

Authority Control Today: Principles, Practices, and Trends

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Authority Control Today: Principles, Practices, and Trends

Authority control enhances the accessibility of library resources by controlling the choice and form of access points, improving users’ ability to efficiently find the works most relevant to their information search. While authority control and the technologies that support its implementation continue to evolve, the underlying principles and purposes remain the same. Written primarily for a new generation of technical services librarians, this paper illuminates the importance of authority control in cataloging and library database management, discusses its history, describes current practices, and introduces readers to trends and issues in the field, including future applications beyond the library catalog.

Introduction

As a continually growing and changing database, the library’s catalog requires ongoing maintenance, especially through disciplined authority control practice. Joudrey, Taylor, and Miller’s definition of authority control states, “Authority control is the result of the process of maintaining consistency in the verbal form used to represent an access point and the further process of showing the relationships among names, works, and subjects. It is accomplished through use of cataloging guidelines (in the case of names and titles), use of a controlled vocabulary, and reference to an authority file.”¹ While the work can be time-consuming and intellectually demanding, the pay-off for the user experience is incalculable. The authority control landscape is an interconnected network of libraries, vendors, databases, and services (see Figure 8). Library patrons of today expect seamless information retrieval and sophisticated database navigation. Correct application of authority control best practices assists catalogers in meeting these needs, while connecting users to the most relevant resources for their information

search. Barbara Tillett explained the essential nature of authority control within libraries over three decades ago, stating, "In order to accomplish the finding and gathering functions, the catalog must have authority control. Authority control is inherent to a catalog and without it, a file cannot be considered a catalog."² Technical services librarians today must be just as passionate about this essential function of their jobs.

In a foundational text on the topic, Clack states, "What is authority control? It is a technical process executed on a library catalog to provide structure. Uniqueness, standardization, and linkages are the foundation of authority control."³ In the process of identifying and describing information resources, catalogers create descriptive (or bibliographic) records that are gathered into a library database, which serves as a tool for library users to find resources that meet their information needs. The information resource is described within a structured bibliographic record with various types of information keyed into data fields. Within this context, a Authority control is a key aspect of the cataloger's work. The cataloger must select the names, subjects, and titles that are associated with the information resource and enter these in searchable fields within the record. These become the authorized access points by which the resource may be found through the searching functions of the library database. Through the practice of authority control, an index of authorized terms is formed in the catalog, allowing for creators and subjects to be named and recalled by consistent terminology. Doing the work to identify preferred terms for new names and subjects to add to the catalog in such a way that similar terms are differentiated and variant forms are linked together ensures the library's patrons will receive more accurate and complete results in their information search. The maintenance of this controlled vocabulary is important, as language and nomenclature are living things.

Authority work is the process by which the cataloger ensures that the catalog links related resources through the foundational concepts outlined by Clack: uniqueness, standardization, and linkages. By ensuring an access point’s uniqueness, catalogers enable differentiation between similar names or terms. Standardization helps catalogers to select an authorized access point which will allow related resources to be collocated. Standards such as *Resource Description and Access* (RDA) provide catalogers with guidelines for the creation of authority records for names and titles. The use of common thesauri such as Library of Congress Subject Headings (LCSH) for selecting subject terms also supports the access points through standardization. Linkages are made possible through the encoding standards that underpin the data elements.

With the upcoming generation of librarians in mind, this article seeks to provide a foundational introduction on the topic, including a history of the development of authority control practice, definitions of key terms, discussion of the content and encoding metadata standards that govern how authority records are created, and a description of current authority control practice within libraries. The use of local and cooperative authority files is discussed, along with an introduction to the automation of authority control through library vendor services. This paper also elucidates the importance of authority control in cataloging and library database management and how authority control benefits users of the library catalog in helping them find the information resources they need. An introduction to current issues and trends within the field includes discussion of authorized access points as facets, federated authority databases, linked data, and ethical authority control practice. Finally, the future of authority control is explored.

In the days of the card catalog, authority maintenance was a very time-consuming and manual process, with each change requiring the original term to be crossed out and replaced by the updated term handwritten on every affected card from the catalog or the typing or printing of

entirely new cards to incorporate the changed terms into the card catalog. This process is now considerably more efficient and continues to improve as technology develops and as cooperative practices evolve. A basic understanding of the historical and current practice of authority control, the importance of such work, and an introduction to current trends and the potential evolution of authority control in the future will serve the catalog librarian in the practice of this important work and will allow for optimal utilization of the database management tools of today's library catalog.

Authority control defined

Authority control is the process of organizing information by using a singular form or spelling of a name or topic. This process must be understood within the context of the library catalog and its essential functions. The library and its staff meet the information needs of library patrons by are in the business of acquiring, processing, cataloging, maintaining, and circulating physical and digital information resources (ei.ge., monographs, e-books, journals, reference materials, scholarly articles, archival collections, audiovisual items, databases, maps, etc.). Cataloging is the process whereby ~~In order to make these resources accessible~~, catalog librarians create, update, and maintain metadata through careful description and structured information display to assist users in discovering ~~those~~ library resources that ~~will~~ best serve their needs. Commonly referred to as "data about data," metadata is the sum total of what one can say about a given information object at any level of aggregation recorded in a structured form. ~~Cataloging involves description of the information resource, subject analysis for content access and classification to determine the resource's location, what the item is about, and bring together other related resources.~~ ⁴ Metadata for an information resource is organized in a bibliographic record. Bibliographic records are collected together into a database ~~that is part of~~ called the library

catalog. ~~The~~ Bibliographic records contains the metadata to describe, differentiate, relate, and locate ~~an~~ information resources. In this way, the bibliographic record acts as a surrogate for the information resource, allowing the library patron to learn about a particular item and decide whether it will meet their need without having to physically examine each potential resource ~~on the shelf~~.

Authority control is the set of processes and procedures to formulate and record “authorized heading forms in [bibliographic records]” so that “access points to [bibliographic] records are given one and only one conventional form.”⁵ When catalogers perform authority ~~control (also referred to as authority work,)~~ they establish, through verification and validation, controlled headings or authorized access points ~~terms~~ for various entity types (~~ei.ge.~~ people, places, corporate bodies, families, ~~titles~~series, works, expressions, subjects, and genres) used in information resource description. These authorized access points create a consistent, predictable form to uniquely identify information resources (e.g., by choosing the item’s author, series title, subject, additional contributors, etc.) and collocate related resources (i.e., bring together all items by a given author or about a specific subject). Additional metadata is also recorded to differentiate similar entities and document decisions made by the cataloger. All metadata associated with an authorized access point is organized into an authority record. To maintain consistent and unique access points within a library catalog, the recording of metadata in an authority record is governed by metadata content standards. Metadata in an authority record is encoded following metadata encoding standards. The principles, standards, and practices of modern authority control are shaped by its history. ~~Authority control creates a database of consistent, unique terms that includes variant terms, related terms, other associated attributes, and sources of information. These various elements are recorded together in an authority record.~~

A database of authority records can also be referred to as an authority file. The established or authorized form chosen in an authority record is the form used within bibliographic records in the description and subject analysis of an information resource acquired by a library. Using these controlled terms creates predictable and consistent metadata that can be used to differentiate between similar entities and collocate related resources.

History of authority control

Within the realm of bibliographic control, of which both cataloging and authority control are a part, understanding the history of authority control is intertwined with the history of library cataloging, including the history of the library catalog can help illustrate the development of theory, principles, and practices that form the foundation of authority control today for creating, maintaining, and sharing a library catalog. The library catalog is “an organized compilation of bibliographic metadata that represents the holdings of a particular institution.”⁶ the register of all bibliographic items (i.e. information objects) available in a library. This register catalog records various kinds of information about each information object in the library’s collection and has taken on varying forms and styles over the years as cataloging principles and practices were discovered and developed (see Figure 1).

In the mid-19th century, Anthony Panizzi, a key figure in the development of the library catalog, established a 91-rule plan to "systematize the operation of cataloging."⁷ These rules created a prototype of modern day catalogs with entry headings (a concept referred to as access points by current standards), descriptions, references, and notes recorded for each item in the catalog. Panizzi’s 91 rules demonstrated the value of creating uniform-consistent headings for recording information about library materials in the library catalog. This creates bibliographic entries with consistent access points used to find and collocate library materials.

