

Authority Control: An Alternative to the Record Group Concept

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Abstract: Current archival practice in the United States grew out of the early experiences of the National Archives. These experiences, based upon the principles and practices of generations of European archivists, resulted in the related concepts of "record group" and "archival hierarchies." This article argues that the record group concept leads to practices that fail to provide adequate access to archival holdings; it should be replaced by an archival model based upon authority control.

An authority control-based system focuses upon record-generating entities; it consists of descriptions of the histories and functions of organizations and of the administrative relationships between them. The authority control system is an intellectual construct, susceptible to emendation as institutions evolve, as functions change, and as administrative structures are altered. The authority control system is a dynamic system that places each record-creating agency into an administrative hierarchy while also maintaining a record of the changes within the hierarchy over time.

The descriptions of archival material in such a system are linked to one or more authority records. This system provides the means for maintaining control over and gaining access to archival material by the provenance approach, without the inflexibility of the record group/hierarchy concept.

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ARCHIVAL MANAGEMENT OF RECORDS is based on the assumption that context is the key to understanding. Archival principles of provenance and *respect des fonds*, the sanctity of original order, and the notions of hierarchy and the organic nature of archival materials all derive from this fundamental concept. Archivists work with material in context, not simply as the sum of a multitude of discrete items. Any document is best understood within the context of, and in relationship to, other documents in a file, and the file is comprehended in terms of its relationship to other files in a series. In this sense, there is a record hierarchy, a whole/part relationship between the various elements in a record-keeping system. Archivists assume that these relationships grew out of meaningful bureaucratic activities or functions, and that understanding both the functions and their recorded products depends upon maintaining the integrity of these relationships.¹ The archival imperative to respect the original order is thus based upon a sound theoretical proposition and, as it turns out, is also a practical solution to the problems of dealing with hundreds of millions of documents.²

The concept of the record group is likewise built upon assumptions about context.³ Soon after its founding in 1935, the National Archives inherited nearly 150 years' worth of accumulated records of the federal government and brought them under initial control in a very short period of time. These records came from government offices, warehouses, attics, and garages. "Record groups were established . . . to provide a major unit of arrangement and description for the rapidly increasing volume of holdings during World War II. Noncurrent records were being offered to the Archives in large quantities to vacate needed office space."⁴ At the time of accessioning, many of the records could not be identified by content or function; the most that was known was their office of origin. Since these records were accessioned according to provenance—that is, according to the administrative context in which they had been created and maintained—they were assigned for administrative purposes to various units within the archives according to record groups.⁵

Because the series⁶ was not always readily apparent in these large, complex, and sometimes amorphous accessions,

¹The principles of provenance and original order are enunciated in the basic works on archival concepts, including T.R. Schellenberg, *Modern Archives* (Chicago: University of Chicago Press, 1964); Samuel Muller, J.A. Feith, and R. Fruin, *Manual for the Arrangement and Description of Archives* (New York: H.W. Wilson, 1940); and Hilary Jenkinson, *A Manual of Archives Administration*, 2nd rev. ed. (London: P. Lund, Humphries, 1965).

²The archives of the State Historical Society of Wisconsin holds an estimated 100 million documents. The holdings of larger institutions, such as the National Archives of the United States, are many times larger. The Library of Congress, by contrast, has an estimated 75 million items, including books, maps, charts, and manuscripts.

³"The term 'record group' was . . . defined officially in the National Archives . . . as meaning 'a major archival unit established somewhat arbitrarily with due regard to the principle of provenance and to the desirability of making the unit of convenient size and character for the work of arrangement and description and for the publication of inventories' " ("The Control of Records at the Record Group Level," *Staff Information Circulars*, no. 15 [July 1950], 2).

⁴Meyer H. Fishbein, Letter to the editor, *American Archivist* 30 (January 1967): 239.

⁵A history of the development of the record group concept at the National Archives is found in Mario D. Feyno, "The Record Group Concept: A Critique," *American Archivist* 29 (April 1966): 229-39.

