroups, they provide an invaluable resource on all technology-related library projects, providing the low-level support for hardware and systems that makes the projects possible in the first place.

This organizational structure reduces friction in developing and customizing end-user discovery interfaces while simultaneously maximizing opportunities for input and collaboration. Pathways have grown for sharing and developing project ideas organically, with consideration for system capabilities and technological resources built in, without wanton bureaucratic overhead. Enhancing discovery of tabletop games using custom facets is an exemplar of such a project. The idea germinated from discussions among the Media Library staff and Cataloging Workgroup members. Blacklight was considered when the RDS Librarian began discussing User Interfaces' work investigating a Blacklight-based faceted catalog at Cataloging Workgroup meetings. This led to the idea to develop custom facets for tabletop games in Blacklight to explore developing custom facets and metadata fields in general.

Ultimately, systems and technology require significant resources to develop and maintain, and any project or initiative involving system development must account for this fact. If a library values providing its users with systems and services tailored to their needs, it must find vendors willing to provide that level of customization or it must provide explicit organizational support for performing and maintaining in-house customization.

Conclusion

Enhancing the discoverability of collections to increase their use is a common goal among libraries—one that they can achieve incrementally based on the resources at their disposal, as the UNT Libraries' efforts surrounding their tabletop games collection demonstrate. Simply getting items into the catalog is a great place to start. Improving those

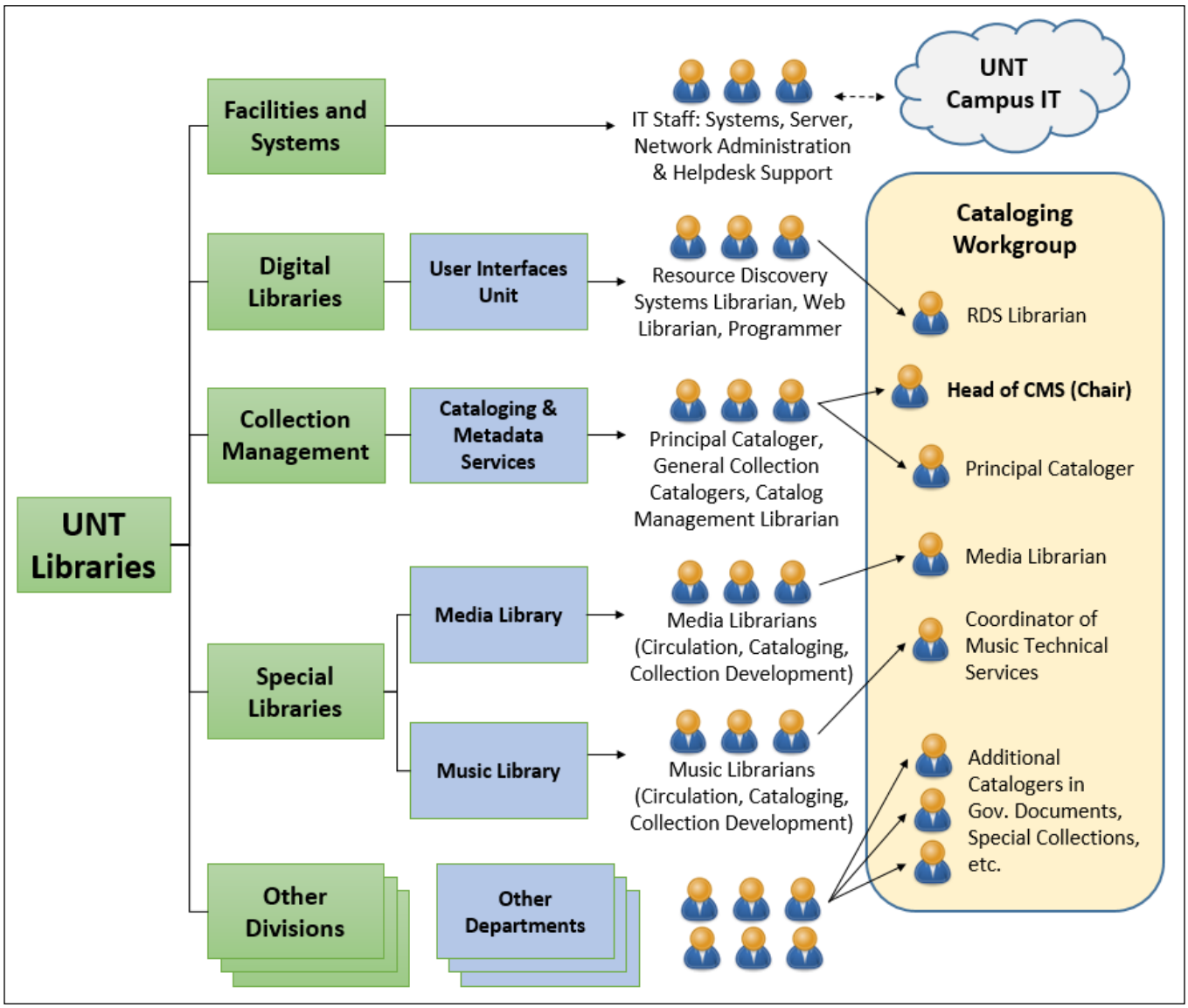

Figure 1. Organizational structures most relevant to the UNT Libraries' faceted catalog implementation and tabletop games facets.