Charles A. Cutter's 1904 “~~O~~bjects and ~~means~~Means” for the catalog⁸ built upon the work of Panizzi by enumerating ~~codified~~ the catalog’s purpose of connecting patrons to library materials and defining ~~ed~~ the kind of information required to achieve this end. Cataloging rules released in 1941 and 1949 by the American Library Association began codifying rules for authority control with the motivation to support the work of catalogers in creating consistent and unique headings and cross references between headings.⁹ Seymour Lubetzky, a specialist in cataloging policy at LC, showed the value of simplifying and standardizing cataloging rules to create a universal standard allowing interoperability between library catalogs.¹⁰ He also emphasized the value of creating cross-references in the catalog to lead users to the authorized access point for collocation purposes.¹¹ The Statement of Principles adopted by the International Conference on Cataloguing Principles (ICCP) organized in Paris, France (also known as the “Paris Principles” 1961)¹² and Seymour Lubetzky¹³ expanded on cataloging principles identified by Lubetzky for creating access points in bibliographic description ~~showed the value of simplifying and standardizing cataloging rules to create a universal standard allowing interoperability between library catalogs.~~ Cutter’s rules and the Paris Principles identified two fundamental purposes of the catalog: 1) help users find known items and 2) collocate related resources either by author, title, edition, or subject. The catalog could only serve these core Authority control as practiced presently is rooted in these and other key figures and developments that pursued efficiency through consistency in the construction and use of the library catalog roles by using consistent and unique access points for each item in the catalog. The Anglo-American Cataloging Rules (AACR) published in 1967 and its second edition published in 1978 provided international rules for creating consistent and unique access points within bibliographic descriptions as well as cross references between access points. Where

previous cataloging rules did not explicitly address authority control practices, AACR2 included detailed instructions in a chapter dedicated to forming access points.

Up until the late 20th century library catalogs were analog in form. These forms ranged from handwritten tablets, indexes and manuscripts to published books and files of index cards. Each form of the catalog listed library materials alphabetically by the author's name, title, subject, or call number. These same analog forms for recording library materials stored the approved terms for names, titles, and subjects that were used as headings in the creation of catalog entries. For example, each card in a card catalog contained at the top the primary way the item could be found (i.e. the main entry heading) followed by other descriptive detail and physical location details to help patrons find the item they needed (see Figure 1). In these formats, items in the library catalog authored by the same person would be collocated together in the list or index card file because the form of the person's name was consistently recorded and filed. Entries (either in a list or on a card) also contained references to other related headings and items, helping guide the patron to their desired item. Since the mid- to late-20th century, IFLA has been involved in exploring, through reports and working groups, how to create an international authority control system.¹⁴ A culmination of this work was manifested in the Functional Requirements for Bibliographic Records (FRBR) developed by IFLA and released in 1998. This conceptual model for bibliographic metadata connects user tasks for information retrieval with bibliographic and authority metadata by defining entities and their relationships with other entities including work (a distinct intellectual or artistic creation), expression (an intellectual or artistic realization of a work), person, family, and corporate body. This data model was used as the basis for RDA, the successor to AACR2. Released in 2010, RDA revises sections from AACR2 on choosing access points, gives additional guidance for controlling more

types of entities than in previous cataloging rules, adds relationship designators, and introduces more attributes to help differentiate entities.

Advances in, and adoption of, library ~~The development of~~ computer technologies enabled ~~printing the analog catalog, making the production and maintenance of the catalog more efficient. These technological advances also~~ led to the development of MAchine Readable Cataloging (MARC)¹⁵ as an encoding standard for both bibliographic and authority metadata.¹⁶ Developed by Henriette D. Avram in the 1960s while working for the Library of Congress (LC), MARC “attempted to both convert and manipulate the data stored on a catalog card.”¹⁷ In 1974, ~~the Library of Congress~~LC began issuing lists of newly created and updated name headings for use in other libraries. The first MARC-based authority records were created by ~~the Library of Congress~~LC in 1977, and publication of the first edition of *Authorities: A MARC Format* soon followed ~~was published a few years later~~ in 1981, making available a national standard for recording, storing, and sharing electronic authority records. In a relatively short amount of time, MARC developed into an international standard that increased sharing and interoperability between libraries ~~and their catalogs~~.¹⁸

~~Converting~~As computer technology improved and computer networking technology developed, the library catalog ~~was converted~~ to an electronic environment, ~~removing~~ the need to publish ~~an analog physical~~ catalog list or card file. Files of authorized headings were also converted into this new digital environment, allowing for ~~In a computer environment that involves various networks, creating, updating, and sharing catalog metadata became much more consistent and efficient~~ creation, updating, and sharing of catalog metadata. Libraries adopted integrated library systems (ILSs) ~~developed by 3rd party software companies that connected the library’s many functions to the metadata in the catalog (e.g. acquisitions, circulation, and~~

1
2
3 ~~discovery). These systems~~ provide patrons a digital (or online) interface for searching and
4
5 browsing the catalog. Authority metadata is utilized in these search interfaces to guide patrons to
6
7 the preferred access points ~~form of terms and headings that are~~ used in catalog records so that
8
9 patrons know ~~how and~~ what to search to meet their information needs and to collocate related
10
11 resources. While enabling better access to vast quantities of information, the creation and growth
12
13 of the ~~WWW~~ Web and online search engines are recent developments in the history of the
14
15 library catalog, posing unique challenges and opportunities that continue to shape authority
16
17 control today.
18
19

20 21 Metadata content standards for authority records

22
23 Metadata content standards govern what to record in a metadata element or record. RDA is an
24
25 international metadata content standard providing guidelines and instructions to create and
26
27 maintain well-formed bibliographic and authority metadata. The development of RDA is
28
29 controlled by the RDA Steering Committee (RSC). The guidelines in RDA are based on the
30
31 International Federation of Library Associations and Institutions (IFLA) Library Reference
32
33 Model (LRM) which provides an entity-relationship framework for describing information
34
35 resources. The RDA Toolkit¹⁹ is a web-based resource catalogers can use to view and reference
36
37 RDA documentation and guidelines. The Descriptive Cataloging Manual (DCM) Z1 and the LC
38
39 Guidelines Supplement to the MARC 21 Format for Authority Data are manuals made available
40
41 by LC to guide catalogers in creating and maintaining name and series authority records. The LC
42
43 Subject Headings Manual is another resource maintained by LC detailing standards for creating
44
45 and using subject authority records. These content standards and manuals guide catalogers to
46
47 create authority records for the following entities: person names, families, corporate bodies,
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49 places, works, expressions, series, and subjects. Newer LRM entities such as timespan and
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nomen may in the future come under authority control, although they are not currently. An authority record constructed following these standards consists of five major components: the authorized access point, variant access points, related access points, associated attributes describing the entity, and source information.

Authorized access point

The authorized access point is the preferred form for referring to an entity. RDA guides the cataloger in determining the preferred name or title for the entity based on the information resource being described. For example, if cataloging a monograph about the American actor James Stewart, the authorized access point could be established as “Stewart, James, 1908-1997” rather than “James Stewart,” “Stewart, James,” “Stewart, James Maitland,” or any other possible form or variation used. Using one and only one form of his name ensures all resources authored by, contributed by, or about this American actor can be collocated together. This authorized access point also differentiates this James Stewart from other people using the same or similar name by including his birth and death dates. (For a sampling of various people with the name James Stewart see Figure 2). Authorized access points for works are established by choosing the preferred title of the work. For an entity representing the work “Moby Dick” written by Herman Melville, an authorized access point could be “Melville, Herman, 1819-1891. Moby Dick.” Any edition, translation, or manifestation of this work could be found together if organized under this authorized access point. Authorized access points recorded in the authority record can be used within bibliographic records in the description and subject analysis of an information resource acquired by a library. Using these controlled terms creates predictable and consistent metadata used to better collocate related resources and differentiate similar entities.

[Figure 2 near here]

Variant access points

If an entity can be identified by more than one form, variant access points can be recorded. These access points guide library users to the authorized access point in search and retrieval. RDA provides instruction for when and how to record variant access points for the various authority entity types. For example, resources authored by or about English playwright, poet, and actor William Shakespeare can manifest spelling variation in his last name (e.g., Shakespear vs. Shakespeare) as well as variation in non-English language resources. Corporate bodies can also be known by various forms. For example, if “J.P. Morgan Chase and Co.” is used as the authorized access point for this international bank, variant access points could be recorded for “JPMorgan Chase Bank” and “Chase Bank” so that a user would find the access point used to describe information resources about or by this bank. Variant access points can also be recorded for works. For example, J. R. R. Tolkien wrote a work called “The Hobbit, or There and Back Again.” If the authorized access point for this work was established as “Tolkien, J. R. R. (John Ronald Reuel), 1892-1973. Hobbit,” a variant access point could be created for the fuller title: “Tolkien, J. R. R. (John Ronald Reuel), 1892-1973. Hobbit, or, There and back again.”