⁶In this article the series is defined in its broadest sense as "file units or documents . . . maintained as a unit because they relate to a particular subject or function, result from the same activity, . . . or because of some other relationship arising out of their creation, receipt, or use." This definition encompasses the more narrow and specific case: "file units or documents arranged in accordance with a filing system. . . ." (Frank B. Evans *et al.*, "A Basic Glossary for Archivists, Manuscript Curators, and Records Managers," *American Archivist* 37 [July 1974]: 430.)

the records were continually subdivided into ever smaller units. Different staff were assigned to carry out the work at each level. Oliver Wendell Holmes described this process in his classic article, "Archival Arrangement—Five Different Operations at Five Different Levels."⁷ The methodology adopted by the National Archives that Holmes described is effective for the management of large bodies of records and for the organization and allocation of staff. (The Holmes model is, in fact, as much a staff organization manual as it is a manual for arranging records.) When records are accessioned, especially in an organization as large and complex as the National Archives, they need to be registered and assigned a home for administrative purposes. As a method of initially controlling accessions and for reporting on activities, "the record group has continued value in archival establishments that are large enough to require some specialization by the staff."⁸

The record group concept is a perfectly valid tool for the administration of records. And the process of subdividing undifferentiated bodies of records into ever smaller units until the appropriate unit for description emerges is correct. But application of the record group concept to the construction of finding aids forces the archivist to reverse the process—that is, to group these descriptions into ever larger bodies of descriptions and to produce an inventory. "The record group was defined as 'a major archival unit established . . . [among other purposes] for the publication of inventories.'"⁹ However, the archival inventory based on

the record group concept fails to meet the access needs of researchers. These failures do not result from the application of erroneous principles, but result because archivists, when applying the principle of provenance, have often "failed to distinguish between . . . information about organizations and . . . data about the records themselves."¹⁰ This confusion of records with organizations leads to the chief defect in the use of the record group concept, namely, an assumption that archival records, like the agencies that created them, belong in a hierarchy.

In 1966, Australian archivist Peter J. Scott published an excellent but much neglected article describing the weaknesses of the record group concept.¹¹ Scott pointed out that although the record group concept is based upon the principle of provenance, its application sometimes leads to violations of this principle and of the principle of original order. It is a "fact that the lifespan of the series and that of its creating agency are not necessarily coextensive."¹² But, as required by the procedures of the National Archives, a body of records must be assigned to only one record group. What, then, of records that, over time, were created and maintained by several different agencies? To which of these agencies should the records be assigned? Arbitrary assignments of one kind or another produce various practical problems, and in any case violate the principle of provenance since a researcher expects to find all of the records of an agency in one record group. On the other hand, to

⁷*American Archivist* 27 (January 1964): 21–41.

⁸Fishbein, Letter to the editor, 240.

⁹Feyno, "Record Group Concept: Critique," 233.

¹⁰David Bearman and Richard H. Lytle, "The Power of Provenance-Based Retrieval in Archives," *Archivaria* 21 (Winter 1985–86): 15.

¹¹"The Record Group Concept: A Case for Abandonment," *American Archivist* 29 (October 1966): 493–504.

¹²*Ibid.*, 496.

create several bodies of records by dividing the record series among several record groups violates the principle of original order.

The solution according to Scott is obvious: "abandon the record group as the primary category of classification and . . . base the physical arrangement of archives on the records series. . . ."¹³ The record series is the fundamental archival unit.¹⁴ It grows from and thus documents administrative programs and functions. The series is scheduled, accessioned, described, and made available for research. When an ongoing archival program functions hand-in-hand with a records management program that systematically schedules and disposes of records, the divide-and-conquer method prescribed by Holmes is unnecessary.¹⁵

The series, then, forms a cohesive physical and intellectual unit; it has a physical arrangement. To use a metaphor from biology, the record series is an organic unit: it can be decomposed for descriptive and access purposes into "molecular" (file) and "elemental" (document) units, but its internal structure cannot be changed without destroying its integrity and its essential nature. Like any organism, however, the series may be part of a "community," organized as such because each member has an affinity to others in the same group;

nevertheless, the group remains an artificial (and not an organic) body. And, like a living thing, a series may be affiliated with more than one community. The record group, like such a community, is a child of expediency, which has been described as "the very confession of vagueness, of arbitrariness; and the word 'arbitrary' would become part of the definition."¹⁶ The "arrangement" of one series in relationship to another, as reflected in an archival inventory, is entirely arbitrary; it is merely a device to reveal the administrative and functional context—the provenance—of a record series.