bibliographic records by using RDA Core requirements and other enhancements further increases the likelihood that users will find those items—but only if the end-user discovery interface can utilize that metadata. If it cannot, considering how to process the metadata or customize the interface to take full advantage of what is available may be the next step—one that the UNT Libraries have taken by adopting Solr and Blacklight. Although this technology is effective, implementing it requires a level of institutional support the authors recognize that not all libraries have. Regardless of a library's size or type, or what steps that library can afford to take, *collaboration* is the fundamental key. Somebody must first start the conversation, and they must ensure that those who create the metadata, those who create and maintain the systems, and those who interact directly with library users all talk to one another.

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Book Reviews

Elyssa M. Gould

The Theory and Craft of Digital Preservation. By Trevor Owens. Baltimore: Johns Hopkins University Press, 2018. 226 p. $34.95 softcover (ISBN: 9781421426976)

Digital preservation is a challenging topic. The digital world evolves so quickly that it is hard to keep up with all the new developments, or understand the shelf life of various digital media because it has been changing exponentially fast.

In the book *The Theory and Craft of Digital Preservation*, Owens tries to uncover the facts and provide support and ideas to anyone impacted by digital preservation. He gives the reader a little background by describing what constitutes digital media and how digital preservation is being accomplished in the preservation world. Owens states that this book is a "guidebook." It is not step-by-step instructions on how to perform digital preservation, nor is he illustrating the correct method to preserve a particular type of media. It provides the reader with an overview of the topic and insider knowledge to make more informed decisions about digital preservation. Owens notes three different frames for thinking about preservation: artifactual, informational, and folkloric. Each one of these frames shows the multiple ways of thinking about preservation. Preservation does not have a clear-cut definition, and Owens is able to articulate this idea in each chapter.

A theme that is present throughout the book is the idea of not being discouraged if we do not have all the answers about digital preservation. The book raises the point that new media is continually being created and new technology can potentially give us those answers we seek. For anyone that touches some aspect of digital preservation, this reminder provides hope.

Owens also raises the idea of collaboration, especially with computer science. This field can be valuable in trying to devise solutions surrounding digital preservation, especially since computer science could be the initial root of the media. Forming this type of partnership may help create ideas that would not have been otherwise considered. Sometimes solutions can be found when input is sought from individuals that are further from the problem: "It is not about universal solutions. It is about crafting the right approach for a given preservation context" (73). The author also emphasizes that each form of media may need a different digital preservation process. Just like humans and learning styles, each type of media needs to be handled uniquely.

Owens makes a good point that "preservation is an active process" (75). As preservationists, we cannot become complacent. Just because we have updated a digital format of a particular object does not we are finished. As Owens says, we have to be continually active in trying to preserve each item as best as we know how, with the technology and resources available. Preventative maintenance is key, and planning for potential risks is a good idea. Depending on the size of an institution, what can be done to preserve digital media can vary. For example, larger institutions may have more available staff assigned to devote their time in digital preservation, whereas a smaller institution may not. Each individual institution must decide how much preservation they can provide, how little preservation that is needed to maintain a collection, and how in-depth each collection needs to be preserved. Creating a statement of preservation intent for each collection is how an institution can show the expectations for their preservation process and the guidelines that they follow.

Deciding on what gets preserved is also an important topic. The importance, however, is subjective. One person may think preserving a certain item is the most important, while another person may feel something else is more important. Owens summed this idea by saying, "It is important to remember that, for the most part, people now and in the future are less interested in things themselves than in what things signify" (90).

This book is not just for experts. Owens uses real-life examples to put the hard-to-truly-pin-down-topic into a more tangible form for even a lay person to grasp. Some of his examples include preserving butterflies, World of Warcraft, floppy disks of the tape recordings of Carl Sagan, and floppy disks from Jonathan Larson, the creator of RENT. With each example, he demonstrates each point in an informal and relatable way for an audience from any type of background. Overall, the book does a good job defining digital preservation and covering a basic introduction to the world of digital preservation. Owens shows his love of digital preservation and conveys an in-depth knowledge that he is willing to share with the rest of the community.
—Katherine E. Jones (katherine.jones@oswego.edu), State University of New York at Oswego

Digital Preservation in Libraries: Preparing for a Sustainable Future (An ALCTS Monograph). Ed. by Jeremy Myntti and Jessalyn Zoom. Chicago: ALA Editions, 2019. 392 p. $85.00 softcover (ISBN: 978-0-8389-1713-8).

Digital preservation is an area that presents unique challenges due to the field's relative youth and its rapid evolution. This book will inform institutions and professionals hoping to implement or improve their digital preservation programs by sharing insights gained by those engaged with digital preservation projects, tools, and strategies in recent years.