Related access points

Each entity represented by their authorized access point can have relationships with other entities and their authorized access points. Guidelines in RDA help catalogers determine when and how to record these relationships. For example, consider the authorized access point of “Yes (Musical group)” for the English progressive rock band Yes. The authority record for this band could include a related access point for the original lead singer of the group “Anderson, Jon, 1944-”. Conversely, an authority record for “Anderson, John, 1944-” could contain a related access point relating him to the band “Yes (Musical group).” Related access points can also be used to show

pseudonyms used by a person. For example, an authority record for the murder mystery author Agatha Christie with the authorized access point “Christie, Agatha, 1890-1976” could contain a related access point to her pseudonym Mary Westmacott in the following form: “Westmacott, Mary, 1890-1976.” Searching for resources by “Christie, Agatha, 1890-1976” would also direct patrons to search for other works authored under “Westmacott, Mary, 1890-1976.” Searching for sources by “Christie, Agatha, 1890-1976” would also direct patrons to search for other works authored under “Westmacott, Mary, 1890-1976.”

Associated attributes

In addition to the authorized access point, variant access point, and related access points, entities can have additional attributes that help differentiate similar entities. RDA and other standards specify what attributes can be recorded when known and when to use those attributes in helping distinguish an entity from another in an access point. Related attributes can include associated dates, fuller form of name, associated place, occupation, associated group, type of corporate body, creator and audience characteristics, or form of work. For example, a name authority record for “Savage, C. R. (Charles Roscoe), 1832-1909” includes his birth date (1832), death date (1909), and fuller form of his name (Charles Roscoe). It also includes attributes showing he was associated with Utah and worked as a photographer. An authority record for the city “Seattle (Wash.)” could include an attribute describing the type of jurisdiction using the term “Cities and towns.” An authority record for the series of important classic and contemporary films “Criterion collection” could include attributes showing the form of the series (e.g., “Series (Publications)” and “Monographic series”).

Source information

In addition to establishing the authorized access point for a given entity, the authority record acts as documentation showing what decisions were made when the authority metadata was created and why. RDA and the DCM Z1 instruct catalogers to record reference sources used in establishing access points and recording related attributes. These sources include the name of the source, when it was published or accessed, and the evidence found that supports the decisions made in the authority record. For example, when creating an authority record for David Eddings' Belgariad series while cataloging the third book in the series, the following reference note could be created providing evidence for the choices made in the record: "Magician's gambit, 1983: title page (Book Three of The Belgariad) title page verso (The Belgariad / Book Three)." An authority record representing an expression of the English translation of Albert Camus' The Stranger could include a source note for the English translation by Stuart Gilbert published in New York by Alfred A. Knopf in 1946: "The stranger, 1946: title page (The stranger by Albert Camus; English translation by Stuart Gilbert)." Source information also includes notes about the entity that are helpful to other catalogers or patrons. For example, the author and illustrator "Gorey, Edward, 1925-2000" could have a complex see also reference note directing patrons to search under his pseudonyms: "For works of this author written under other names, search also under: Dowdy, Regera, 1925-2000; Goré, Ædwyrd, 1925-2000; Mude, O., 1925-2000; Ward, E. D., 1925-2000; Weary, Ogdred, 1925-2000; Weedy, Garrod, 1925-2000; Wryde, Dogear, 1925-2000." An authority record for the event "South by Southwest Music and Media Conference" may have the non-public note "See also related access points for individual instances of this conference which include specific information about the number, date, or place of the individual conference." This note tells catalogers that this authority record is for the collective conference and that individual instances of the conference are established in separate authority records.

Metadata encoding standards for authority records

Authority records consist of four major components: the authorized form of the entity, variant forms (i.e. synonyms), attributes and information about the entity, and source information to support the choices made in establishing the entity. Authority records can be formatted for electronic storage, transmission, and retrieval using various metadata encoding standards.

Libraries primarily encode authority records using the MARC 21 format for authority data.²⁰ Figure 2 illustrates a MARC authority record for a person entity. The Each piece of information in the MARC encoding standard uses record is housed in a numeric tag that is machine-readable numeric tags to record various kinds of metadata. The numeric tags recorded in a MARC authority record are organized into classes as shown in Figure 3. (see Figure 5). In a MARC name authority record for a person entity (see Figure 4), The form of the personal name established in the 100 tag is the authorized access point is recorded in the 100 tag. The authorized access point is the established form for an entity form for this person, meaning that that would be recorded in a bibliographic record anytime an information resource by, or about, or otherwise associated with this person is added to the library catalog. (See Figure 5 for an example bibliographic record using authorized access points). Variant access points are recorded in the metadata description for the item will use this exact form of their name. The 4XX tags (the “X” referring to any numeral; e.g., 410, 411, or 430) contain variant forms of the name that and provide “see from” references to guide patrons and staff to the authorized access point established form in the 1XX tag. Relationships from one entity to another are recorded in the 5XX tags and generate “see also” references, that represent a relationship between the entity in the authority record and another established entity such as a related corporate body or a recognized pseudonym under which the an author also writes.

[Figure 3 near here]

[Figure 4 near here]

[Figure 5 near here]

Within the MARC authority record, 3XX tags contain attributes associated with the person including related locations (e.g., birth and death place), areas of professional activity or expertise, occupation, associated organizations, gender, language, and fuller form of the name. The 6XX tags provide additional notes that guide catalogers in using the data in this record. In particular, the 670 tag identifies sources that show evidence for the decisions and metadata included in the record. Most importantly, these sources provide evidence for the forms ~~of the~~ name chosen in the 1XX and 4XX fields. Tags 000, 001, 005, and 008 represent fixed field data to identify information about the record itself, including the type of record, when the record was created, and how the record can be used. Tags 010 and 035 are control numbers that uniquely identify the authority record in library systems and databases and facilitate record overlay when updating authority records. Tag 040 identifies the language of description and the content standard for the metadata. It also identifies the institutions that contributed to the creation and maintenance of the record. Dates related to the entity, including birth and death dates, are coded in the 046 tag. Any 9XX tags store local information specific to the source database for the record. In addition to personal names, MARC authority records are created for place names, corporate bodies, families, series, works, expressions, topical and geographic subjects, and genres.²¹ The MARC 21 format for authority data provides a sophisticated encoding standard for recording, maintaining, and sharing authority metadata.

How authority control is used in libraries

In the process of cataloging an information resource the cataloger chooses access points ~~main entry headings to provide a predictable heading for access,~~ to uniquely identify the resource (~~e.g. by choosing the item's author, series title, subject, additional contributors, etc.~~) and to collocate related resources. Access points represent a unique entity and are recorded in authority records. Authority records are stored and maintained within an authority database or authority file. ~~The terms chosen for these headings are selected from an authority database.~~ If an authority record for a chosen entity ~~heading to best represent the information resource~~ exists in ~~an~~ the library's ~~local~~ authority database, the cataloger ~~may simply~~ can re-use the authorized access point from the authority record ~~at existing heading~~. If an authority record for the ~~author~~ entity does not yet exist in the ~~local~~ authority database, the cataloger can ~~will~~ add a new authority record to the file, whether by creating a new record or downloading an existing authority record from an external source. Authority databases can be categorized into two main kinds: local and cooperative. A local authority database refers to an authority file stored and maintained by an individual information organization. A ~~If the library participates in a cooperative cataloging program, they may also establish the named entity in the cooperative~~ authority database refers to an authority file stored and maintained by a community of information organizations on a regional, national, or international scale.