The assumption that each series has an intrinsic arrangement with respect to others leads to the mistaken notion that the record series is simply one level in a hierarchy of records¹⁷—that, just as the file is a subdivision of the series, the series is a subdivision of the subgroup and the subgroup is a subdivision of the record group. This is a false assumption arising when records are confused with organizations, as described above. Instead, although "the agency may have given a definitive arrangement to documents and filing units within each series, . . . it almost never establishes a sequential arrangement for the many different series it created."¹⁸ There is, indeed, a hierarchy that provides the context for the series,

¹³Ibid., 497.

¹⁴The Wisconsin State Archives abandoned the record group as a means of identifying its holdings in 1967. The decision to do so was motivated by a major governmental reorganization that would have required relabeling virtually all holdings and restructuring all finding aids. The State Archives has operated since that time without record groups, but with due regard for the provenance of each series.

¹⁵It is ironic that at the time the National Archives was solidifying its record group concept, it was developing a records management program that focused on the record series—not the record group—as the basic unit for purposes of scheduling, transfer, and accessioning.

¹⁶Feyno, "Record Group Concept: Critique," 232.

¹⁷Feyno states, without any evidence, that "archivists generally believe that the arrangement of series within a record group reflects to some extent the organization and even the history of the agency that created the records; and they believe, therefore, that this arrangement ought not be disturbed." ("Record Group Concept: Critique," 236.) Holmes, however, recognizes the arbitrariness of the arrangement of series within the record group: "there is no one perfect . . . sequence for series. . . . and no two archivists, no matter how experienced, would make the same decision" ("Archival Arrangement," 32).

¹⁸Holmes, "Archival Arrangement," 28.

but it is not a hierarchy of records (subgroups and records groups); it is a hierarchy of organizations or agencies.¹⁹

Knowledge of the history and functions of record-keeping agencies is critical to understanding the context in which their records were created. The archival inventory is designed in part to place each of the series into its appropriate administrative context. The inventory performs this function in a clear and unambiguous manner. It is, however, an imperfect device because it implies that the record group has a natural cohesiveness and self-evident internal structure when, in fact, the record group is an artificial creation made up of the sum of many discrete, "free," organic units—the various series—which are organized on paper within the inventory in an arbitrary, although supposedly rational fashion.

The inventory also implies that the record group is a stable entity, that is, that each series has a fixed location in relationship to others. In reality, it is hardly ever static but is subject to change. Changes occur both because the organizations are in a constant state of flux, and because new records are continually accessioned. The inventory that best represents a record group with, say, one hundred series, will be quite different if the record group grows tenfold. The inventory presents a static and flat view of the relationships between the various

series, a view that belies the dynamic, fluid nature of the record-creating process. It is static in two ways: the first has to do with timeliness. Like any published or near print work, the inventory is difficult to update. And, because of the way inventories are typically constructed, a series may have been identified and described several years before all the other series in the "record group" are completed and the inventory is published.²⁰ Secondly, the inventory is static because the thinking behind it assumes "mono-hierarchical"²¹ and almost immutable relationships.

Automation can solve the problem of updating inventories. But, unfortunately, the mono-hierarchical assumptions about the structure of the inventory have been transferred to automated systems such as SPINDEX and NARS A-1. In each case we discover an incredible example of "the influence of the hierarchy assumption . . . a machine-readable database structured to mimic hierarchical characteristics presumed to inhere in archival units."²² The structure of these data bases requires the archivist to assign what is, in effect, a classification to each entry. This classification ("control number") is designed to determine the order of the entries in the output.²³ Because the control number is unchanging, it is difficult to alter the order of presentation from one edition of the inventory to the next, even

¹⁹In this article an "agency" refers to any bureaucratic entity, regardless of its placement in the hierarchy. This definition includes not just agencies with cabinet-level or independent authority, but all of the subdivisions as well.

²⁰Ed Hill, in the revision of his article "The Preparation of Inventories at the National Archives," suggests that "it may be desirable to publish that part of the inventory for a self-contained major sub-group as a preliminary inventory" (*A Modern Archives Reader: Basic Readings on Archival Theory and Practice* [Washington, D.C.: National Archives, 1984], 211). Hill's suggestion provides no fundamental solution to the problem of timeliness; it may still take years before a preliminary inventory is issued.

²¹The term comes from Bearman and Lytle, "Power of Provenance-Based Retrieval," 17. In a "mono-hierarchical" system each entry in the system has one and only one upward-pointing relationship to another, parent-like entry.