The book is divided into six parts that address the topic from different angles. The history of digital preservation and a high-level overview of the theories behind its tasks and challenges are covered in part 1. The second part discusses a number of strategies and approaches for developing digital preservation programs and policies, including the relationship of the digital preservation plan to the collection development policy and tips for selecting a digital preservation system. Part 3 includes case studies from two institutions describing their experiences with implementing digital preservation programs and systems. Different material types often present distinct challenges to digital preservation; experiences with a few of these types, including e-books and mobile device content, are examined in part 4. In part 5, examples of several collaborative digital preservation programs and projects are considered. Finally, part 6 discusses digital preservation and copyright, including strategies for completing copyright reviews for digital projects and applying rights statements to digital materials.

For those new to digital preservation, or those seeking a refresher, Baucom's first chapter, "A Brief History of Digital Preservation," provides an excellent overview of important milestones. The emergence of the field is discussed in the context of the enormous increase in the number of digital objects that accompanied the rise of the personal computer and the internet in the 1990s. Milestones in the field's history include the development of models such as the Open Archival Information System (OAIS) model, documents describing the characteristics and criteria of a Trusted Digital Repository, and programs like the National Digital Information Infrastructure and Preservation Program at the Library of Congress. The chapter also highlights important international efforts and breakthroughs in places such as Australia and Europe.

In chapter 3, "Digital Preservation Policy and Strategy," authors Madsen and Hurst provide a framework for those seeking to begin or revisit digital preservation in their organizations. They suggest breaking up digital preservation materials into three parts: strategy, policy, and operations documents. Using this three-tiered method increases the likelihood that the documents will be frequently used, referred to, and adhered to. Additionally, this approach to digital preservation, which encourages having clear goals and intentions from the beginning, can lead to more productive discussions with stakeholders and users about how to make content more preservable. Furthermore, it provides the opportunity to have these conversations early in the digital content's life cycle.

Part 3, "Digital Preservation at Individual Institutions," offers cases studies from Miami University Libraries and the University of Utah. At Miami University, a Digital Preservation Committee performed an inventory and assessment of current digital preservation activities, which informed a determination of the organization's preservation needs and an evaluation and recommendation of digital preservation solutions. The institution's experiences with implementing the recommended solutions are described and followed by a discussion of challenges faced and plans for the future.

At the University of Utah, a focus on digital preservation began with the creation of a new digital preservation archivist position. This position determined collections with long-term preservation needs, developed a digital preservation policy, and led efforts to investigate and implement a new digital preservation system. An appraisal/selection guide was also developed to help determine which collections needed to be digitally preserved. Future plans include completing the ingestion of legacy content into the digital preservation system and training additional users on using the system. Case studies from additional institutions would have supplemented this part of the book nicely due to the invaluable benefits of learning from others' experiences.

Parts 4 and 6, addressing preservation of different material types and copyright respectively, cover two common areas of difficulty in digital preservation. For example, chapter 12, "Mobile Device Data Preservation for Cultural Institutions," discusses unique challenges to preserving born-mobile data, such as privacy concerns, inability to make use of command-line utilities and tools, and the lack of relevant literature and training on handling this content in cultural heritage settings. Copyright is often another complicating factor in the digitization and preservation of collections. Chapter 17, "Copyright Conundrums: Rights Issues in the Digitization of Library Collections," provides an examination of the copyright law landscape and common mistakes. Resources, models, and example workflows for performing copyright reviews are provided. The chapter concludes with an overview of the standardized rights statements developed by the Digital Public Library of America and Europeana.

A number of collaborative digital preservation projects and programs are described in part 5, including Community

Lots of Copies Keep Stuff Safe (LOCKSS) Networks, the Digital Preservation at Oxford and Cambridge (DPOC) project, and APTrust. The announcement at the end of 2018 that the Digital Preservation Network (DPN) would cease operations[1] suggests that the cultural heritage community must continue to learn from such efforts in order to make them sustainable. Therefore, the projects and programs described in this section will aid in a consideration of what has worked well in a variety of settings.

Overall, *Digital Preservation in Libraries* provides ample food for thought when considering digital preservation at one's own institution. It is accessible to both those new to the field and those with backgrounds and specialties in other areas. Practical strategies and frameworks are provided for tackling what are frequently daunting and complex tasks. Readers will benefit from case studies describing the experiences of those at other institutions who have sought to achieve similar goals. A recurring theme in the book and throughout the history of the field is the importance of collaboration and sharing to successful digital preservation efforts. Institutions will undoubtedly continue to learn from and build upon past collaborative efforts as they continue forward with the shared goal of ensuring that digital content is preserved for future generations.—*Anna Goslen (goslen@email.unc.edu), University of North Carolina, Chapel Hill*

References

1. Carol Minton Morris, "The Digital Preservation Network to Cease Operations," Duraspace, December 5, 2018, https://duraspace.org/the-digital-preservation-network-dpn-to-cease-operations/.

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