Local authority databases

Many ~~lib~~ libraries maintain a local authority file using a variety of means including batch loading records, partnering with library vendors, participating in cooperative cataloging programs, ~~or~~ and manually creating or editing authority records one-by-one. A library's local authority database is typically maintained as part of their integrated library system (ILS) alongside other library metadata including bibliographic records. To disambiguate seemingly similar but different

resources and collocate related resources, the ILS forms relationships between authority ~~records~~ and bibliographic records by ~~using matching on~~ the authorized ~~access point form of a heading~~ from the authority database. When an ~~term access point~~ used in a bibliographic record matches the authorized form from an authority record, a link ~~is may be~~ created ~~to the authority~~ and indexed in the system ~~along with that also includes~~ links ~~to and~~ from ~~related variants and~~ references ~~and from related entries~~ defined in the authority record. ~~The ILS does the work to index and collocate these related records for later search and retrieval. The library catalog or discovery system that a library uses to help patrons search, browse, and discover information resources can utilize the information recorded in the authority record to collocate materials with bibliographic metadata that shares the same access point, direct patrons from variant access points to the authorized access point, and direct patrons to search under alternate identities to make sure all resources by or about the entity are discovered.~~

~~As an example, c~~Consider ~~the example of Theodor Seuss Geisel, an American children's author, political cartoonist, illustrator, poet, animator, and filmmaker. He authored works using the pen name Dr. Seuss. Since he wrote using both his given name and his pen name, two authority records could be created (see Figure 6). Each of the authority records contain a related access point and public note showing the related alternate identity. an authority record representing Steve Jobs, the founder of the corporate body Apple, Inc (see Figure 2).~~

Bibliographic records for information resources ~~by or about these entities would use the authorized access point from the corresponding authority record. If a patron wanted to find all resources authored by Dr. Seuss, the catalog display would direct them to use the form "Seuss, Dr." since that is the form used in the authorized access point. Results in the catalog could also direct the patron to search under other alternate identities including "Geisel, Theodor Seuss,~~

1904-“ to make sure they find all materials by this person. The catalog could also support searches for materials by “Geisel, Theodor, Seuss, 1904-“ that direct the patron to search also under “Seuss, Dr.” (see Figure 7). attributed to Steve Jobs or about Steve Jobs will include the form of his name found in the 1XX field of the authority record as a heading in the bibliographic record (see Figure 4). The authority record for Apple, Inc. includes a link to Steve Jobs as the founder of the corporate body (see Figure 3). The ILS does the work to index and collocate these related records for later search and retrieval. The library catalog or discovery system that a library uses to help patrons search, browse, and discover information resources can utilize the information recorded in the authority record to collocate materials with bibliographic metadata that shares the same authorized headings, direct patrons from variant forms and terms to the authorized form, and disambiguate similar headings in search results (see Figures 6-7).

[Figure 6 near here]

[Figure 7 near here]

Cooperative authority databases

A library’s local authority database stands in contrast to cooperative (or aggregate) authority databases maintained on a regional, national, or international scale. Libraries can participate in cooperative cataloging programs allowing them access to a pool of shared authority records as well as ~~the allowing them~~ability to contribute new or updated records to the shared database.

Cooperative cataloging programs provide participating libraries documentation and policies clarifying how to apply metadata content standards when contributing authority records to the authority database. ~~The Library of Congress~~LC’s Program for Cooperative Cataloging (PCC) maintains various cooperative cataloging initiatives including the Name Authority Cooperative Program (NACO) and the Subject Authority Cooperative Program (SACO). These two programs

create and maintain a shared national database of authority records that can be leveraged by libraries in the creation and maintenance of their own local catalogs. Libraries ~~participating in these cooperative programs~~ can automate the integration of~~bringing~~ records from the shared cooperative databases into their local authority database whether they participate in the programs or not.

~~Learning how to perform authority work is more often accomplished on the job than in library school, especially to the level of competence that is required to effectively maintain good authority control.²² This can be achieved through a combination of in-house training, attendance at workshops or online trainings, staying up to date on library literature related to authority control, and regular, practical application through mentored authority work during cataloging activities.²³~~

Automated authority control

Many libraries use vendors to obtain authority records and to purchase authority control services as means of automating the clean up of headings-access points in their bibliographic database and the maintenance of their local authority file. Due to the labor-intensive nature of authority control, outsourcing some of this work can increase efficiency and control costs.²⁴ The number of options for outsourcing authority control services has decreased in recent years to a handful of vendors,²⁵ the majority of which provide similar services. When a library is shopping for an authority control vendor, a formal request for proposal (RFP) may be issued, allowing ~~for~~ vendors to respond to the library's listed requirements and formally bid their services for comparison. However, a simple price quote request may be sufficient for the library's needs, as long as there is thorough communication between the library and each potential vendor about the specific services that will be included and documentation of these options.

Once a vendor has been selected, the library works with an assigned project manager
representative from the vendor to develop a project profile which documents the library's
selections on a number of processing options related to file transfer, bibliographic record cleanup
and enrichment, bibliographic heading access point and authority file matching, record output,
and reporting.²⁶ Processing samples can usually be requested before or after contract signing to
establish expectations for the results of the desired service.

Automated authority control processing of the library's full bibliographic database
establishes a master or base file. The library's bibliographic headings access points are cleaned
up and normalized in preparation for matching against the selected authority files, especially the
NACOLibrary of Congress Name Authority File (NAF)s and Library of Congress Subject
Headings (LCSH)s. If an heading access point matches the 1XX or 4XX from an authority
record, the authorized form will be inserted into the bibliographic record and the authority record
will be included in the output files. While this is primarily an automated matching process,
sometimes human oversight is required to detect and correct false matches. The library then
receives a cleaned up file of their bibliographic records and all the associated authority records to
load into their ILS. Customizable reports are also included, allowing libraries to follow up the
automated processing with any needed manual review for headings access points that could not
be confidently matched by the machine. This maximizes the benefits of an automated authority
control workflow while allowing library staff to focus their efforts on the authority work that
most needs their expert evaluation.

Optional ongoing services can also be contracted for continued automated maintenance
of the library's authority file. Bibliographic records that have been added to the library's
database since the original base file processing are sent to the vendor to undergo the same

process. Vendors may also provide periodic reports and MARC extracts of the authority records which have changed since the library's last processing.

For many libraries, outsourced automation of authority control is a routine aspect of technical services work. With the changing landscape of metadata tools, shrinking cataloging departments, and evolving library collections, some libraries are developing methods for automating authority control in-house, using MarcEdit, SQL queries, and batch processing.²⁷ For programming-savvy librarians, these methods can be worthwhile to explore. Another potential new trend is the provision of authority control within the ILS itself, as debuted by Ex Libris' Alma.²⁸ If other library systems begin offering built-in authority control functionality, vended authority control may become a less common workflow.

Importance of authority control

The importance of authority control lies in its ability to support users' information retrieval needs through the establishment and maintenance of authorized terms in the authority file acting as a controlled vocabulary with consistent, reliable, and unique terms access points. This brings precision to searches and collocates related materials in results lists. The structure of authority records with cross references and hierarchically related terms access points collocates works on the same topic and improves navigation between related concepts. Through the use of access points, it also allows for linking between library resources and other tools, especially online.²⁹ End users benefit from the predictability of consistent naming and more precise results.

Library staff also benefit from the consistent application of authority control practices within the catalog. Whenever an item needs to be added to the catalog that has the same author as another work already cataloged, the time spent describing the new item by the cataloger is decreased if the name has already been established in the library's authority file. Maintaining a

current copy of authority records in the local file is important. Outsourcing the portion of authority control work that can be automated can improve catalogers' time and resource management,³⁰ allowing catalogers to spend their limited time on the portion of authority work that requires their especial expertise. Establishing entities in a prescribed and structured way ensures that both catalogers and patrons know how to differentiate between similar entities when cataloging or searching the library catalog for information resources.

~~Barbara Tillett explained the essential nature of authority control within libraries over three decades ago, stating "In order to accomplish the finding and gathering functions, the catalog must have authority control. Authority control is inherent to a catalog and without it, a file cannot be considered a catalog."³¹ Technical services librarians today must be just as passionate about this essential function of their jobs when communicating with administrators about authority control to ensure continued support for this work.~~

Beyond the library catalog

Authority control for archives

Libraries ~~may often~~ need to consider how archival authority structures complement bibliographic authority records and how these can work together in their discovery system. Many libraries, especially within academic institutions, coexist with archives, which often means that bibliographic records for traditional library materials must also commingle with descriptions of archival materials, whether within the library catalog, through a discovery layer, or in other applications. Finding aids are a common discovery tool used to describe archival and manuscript collections. This description can be hierarchical in nature, often divided into related records within series and sub-series, and sometimes described down to the item level, allowing for relationships between materials within the collection to be preserved and contextual information

to be demonstrated. While collection-level MARC records for archival materials may reside in the library catalog to allow for both books and related archival materials to ~~both~~ be found within the same information search, the finding aid remains “the preferred method for describing archival materials.”³²³³ Finding aids generally reside outside of the library catalog in another description platform such as an archival management system like ArchivesSpace or in a web-based discovery tool.

Authority work for archival materials must often be undertaken in multiple realms. The collection description in the library catalog will usually conform to traditional library authority control procedures and utilize authorized terms-access points from library authority thesauri. The corresponding archival description within the library’s finding aids database also benefits from authority control. Archival authority records describe persons, families, and corporate entities associated with a body of archival materials and may be created utilizing the content standard in Part II of *Describing Archives: A Content Standard* (DACS)³⁴, supported through the structural standard Encoded Archival Context-Corporate Bodies, Persons, and Families (EAC-CPF).