²²Bearman and Lytle, "Power of Provenance-Based Retrieval," 20.

²³See Alan Calmes, "Practical Realities of Computer-based Finding Aids: The NARS A-1 Experience," *American Archivist* 42 (April 1979): 167-77, for a description of the A-1 control number scheme. SPINDEX is similar.

though it may be more intellectually relevant to do so.

The assumptions about immutable relationships between series are also found in the nonautomated practices of many American archival institutions. Records in a so-called record group are sometimes physically organized in the stacks in the same order as they are listed in the inventory; indeed, at one time the National Archives recommended such a practice.²⁴ These assumptions are also reflected in the practices of some archival institutions, which have developed complex and elaborate notation schemes for uniquely identifying, labeling, and shelving each series. Notation symbols typically consist of several segments, one for each level in the administrative hierarchy. Clearly, the record group concept is viewed by many archivists not merely as a convenient means for the management of records, but as a system of classification.²⁵

SPINDEX and NARS A-1 control number problems may seem esoteric to some and irrelevant to others, especially since these batch-oriented systems are being superseded by more powerful and flexible automated systems.²⁶ The present argument, however, is not with SPIXINDEX or NARS A-1, but with the thinking that assumes static and monohierarchical relationships between record series.

As Scott recognizes in his article, an archival system deals with two types of en-

tities: one is the agencies responsible for the creation, maintenance, and control of the records; the other is the records themselves. The elements needed to control and describe records are well-known: series title, form, inclusive dates, quantity, scope and content, arrangement, and restrictions are among the data elements needed to describe a record series. Records are ideally controlled as series, but any body of records can be controlled with these data elements. For example, an archival institution may choose to control temporarily accessions consisting of several series until a detailed analysis is made and the accession is divided into processed and described series. The elements needed to control information about the agencies have not yet been well developed by archivists. Much of the information about agencies is found in the archival inventory, cast in terms of a record group or subgroup description. Scott calls this "context control" information. The point is that there must be one set of data elements and standards for controlling records, another for information about agencies.

The link between information describing records and information describing agencies lies in the concept of provenance. In an archival inventory, the provenance is implied by the placement of the series entry on the page; it is superfluous to include the name of the record-creating agency more than once in the inventory, because all of the series entries

²⁴"Principles of Arrangement," *Staff Information Papers*, no. 18 (June 1951), 4-7. Holmes also suggests that the physical arrangement should reflect the "order of inventory entries on paper" ("Archival Arrangement," 31).

²⁵The Wisconsin State Archives employed such a notation system until 1967 when it abandoned the record group concept in favor of a series-based system. Each series is now identified by a nominal serial number assigned as each new series is established.

²⁶Archivists have recently begun using on-line library systems based on the newly-developed MARC Archives and Manuscripts Control Format. These systems include national library networks (OCLC and RLIN), as well as specially-developed local systems. For a list of some of these systems and a summary of their uses as of October 1984, see Max J. Evans and Lisa B. Weber, *MARC for Archives and Manuscripts: A Compendium of Practice* (Madison, Wis.: The State Historical Society of Wisconsin, 1985). Other systems based on the AMC format are currently under development, as are local systems based on general purpose microcomputer software (such as dBASE II & III, MARCON, and others).

that follow an agency entry are assumed to be the records of that agency. In addition to the agency name, other information about it, including its history, authority, and functions may be included. Obviously, to enter all of these provenance data with each series description would be redundant and would unnecessarily increase the size of the file. To create an archival system free from the limitations of the conventional inventory requires other methods of linking the provenance data to the series description data.

In summary, the record group concept was a useful application of basic archival principles, but its use has led to confusion and artificial arrangements. Applying the record group concept to finding aids produces static, out-of-date inventories that provide access to records only through a single, hierarchical path.

The disadvantages of the record group concept can be overcome by shifting the center of the archival world view from one that is flat and mono-hierarchical to one in which records and the record-creating agencies exist in a multi-dimensional conceptual space. Such a view recognizes the complexity of the relationships that exist in the real world and permits their documentation.

The concept of authority control embodies this view. While still based on the principle of provenance, it can provide new ways to bring information about agencies together with series descriptions, thus opening up new routes of access and linking related but hitherto separate series of records. Exploiting this concept is facilitated and aided by the computer; indeed, it was inspired in part by the com-

puter's capacity to easily and quickly make complex linkages. The concept is not, however, dependent upon computerization; a manual archival information system based on authority control is not only possible, but superior to one based on the record group concept.

In a traditional information system, such as a catalog, authority records are established to provide an authoritative source for the form of an entry.²⁷ By agreeing to follow a stated convention, users of the system avoid ambiguity and confusion. The purpose of authority control is to establish and maintain information about the form of entry; additional information is included only when necessary to qualify an entry that might otherwise be ambiguous.

But in a broader sense, authority files function as entries that contain context information linked to descriptions of the holdings. In this sense a corporate name entry in an authority-controlled system plays the same role as the agency entry in an archival inventory. An authority record "gives the authoritative form of a heading . . . variant and related forms of the heading . . . [and] other miscellaneous information. . . ."²⁸ This other miscellaneous information—data not required to establish the form of entry, but which further explains and defines the entity being described—is fundamental to an improved archival information system. In addition to the name of the agency, an authority record in an archival system would provide historical notes describing the establishment of the agency, including the historical conditions and legislative authority of its founding; the functions delegated to or assumed by the

²⁷"Authority Control," *Encyclopedia of Library and Information Science* (New York: Marcel Dekker, 1969) 2:132-38. The literature on authority control in libraries is vast. For a useful summary and bibliography, see Larry Auld, "Authority Control: An Eighty-Year Review," *Library Resources & Technical Services* 26 (October/December 1982): 319-30.

²⁸U.S. Library of Congress, MARC Development Office, *Authorities, a MARC Format*, prelim. ed. (Washington, D.C.: Library of Congress, 1976), 1.

agency and changes in functions or activities over time; and formal and informal relationships to other agencies. All of this information might also be found in an agency entry in an archival inventory. But in contrast to the inventory, the authority record contains nothing about the actual records produced by the agency; indeed, an agency entry in the authority control file can be established and maintained independently of any knowledge of the record material produced by the agency.²⁹

Conventional library authority control files include a system of cross references that permit the user to move from non-authorized forms to the authorized form. The cross references also permit travel to broader terms and narrower terms. An archival authority control system would expand this capability by permitting travel between related agencies. An agency is usually part of an administrative hierarchy. The concept of broader term easily translates into "parent" or "superior" agency; the concept of narrower term translates into "subordinate" agency.³⁰ Because the hierarchy is rarely static, it is also necessary to qualify these references to show temporal changes, to permit a view of the hierarchy at any given point in time. There would also be pointers to successor or previous agencies, and to agencies that assumed functions formerly carried out by another. Since the significant relationships between agencies may not always be hierarchical, informal (and sometimes formal) networks develop that do not fit conveniently into the classical pyramid structure; an archival authority control system would bring these "horizontal" relation-

ships between agencies to light.

Using an agency authority system, then, permits the user to review the history of an agency and to survey it in terms of its relationship to other agencies and, when necessary, to study information about these other agencies. It is not necessary to know the parent agency (in archival terms, to know the name or symbol of the record group) and its organizational structure in order to find a particular agency. This system permits entry at any level and then permits travel up, down, and across the hierarchy.

More importantly, it permits the recording of changes in the bureaucracy without reorganizing the structure of the data base. Like the record series, each agency (regardless of level of authority or accountability) is regarded for these purposes as a "free" entry; it would not be embedded into a file structure based on transient organizational placement. Instead, cross references or links between related agencies, together with the nature of the relationships, would exist in the authority system, as shown in figures 1 and 2. Figure 1 demonstrates that authority records can be established for each individual agency independently of temporary placement in the bureaucracy. The vertical line between the two boxes shows that links representing relationships between agencies can document the relationships between pairs of authority records. Although not shown, it must be understood that each authority record can be linked to several other authority records, documenting complex relationships or relationships that change over time. The nature of these links is illustrated in figure 2.

²⁹The New York State Archives guide, in fact, includes entries for agencies for which the archives has no holdings. These entries, like other agency entries in the guide, do not describe records, but consist of information about the history and functions of the agency. *Guide to the Records in the New York State Archives* (Albany: The State Education Department, 1981).

³⁰Scott uses the terms "controlling" and "controlled" agencies ("Record Group Concept: Case for Abandonment," 503-04).