The relationship between archival authorities and library authorities has evolved in recent decades, as the concept of “context control” comes to fruition, especially through the archival authority record’s inclusion of “administrative histories and biographical sketches of organizations or individuals who create records” and its documentation of “the relationships between records creators and the records themselves.”³⁵ One noteworthy development in the realm of archival authorities is the international cooperative program Social Network and Archival Context (SNAC), which matches archival authority records from various institutions against the Library of Congress Name Authority File NAF and other sources of authorities to merge records for the same entities. This allows for archival authority descriptions to be linked

with related archive, library and museum resources, demonstrating the power of coordination between library and archival authority control practices.³⁶

Digital collections and institutional repositories

Information retrieval in other areas outside the bibliographic realm also greatly relies ~~just as heavily~~ on the consistent presentation of names and subjects in their databases. Digital collection metadata is an example of another data repository for which authority control should be considered important.³⁷ Description records for digital objects may be included alongside bibliographic catalog records in discovery layer results lists. The form and choice of access points (i.e., author, subject, title, etc.) ~~Names and subjects need to~~ should be consistent across platforms in order to enhance discoverability and meet user expectation, especially in regard to ~~enable~~ bringing together descriptions of physical library materials with a digitized version of the same items. Institutional repositories are another area that may benefit from consideration of authority control within the context of a library's ~~authority control~~ workflows and procedures, particularly since the lack of consistency in name forms in such systems "inhibits retrieval of items by a single author."³⁸

Issues and trends

Authorized ~~headings~~ access points as facets

Advances in computer and networking technologies, including the move towards linked data and Ssemantic web ~~Web~~, are influencing the evolution of cataloging and authority control. The use of lexical or keyword searching in library catalogs and discovery systems has pushed metadata creators and stewards towards viewing these authorized ~~terms~~ access points used in bibliographic description as facets³⁹ that discovery tools can surface to patrons for filtering and improving information retrieval. The controlled vocabulary Faceted Application of Subject Terminology

(FAST)⁴⁰ developed by OCLC is one example of this trend towards leveraging authorized ~~terms~~ access points as facets. As a controlled vocabulary for subject analysis derived from ~~the Library of Congress Subject Headings (LCSH)~~,⁴¹ FAST aims to simplify the control, use, and navigation of subject ~~headings~~access points. Using FAST headings in bibliographic metadata enables easier indexing and display in discovery systems for use by patrons during the information retrieval process.⁴²

Federated ~~a~~Authority ~~D~~databases

Computing and networking technologies enable a network of authority files and databases that are increasingly interconnected and open. The Virtual International Authority File (VIAF)⁴³ is an authority aggregator that collects established authorities from various authority databases throughout the world. This service provides a portal for librarians and information scientists to identify established authorities for personal, corporate, and geographic names as well as works, expressions, and bibliographic titles. VIAF also enables reconciliation services to disambiguate between those entities.

Another service receiving increased attention within cataloging and metadata communities is Wikidata from the Wikimedia Foundation.⁴⁴ Wikidata is a core service of the ~~Web~~WW and the ~~semantic~~Semantic web~~Web~~⁴⁵ that enables establishing and interlinking entities between various authority databases and services to more fully describe and disambiguate people, places, works, subjects, and genres. Similar to VIAF, it provides a portal for bringing together the various authorized forms and identifiers of an entity to a single location for reference and use.⁴⁶ For an example, see the Wikidata entry for William Shakespeare (<https://www.wikidata.org/wiki/Q692>). Adding the unique ~~identifier for~~ Wikidata identifier to a library authority record~~file~~ provides access to other authority sources that could help library staff

and patrons uniquely identify entities for their work and research.⁴⁷ ~~The Library of Congress~~LC's Linked Data Service⁴⁸ is an example of a national institution providing access to their authority metadata for use by catalogers as well as developers working on library metadata systems and discovery tools.

These and oOther services aid catalogers in uniquely identifying authors and their creations. Open Researcher and Contributor ID (ORCID)⁴⁹ is a service that allows scientific and academic authors and contributors to uniquely identify themselves regardless of how their name is referenced in a publication so that their creative works are correctly attributed and collated together. This service acts as a form of authority control to disambiguate authors and their scholarly contributions. Additionally, ISNI⁵⁰ is an international standard identifier provider and service to establish permanent and unique identifiers for the names of creators across multiple domains. This service allows individuals and organizations to establish an ISNI identifier and as well as provides a searchable database for identifier lookup. ~~Finally, domain-specific services like IMDb⁵¹ and MusicBrainz⁵² provide persistent, unique identifiers for entities related to specific resource formats like film and music~~Federated authority databases assist the cataloger in uniquely identifying entities and connecting resources from an individual library database with the broader library community.

Linked dData

Developed from the early 2000s, linked data and the sSemantic Wweb⁵³ are technologies and best practices for publishing data on the WebWW. Central to these technologies and best practices is the use of Uniform Resource Identifiers (URIs)⁵⁴ to uniquely identify an entity rather than relying on the string representation (or label) for a given entity.⁵⁵ Building on the URI protocol are International Resource Identifiers (IRIs)⁵⁶ that expand the allowable set of

characters used in a resource identifier. The use of URIs and IRIs in authority work ~~within a library setting~~ is ~~an increasing-growing~~ trend to facilitate more implicit linking of entities to other datasets, data repositories, and catalogs that exist online. For example, recent updates to the RDA Toolkit seek to improve integration with linked data environments by increasing the use of IRIs and adding new entities and elements that are aligned with linked data best practices. Some authority control vendors include ~~an~~ URI/IRI enrichment option to their services to facilitate this linking work. These links will enable a graph of linked entities that can be related and traversed in ways that reveal new paths of knowledge and understanding that were not present previously. To form an accurate knowledge graph requires differentiated and unique entities and relationships between entities. While authority control is primarily focused on managing access to entities by authorizing a specific form of a name, title, or topic, identity management prioritizes assigning unique identifiers to a single entity over differentiation of names. The move towards linked data and the Semantic Web ~~These services and technologies support the move to~~ broadens and expands the role of authority control from ~~determiningbeing~~ discrete ~~headings~~ access points used ~~as part of cataloging and in~~ bibliographic description ~~totowards thinking of~~ cataloging as a process of creating and managing entities and their relationships to other entitiesidentity. The evolution from authority control to entity and identity management ~~Following this trend~~ blurs the lines between ~~cataloging-bibliographic description~~ and authority work.

Ethical authority control practice

In addition to staying informed about technological changes and the opportunities they present, catalogers must also remain aware of ethical issues associated with authority control ~~developments within other areas in the field~~. Catalogers are increasingly cognizant ~~aware~~

of the significant power they have in the creation of personal name authority records, as they determine how a creator will be described in the authority record. While differentiation is an important aspect of authority work, careful consideration must be employed in determining which of several possible forms of a name should be used as the authorized ~~form~~ access point by which an individual will be known within the database and in selecting the key descriptors to include in authority records. ~~What should be done when an author does not want to be named or to have certain information about themselves revealed? How can historically marginalized individuals be recognized for their contributions to works when little information is known about them? Should persons with multiple intentionally separate identities have those identities combined into a single authority record?~~ Two main areas of authority work that are impacted by ethical concerns center around the creation of name authorities and the use and selection of subjects.

Many ethical issues faced by catalogers in creating, maintaining, and using name authority records surround the issues of privacy and safety. Consider, for example, the ethical issues that may come into play when doing name authority work for the creator of a zine, which is a low-distribution, self-published booklet generally used to convey personal experiences, information, or interests. Because zines may contain sensitive or very personal information, some zine creators do not want their identity known, or they may only use a partial name or a pseudonym. While the cataloger may feel the responsibility to do further research about a particular zine creator in order to connect all resources they have authored, being aware of the environments in which zines are created and distributed necessitates caution. The Zine Librarians Code of Ethics includes guidelines for identifying and creating authority records for zine creators which emphasize respecting their privacy and not exposing legal identities of zine creators when

not explicitly found in the zines themselves.⁵⁷ Name authority work also requires consideration of the safety of the subject of the name authority record when recording characteristics of the individual authors themselves. For example, the option to include gender terms in authority records has raised concerns from the library community about outing transgender and gender diverse individuals. While the Program for Cooperative Cataloging Ad Hoc Task Group on Gender in Name Authority Records published a report in 2016 to suggest best practices for recording gender, the discussion is still ongoing, with the issues of self-determination and consent at its core.⁵⁸ These and many other issues require the intentional and thoughtful practice of ethical name authority work.⁵⁹