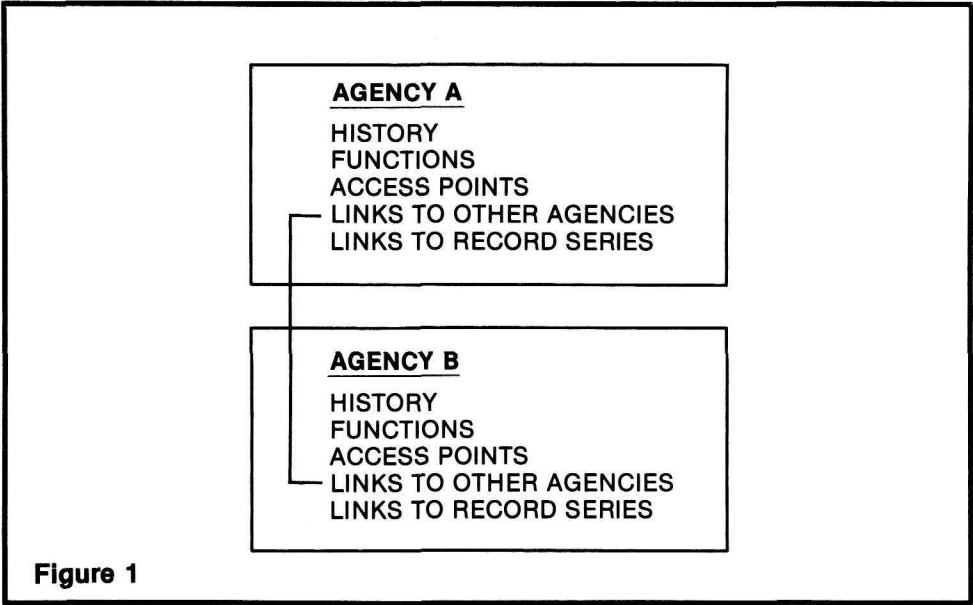


Figure 1

**LINKS TO OTHER AGENCIES
(A THREE-PART STATEMENT)**

- 1. TYPE OF LINK** (In complementary pairs)
 - Subordinate to / Superior to
 - Succeeded by / Preceded by
 - Function transferred from /
Function transferred to
 - Attached for administrative purposes to /
Provides administrative services to
 - Advisory to / Advised by
- 2. LINKED TO** (Reference to linked agency)
 - By name
 - By system record ID number
- 3. TIME-SPECIFIC QUALIFIER**
 - 1899-1921
 - 1931

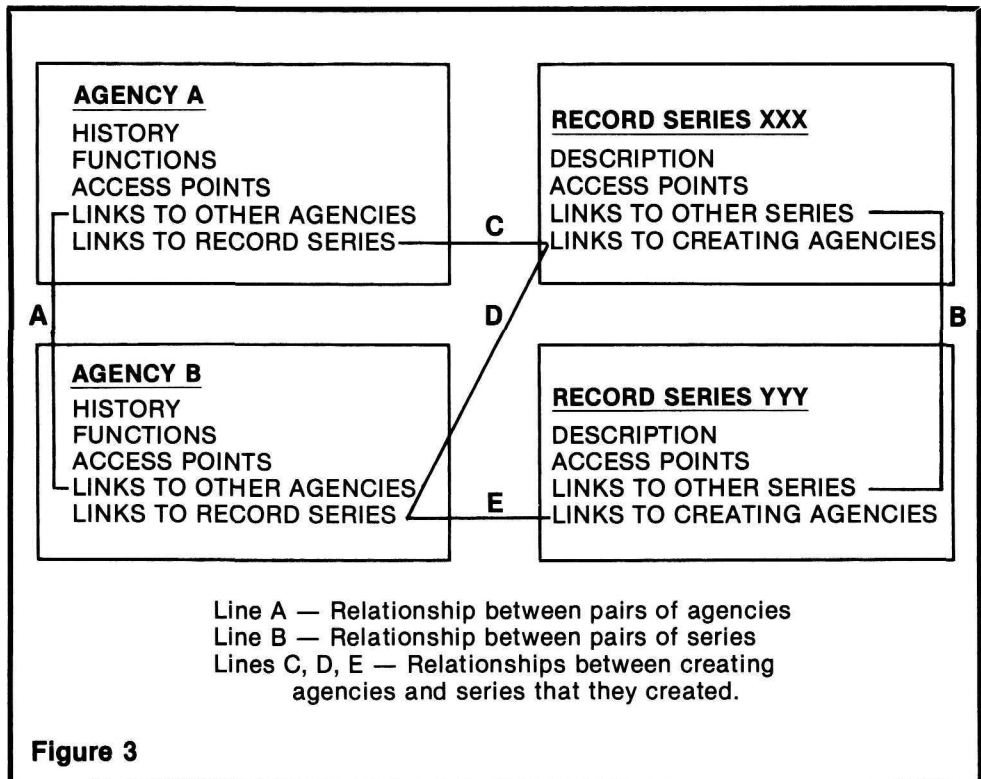
EXAMPLES:

- Subordinate to Agency B, 1899-1921
- Superior to Agency A, 1899-1921
- Succeeded by Agency B, 1931

Figure 2

Such an archival system consists of two separate files of data: one containing descriptions of organizational entities (i.e., agencies) and the means to permit the user to easily travel from one description to another; the other file contains descriptions of record material, augmented by internal pointers that refer to related series. The critical elements in this system are the links between the two files; each entry in the records description file must include provenance data, consisting of one or more references to entries in the authority file. It is obviously necessary to be able to enter more than one reference to a creating agency, since a

record series may have been created over time by several agencies and its provenance must be apparent in those terms (see figure 3). The archival system must provide means of linking these two files bilaterally: when the user wants to view all the records associated with a particular agency, they should be accessible via the agency name. Conversely, if the user finds a series—by some method not based on provenance (such as a subject search)—it must be possible to view the provenance data, that is, information about the various record-creating agencies.³¹



³¹In practice, links between these descriptions are made possible through the use of the MARC 77x fields. The RLIN AMC file contains two types of descriptive records—an “agency record” describing organizations (but not the record material created by the organization) and a bibliographic record describing record material. The agency record serves as an authority record. They are linked using the MARC 773 field (host item entry). At least one implementation of OCLC’s local system, LS/2000—at the University of Wisconsin-Eau Claire—employs the same technique.

Advantages to the user of such a system are self-evident. From an administrative point of view, this approach is also superior to the record group concept. It eliminates the necessity of making extensive changes in the finding aids each time a government reorganization takes place. It also permits the immediate dissemination of information about a series of records since it is not necessary to wait until all of the records in a record group are described before an inventory can be compiled. Similarly, it is possible at any time to use the provenance data to produce *ad hoc* inventories that group records by agency. Inventories, then, become secondary products of the data base, produced, along with subject guides, to promote access to the records. The inventory serves simply as a finding aid—a tool to help locate records—rather than as an outline of an archival classification. In such a system it may be possible that a single series will appear in more than one inventory, or, indeed, in more than one location in a single inventory. Such an approach would be unthinkable under the record group concept, but is a logical extension of an authority control system.

Provenance has proven to be one of the most effective means of access to archival records.³² The proposed authority control system enhances access by the provenance approach because it enables a user to find an agency (and from there to view its records) without knowing its location in an administrative hierarchy. For example, if one did not know that Wisconsin's Center for Health Statistics (formerly the Bureau of Vital Records) is

part of the Division of Health in the Department of Health and Social Services, it would still be possible to directly locate that agency without starting at the top of a hierarchical tree. After finding the desired entry, the user could, if necessary, travel up the hierarchy to review the history, mission, and functions of the parent (and grandparent) agency, although in most cases it would not be necessary. Furthermore, finding the agency through the use of access points other than agency name expands the flexibility of the access routes almost infinitely. Of all the possible access paths, locating agencies by function is the most intriguing. For example, the user would be able to search for the function "to tax" and find the Department of Revenue, the State Tax Commission, or other agencies responsible for that function, regardless of name. It would also be possible to find agencies based on the names of the people associated with the organization, those who filled positions of secretaries, directors, and chiefs. Both the functions and the personal names would be controlled in an authority file. Indeed, "authority data serves as the backbone of archival information retrieval systems where office of origin is the predominant access point into series descriptions. . . ."³³

This authority control system enhances the provenance approach because it provides what can be called "multiple-provenance" capability.³⁴ If a record series was created by more than one agency over time, it would be possible to locate the series on the basis of any one of its creating agencies. Furthermore,

³²Richard H. Lytle, "Intellectual Access to Archives," Parts 1, 2, *American Archivist* 43 (Winter 1980): 64-75 and 43 (Spring 1980): 191-207.