Ethical concerns also come into play when catalogers are assigning subject terms, especially with relation to bias within subject lists. Subject authority records identify the preferred access point for the topical coverage of the information resource being described. The LCSH is a controlled vocabulary for subject description, based on LC's subject authority records. As the source of subject terms most widely used in American libraries, the LCSH is nevertheless known to contain biases that categorize library resources from an American and Western perspective, assuming that patrons searching the catalog will more likely be male, Christian, white, and heterosexual.⁶⁰ One example of a biased term in the LCSH is the problematic phrase "illegal aliens," which is used to describe undocumented immigrants. The use of this subject heading in Dartmouth College's library catalog spurred students and librarians in 2014 to formally request that LC change the subject heading. After an initial rejection of the proposal, LC ultimately affirmed that they would remove "illegal aliens" from the controlled vocabulary and replace it with two new terms "noncitizens" and "unauthorized immigration." This announcement, however, spurred opposition within Congress. The activism surrounding the

bias in this subject access point is documented in a film titled *Change the Subject*.⁶¹ While LC has still not made the change within LCSH, many libraries are opting to employ more ethical practice in their cataloging through implementing the use of alternate language such as “undocumented immigrants” or “noncitizens” within their local databases.⁶²

Bias in subject headings may sometimes be mitigated through the use of decentralized vocabularies. In the case of the development of the First Nations House of Learning (FNHL) Subject Headings, librarians acknowledged the potential harm to library users in applying LCSH subject terms for Indigenous materials, due to the lack of representation of Indigenous diversity and its misrepresentation of some concepts. The FNHL Subject Headings seeks to incorporate accurate Aboriginal names, respecting self-representation of “individuals, collectives, and their concepts.”⁶³

As practitioners grapple with these challenging decisions in their authority work, important conversations are emerging in academic literature, conferences, forums, committees, and working groups. ~~A significant monograph edited by Jane Sandberg, *Ethical Questions in Name Authority Control*, builds on previous ethical discussions in library literature to provide an ethical framework for the library community. Chapters explore such issues as self-determination, privacy, the impacts of colonialism, gender variance, transgender identities, the impacts of emerging technologies, and suggestions for how to solve some of the ethical challenges in this work.~~⁶⁴ To bolster the development of each individual cataloger’s judgement, the library community is working toward the provision of better institutional guidance for the ethical application of cataloging principles. The Cataloging Ethics Steering Committee is a new international committee that is developing a code of ethics for catalogers which will address key issues (see <https://sites.google.com/view/cataloging-ethics/home>). Another resource produced by

this committee is a growing cataloging ethics bibliography, providing catalogers a comprehensive curriculum for developing their awareness of the issues at stake and practical solutions for scenarios they may encounter in their work.⁶⁵ Keeping abreast of the evolution of ethical authority control practice through a studying study of the literature, participating in community developments, and applying ethical principles as they are learned will ensure catalogers have the understanding necessary to ethically provide library users with richly connected resources and useful information about the creators of those works.

Into the future

Various initiatives and pilot projects look to shape the future of authority control and identity management. Directed by the Library of Congress LC and contracted with Zepheira, BIBFRAME⁶⁶ represents the a potential future of bibliographic description that is increasingly plugged into the world of the Ssemantic web-Web and linked data. BIBFRAME is a new encoding standard for bibliographic metadata and description that is aimed at replacing the current MARC 21 format. It promises improved interoperability for cooperative cataloging and sharing as well as connecting to broader non-library WebWW communities. The development of BIBFRAME and other related linked data efforts represents a move away from thinking of bibliographic and authority metadata as carefully crafted records toward a focus on each element or attribute in a metadata record as data that can be combined and mixed in varying ways and levels not typical with current bibliographic description library metadata. This trend towards The atomization of bibliographic description metadata records requires more reliance on authority control that is designed to provide consistent, predictable library metadata.

The Linked Data for Libraries (LD4L)⁶⁷ set of initiatives and grants represents s the efforts of major academic institutions, along with the Library of Congress LC and the PCC, to develop

guidelines for implementing the future of catalog metadata and description with BIBFRAME at its center in a shared, cooperative library community. Practical efforts center around catalog metadata creation, indexing, searching, and display as well as how larger ~~WebWW~~ communities like Wikidata connect to these efforts. How authority control will inform and shape this work is an area of future research and exploration.⁶⁸

Recent pilot projects have the potential to shape the future of authority control and authority metadata. The PCC URIs in MARC records pilot⁶⁹ initiated by ~~the Library of Congress~~LC and the PCC explores applying principles of linked data and the ~~Ssemantic web~~Web to more consistent and pervasive identifier creation and identity maintenance. The use of ~~these standard~~ identifiers enables connecting ~~traditionally-siloed~~ library metadata to the larger ~~WebWW~~ and ~~semantic-Semantic web-Web~~ communities. For example, the person entity Gottardo Aldighieri is represented in Wikidata (Q550288⁷⁰), ISNI (0000000109223014⁷¹), and VIAF (87359638⁷²). These identifiers can be included in an authority record for this person. These services in turn could include a link to the same entity in an existing cooperative authority database. The PCC Wikidata pilot⁷³ is exploring the future of identity management by looking at Wikidata both as a source for authority metadata that could enrich existing library metadata and serve as a location for publishing existing authority and bibliographic metadata that would benefit library and non-library communities alike. The shared entity management infrastructure project⁷⁴ is ~~a-project~~ being developed by OCLC and partners within the library community to create a persistent, shared, and centralized system for managing identifiers and metadata for library information resources. This project aims to create an authoritative database of library metadata to connect library collections to communities and resources on the larger ~~WebWW~~ and ~~semantic-Semantic web-Web~~. Just as authority control has evolved and adapted with past

technology developments, these projects and efforts will continue to press forward in improving the creation, maintenance, and discovery of information resources.

Conclusion

With many changes on the horizon, the future of authority control practice will continue to evolve. The interconnected network of libraries, vendors, databases, and services that make up the authority control landscape of today, however, are supported by a foundation of principles and purposes that remain the same. Through good authority control practice, as uniformity and consistency of name, title, and subject access points is established and cross-references are included, the library database is better equipped to serve as a retrieval tool for materials by, about, or otherwise related to the subject of the patron's information search.

Cataloging students may receive basic instructions on authority control in beginning or advanced cataloging courses, but learning how to perform authority work is more often accomplished on the job than in library school, especially to the level of competence that is required to effectively maintain good authority control.⁷⁵ This expertise can be achieved through a combination of in-house training instruction, attendance at workshops or online trainings, staying up to date on library literature related to authority control, and regular, practical application through mentored authority work during cataloging activities.⁷⁶

Technical services librarians who are emerging from library school and entering the field today and others who want to refresh their knowledge require a practical understanding of the underlying principles of authority control and how their work impacts the library user's experience with information resource discovery.

This article has sought to provide a foundational introduction to authority control, couched in the overall context of cataloging. With a basic knowledge of the history of authority

control and a new understanding of the principles of current authority control practice, including both the content and encoding metadata standards that underpin the creation of authority records, readers have an introduction to authority control that can be built upon through a deeper exploration of the various issues and trends touched on in this paper. All librarians benefit from understanding that the relevance of library databases in meeting patrons' information needs relies upon authority work well performed and library metadata systems that capitalize on standardized, unique, and connected access points.

~~As a continually growing and changing database, the library's catalog requires ongoing maintenance, especially through disciplined authority control practice. While the work can be time-consuming and intellectually demanding, the pay-off for the user experience is incalculable. The authority control landscape is an interconnected network of libraries, vendors, databases, and services (see Figure 8). Library patrons of today expect seamless information retrieval and sophisticated navigation. Correct application of authority control best practices assists catalogers in meeting these needs, while connecting users to the most relevant resources for their information search.~~

Notes

¹ Daniel N. Joudrey, Arlene G. Taylor, and David P. Miller, *Introduction to Cataloging and Classification*, 11th ed. (Santa Barbara, California: Libraries Unlimited, 2015): 16.

² Barbara B. Tillett, "Considerations for Authority Control in the Online Environment," *Cataloging & Classification Quarterly* 9, no. 3 (1989): 2, http://dx.doi.org/10.1300/J104v09n03_01.

³ Doris Hargrett Clack, *Authority Control: Principles, Applications, and Instructions* (Chicago: American Library Association, 1990): 1.

⁴ ~~Commonly referred to as “data about data,” metadata is the sum total of what one can say about a given information object at any level of aggregation recorded in a structured form~~⁵; see also ABC CLIO, “Metadata,” *Online Dictionary for Library and Information Science*, October 2, 2020, https://products.abc-clio.com/ODLIS/odlis_m.aspx#metadata.

⁵ Robert L. Maxwell, *Maxwell’s Guide to Authority Work* (Chicago: American Library Association, 2002), 1.

⁶ Daniel N. Joudrey, Arlene G. Taylor, and David P. Miller, *Introduction to Cataloging and Classification*, 11th ed. (Santa Barbara, California: Libraries Unlimited, 2015): 7.

⁷ Seymour Lubetzky, “Panizzi vs the ‘Finding Catalog’,” *Journal of Cataloging and Classification* 12, no. 3 (1956): 152-156³.

⁸ Charles A. Cutter, *Rules for a Printed Dictionary Catalog* (Washington: Government Printing Office, 1876), 10.

⁹ Larry Auld, “Authority Control: An Eighty-Year Review,” *Library Resources & Technical Services* 26, no. 4 (1982): 320.

¹⁰ Seymour Lubetzky, *Principles of Cataloging. Final Report. Phase I: Descriptive Cataloging* (Los Angeles: Institute of Library Research, University of California, 1969), <https://eric.ed.gov/?id=ED031273>.

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¹² Pino Buizza, “Bibliographic Control and Authority Control from Paris Principles to the Present,” *Cataloging & Classification Quarterly* 38, no. 3-4 (2004): 118.

¹³~~Seymour Lubetzky, *Principles of Cataloging: Final Report. Phase I: Descriptive Cataloging* (Los Angeles: Institute of Library Research, University of California, 1969),
<https://eric.ed.gov/?id=ED031273>.~~

¹⁴ Larry Auld, “Authority Control: An Eighty-Year Review,” *Library Resources & Technical Services* 26, no. 4 (1982): 326.

¹⁵~~Machine-Readable Cataloging record.~~

¹⁶ Library of Congress, “MARC Standards,” October 2, 2020, <http://www.loc.gov/marc/>.

¹⁷ Library of Congress, *The Card Catalog* (San Francisco: Chronicle Books, 2017), 152.

¹⁸ Larry Auld, “Authority Control: An Eighty-Year Review,” *Library Resources & Technical Services* 26, no. 4 (1982): 323-25.

¹⁹ RDA Steering Committee, “Welcome to RDA Toolkit,” December 20, 2020,
<https://access.rdatoolkit.org>.

²⁰ Library of Congress, “Understanding MARC Authority Records: Machine-Readable Cataloging,” August 25, 2020, <https://www.loc.gov/marc/uma>; Library of Congress, “MARC 21 Format for Authority Data,” August 25, 2020, <https://www.loc.gov/marc/authority/>.

²¹ Library of Congress, “MARC 21 Reference Materials,” August 25, 2020,
<https://www.loc.gov/marc/uma/pt12.html#pt12>; Library of Congress, “Appendix B - Full Record Examples,” August, 25, 2020, <https://www.loc.gov/marc/authority/examples.html>

²²~~Rebecca L. Mugridge and Kevin A. Furniss, “Education for Authority Control: Whose Responsibility is it?” *Cataloging & Classification Quarterly* 34, no. 1-2 (2002): 235,
https://dx.doi.org/10.1300/j104v34n01_14.~~

²³~~A good starting place for those seeking training in authority work is the PCC NACO training site (<https://www.loc.gov/aba/pcc/naco/training/>). Textbooks like *Maxwell’s Guide to Authority*~~

~~Work (Chicago: American Library Association, 2002) can also provide a basis for the principles and practices that must be learned. Familiarizing oneself with *Descriptive Cataloging Manual* instructions for name and series authority records (DCM Z1) is also recommended (Library of Congress, "Descriptive Cataloging Manual, Z1," October 5, 2020, <https://www.loc.gov/catdir/cpsd/dcmz1.pdf>). Many workshops and classes are available for catalogers seeking to learn, especially through library associations and consortia and online courses such as those offered through Library Juice Academy.~~

²⁴ Sherry L. Vellucci, "Commercial Services for Providing Authority Control: Outsourcing the Process," *Cataloging & Classification Quarterly* 39, no. 1-2 (2004): 445, https://doi.org/10.1300/j104v39n01_12.

²⁵ Rebecca L. Mugridge, Rebecca Nous, Nancy Poehlmann and Wendy West, "Benchmarking Vended Authority Control Practices in ARL Libraries," *Technical Services Quarterly* 35, no. 4 (2018): 333, <https://doi.org/10.1080/07317131.2018.1509432>.

²⁶ Backstage Library Works, "Profile Guide," October 1, 2020, https://ac.bslw.com/community/wiki/index.php/Profile_Guide.

²⁷ Mike Monaco, "Methods for In-Sourcing Authority Control with MarcEdit, SQL, and Regular Expressions," *Journal of Library Metadata* 20, no. 1 (2020): 1-27, <https://doi.org/10.1080/19386389.2019.1703497>.

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³⁰ Susan L. Tsui and Carole F. Hinders, “Cost-Effectiveness and Benefits of Outsourcing Authority Control,” *Cataloging & Classification Quarterly* 26, no. 4 (1999): 44, http://dx.doi.org/10.1300/J104v26n04_04.

~~³¹ Barbara B. Tillett, “Considerations for Authority Control in the Online Environment,” *Cataloging & Classification Quarterly* 9, no. 3 (1989): 2, http://dx.doi.org/10.1300/J104v09n03_01.~~

³² Michelle Sweetser and Alexandra A. A. Orchard, “Are We Coming Together? The Archival Descriptive Landscape and the Roles of Archivist and Cataloger,” *The American Archivist* 82, no. 2 (2019): 336, <https://doi.org/10.17723/aarc-82-02-18>.

~~³³ Finding aids contain a hierarchical description of the collection, often divided into related records within series and sub-series, and sometimes described down to the item level, allowing for relationships between materials within the collection to be preserved and contextual information to be demonstrated.~~

³⁴ *Describing Archives: A Content Standard*, 2nd ed. (Chicago: Society of American Archivists, 2013).

³⁵ Jean Dryden, “From Authority Control to Context Control,” *Journal of Archival Organization* 5, no. 1/2 (2007): 4, https://doi.org/10.1300/j201v05n01_01.

³⁶ Aranzazu Lafuente Urién, “Archival authority control: an introduction to Encoded Archival Context for Corporate Bodies, Persons and Families (EAC-CPF),” *APEX*, July 14, 2014September 20, 2020, <http://www.apex-project.eu/index.php/en/articles/184-archival->

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[1115-web-version/](http://zinelibraries.info/2016/05/30/code-of-ethics-1115-web-version/).

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⁷⁶ A good starting place for those seeking training in authority work is the PCC NACO training site (<https://www.loc.gov/aba/pcc/naco/training/>). Textbooks like *Maxwell's Guide to Authority Work* (Chicago: American Library Association, 2002) can also provide a basis for the principles and practices that must be learned. Familiarizing oneself with *Descriptive Cataloging Manual*

instructions for name and series authority records (DCM Z1) is also recommended (Library of Congress, “Descriptive Cataloging Manual, Z1,” October 5, 2020, <https://www.loc.gov/catdir/cpsd/dcmz1.pdf>). Many workshops and classes are available for catalogers seeking to learn, especially through library associations and consortia and online courses such as those offered through Library Juice Academy.

Figures and captions

Figure 1. A physical card from a library catalog describing *The rhetoric of Western thought* by James L. Golden. Card catalogs and other physical listings of library holdings were in general use during the 20th century, until electronic catalogs became commonplace in most American libraries. In this example, access points for the author and other intellectual contributors and subject terms are included in the top and bottom sections of the card.

Figure 2. A list of people that share the name "James Stewart." Authority control differentiates entities that share the same name.

Figure 3. A list of the kinds of fields used in an authority record. The highlighted heading field is expanded to show the kinds of headings represented by the final two characters in the 1XX heading. For more information see Library of Congress, "What is a MARC authority record?," October 5, 2020. <http://www.loc.gov/marc/uma/pt1-7.html#pt4>

Figure 4. An example MARC authority record highlighting the key parts of the record.

Figure 5. An example bibliographic record for the collection of poems by Leslie Norris entitled *Recollections*. The highlighted fields show the authorized access points established in the library catalog's authority database.

Figure 6. Dr. Seuss represents a pseudonym for Theodor Seuss Geisel. These two authority records for Dr. Seuss and Theodor Seuss Geisel show how links are formed between entities in an authority database.

Figure 7. Example catalog searches showing how a patron is directed to search for resources using alternate identities defined within the authority database.

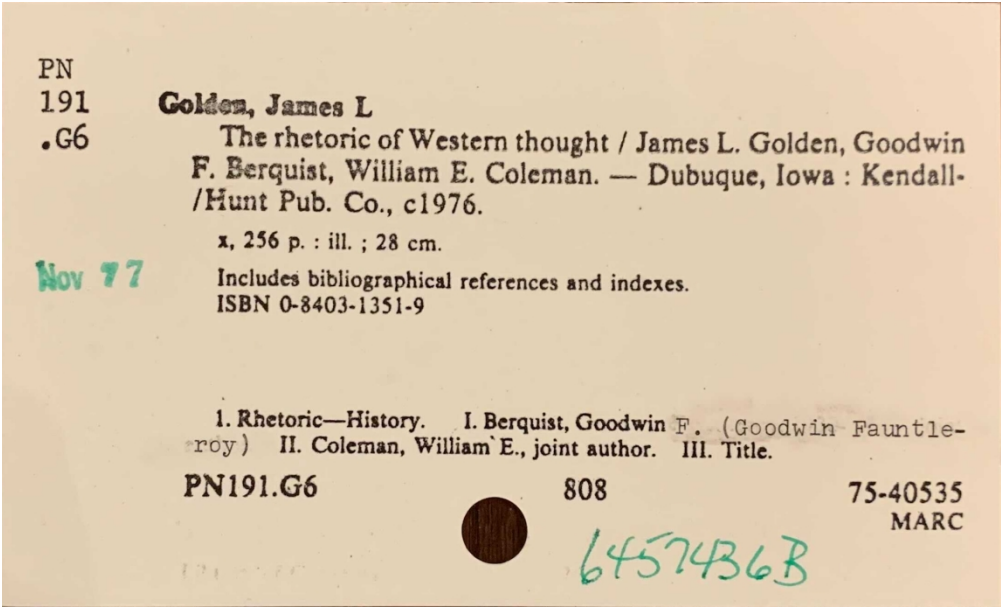


Figure 1. A physical card from a library catalog describing The rhetoric of Western thought by James L. Golden. Card catalogs and other physical listings of library holdings were in general use during the 20th century, until electronic catalogs became commonplace in most American libraries. In this example, access points for the author and other intellectual contributors and subject terms are included in the top and bottom sections of the card.

177x107mm (300 x 300 DPI)

Stewart, James, 1805-1860
Stewart, James, 1908-1997
Stewart, James, 1941-
Stewart, James, 1954-
Stewart, James (Composer)
Stewart, James (Hairdresser)
Stewart, James (Interviewer)
Stewart, James (Judge)
Stewart, James, lieutenant
Stewart, James, of Trinity Chapel, Paisley
Stewart, James, Sir, 1635-1713
Stewart, James, Sr., -1747
Stewart, James, writer in Edinburgh

Figure 2. A list of people that share the name "James Stewart." Authority control differentiates entities that share the same name.

127x88mm (300 x 300 DPI)

Field	Definition
0XX	Identifiers, classification numbers, codes, dates
1XX	Authorized access point
3XX	Associated attributes
4XX	Variant access points ("See from" references)
5XX	Related access points ("See also from" references)
6XX	Notes
7XX	Linking access points
8XX	Other variable fields
9XX	Reserved for local implementation

X00	Personal names
X10	Corporate names
X11	Meeting names
X30	Uniform titles
X48	Chronological terms
X50	Topical terms
X51	Geographic names
X55	Genre/form terms

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127x114mm (300 x 300 DPI)

Field	Indicators	Subfield data
LDR		01239cz a2200325n 4500
001		2796627
005		20151031073911.0
008		800408n\azannaabn\//////////a\aaa\/////
010	- -	\$a n 50006416
035	- -	\$a (OCoLC)oca00041963
040	- -	\$a DLC \$b eng \$e rda \$c DLC \$d DLC \$d OCoLC \$d DLC \$d UPB
046	- -	\$f 1921-05-21 \$g 2006-04-06 \$2 edtf
053	- 0	\$a PR6027.O44
100	1 -	\$a Norris, Leslie, \$d 1921-2006
370	- -	\$a Wales \$b Orem (Utah) \$2 naf
373	- -	\$a Brigham Young University \$2 naf
374	- -	\$a Poet \$2 itoamc
374	- -	\$a Poets \$2 lcsh
374	- -	\$a Teacher \$2 itoamc
374	- -	\$a College teachers \$2 lcsh
375	- -	\$a male
377	- -	\$a eng
378	- -	\$q George Leslie
400	1 -	\$a Norris, George Leslie, \$d 1921-2006
510	2 -	\$w r \$i Employer: \$a Brigham Young University
670	- -	\$a His Selected poems, 1986: \$b t.p. (Leslie Norris) p. 4 of cover (b. 1921)
670	- -	\$a Auth. & writer's who's who, 1972 \$b (Norris, Leslie; b. 1921)
670	- -	\$a New York times WWW site, Apr. 12, 2006 \$b (Leslie Norris; b. George Leslie Norris, May 21, 1921, Wales; d. Thursday [Apr. 6, 2006], Orem, Utah, aged 84; noted poet who most recently was a professor and emeritus poet in residence at Brigham Young University)
952	- -	\$a RETRO
953	- -	\$a xx00 \$b v109

Authorized access point

Associated attributes

Variant access point

Related access point

Source information

Figure 4. An example MARC authority record highlighting the key parts of the record.

127x177mm (300 x 300 DPI)

Figure 5. An example bibliographic record for the collection of poems by Leslie Norris entitled *Recollections*. The highlighted fields show the authorized access points established in the library catalog's authority database.

URL: <http://mc.manuscriptcentral.com/wccg> Email: sandykroe@gmail.com

<i>Authority Record A</i>	<i>Authority Record B</i>
Authorized access point	Authorized access point
Seuss, Dr.	Geisel, Theodor Seuss, 1904-1991
Variant access point	Variant access point
Dr. Seuss	Geisel, Ted, 1904-1991
Related access point (alternate identity)	Related access point (alternate identity)
Geisel, Theodor Seuss, 1904-1991	Seuss, Dr.
Public note	Public note
For works of this author written in collaboration with Michael K. Frith, search also under Stone, Rosetta, 1904-1991. For works of this author entered under other names, search also under Geisel, Theodor Seuss, 1904- and LeSieg, Theo., 1904-.	Works by this author are entered under the name used in the item. For a listing of other names used by this author, search also under Seuss, Dr.

Figure 6. Dr. Seuss represents a pseudonym for Theodor Seuss Geisel. These two authority records for Dr. Seuss and Theodor Seuss Geisel show how links are formed between entities in an authority database.

127x69mm (300 x 300 DPI)

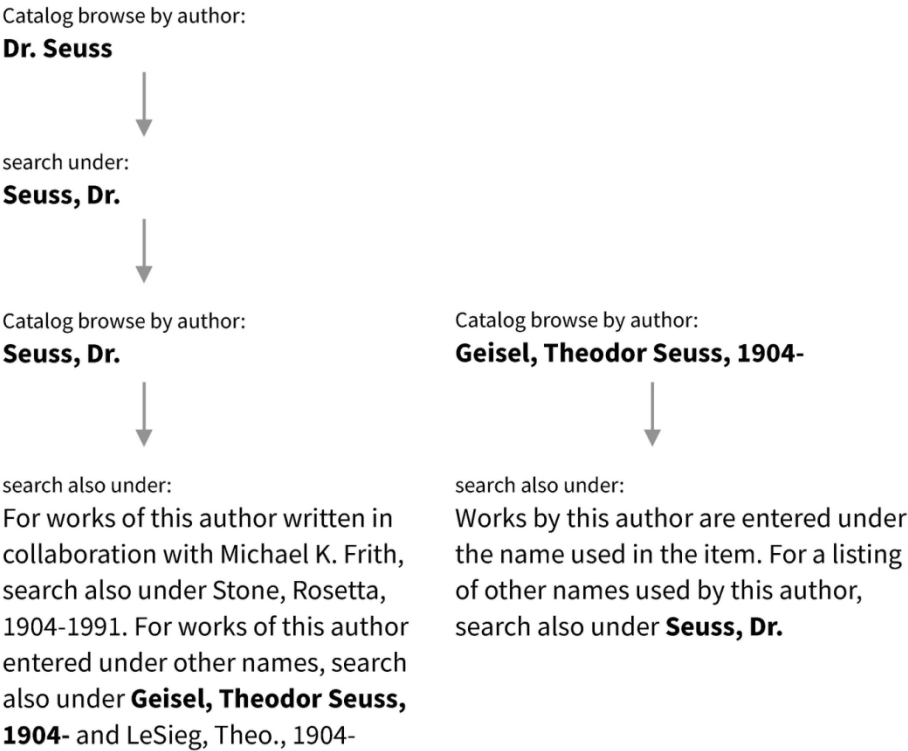


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127x114mm (300 x 300 DPI)