³³David Bearman, "Towards National Information Systems for Archives and Manuscripts: Opportunities & Requirements" (Second NISTF working paper on information interchange and its implications for the profession, 1982), 12-13 (Unpublished paper available from the Society of American Archivists).

³⁴Scott refers to the "multiple-provenance" series. Letter to the editor, *American Archivist* 30 (July 1967): 541.

multiple-provenance capability provides a means of dealing with records in modern data base management systems, which are produced and maintained jointly at the same time by several agencies.

Thus, an archival system based on authority control meets all of the requirements for the management of records throughout their life cycle, permits the production of standard archival inventories (as well as specialized guides and other finding aids) on demand, and maintains the principles of provenance and original order.

Implementing such an authority control/access system requires a redefinition of existing archival practices and a willingness to cooperate with other information management professionals. It requires no fundamental changes in many existing archival practices; archivists currently gather and prepare agency descriptions of the nature described above. Furthermore, some archival agencies have, as part of their mission, responsibility for maintaining government organization manuals. Others are associated with state libraries that have responsibility for maintaining authority files in order to control government documents, or with a management analysis unit that creates and maintains information about government agencies. Indeed, authority data already exists, often in machine-readable data bases, and is used daily by government documents librarians to catalog their holdings.³⁵ Archivists could use these existing authority files and, perhaps more significantly, could contribute to

them, based on their knowledge of organizational history and of shifting functional responsibilities, as documented by archival holdings. Use of authority data that applies equally to published government documents and to unpublished archival records would facilitate access to organizational records. It would also provide a means of examining, in the same context, both the published and unpublished documentation of an organization, thus improving both appraisal and interpretation. Participating in the development and enrichment of institutional authority files will also permit archivists to contribute to the larger community of information professionals and therefore enable them to take advantage of other available authority files (name, subjects, etc.) and of existing bibliographic systems and networks.

Earlier in this century the philosopher Ludwig Wittgenstein analyzed language mathematically, arguing that words were the equivalent of numbers with a single referent and were organized into sentences that functioned like propositions. Twenty years later he realized he had made a great mistake: words did not "stand for" or "signify," as did mathematical symbols, and hence sentences did not function like propositions. Searching for a more accurate model of language, he hit upon the concept of family. Words were related in close or distant ways as in an extended family, and only by examining how they were used in various contexts could their familial affinities be made clear.³⁶ Archivists need to make a similar shift in their thinking.

³⁵The MARC format for authorities provides the framework for carrying agency authority data suitable for archival uses. See *Authorities: A MARC Format*, 1st ed. (Washington, D.C.: Library of Congress, 1981). Because the format is not wholly congruent with archival requirements, the archival community should work with the Library of Congress MARC Standards Office to make necessary changes and enhancements. Archivists must also work with system developers to assure that the format is implemented so that necessary links between authority data and data about archival holdings are made.

³⁶The best concise account of Wittgenstein's concepts of language is the brief article in Alan Bullock and R.B. Woodings, eds., *The Fontana Biographical Companion to Modern Thought* (London: Collins, 1983), 30-31.

This article calls for such a paradigm shift. Archivists must cast off the model that holds that records have only a single referent and create a system that recognizes instead that they are created and maintained as part of complex bureaucratic networks. In these networks the record-producing agencies are the principle members, with secondary connections to the records they produce. These bureaucratic networks are not unlike familial networks; agencies are related as parent and child, and thus have siblings, grandparents, aunts and uncles, cousins, distant cousins, and indeed, step-parents, step-siblings, and half-siblings. Like extended families, bureaucratic networks change over time: their members come and go, they break and forge new alliances, shifts occur in centers of influence and power. Ar-

chivists must develop new tools and techniques to comprehend and accurately record these complexities.

The archival profession is on the threshold of a revolution prompted by improved technology. Over the next decade, data processing machines will change the tasks archivists perform, their methods of carrying them out, and their intellectual assumptions of half a century. To take full advantage of the increased efficiency, speed, and flexibility that automation promises, archivists must be willing to let go of those dearly-treasured concepts, such as the record group, that will limit their work. Archivists must begin to imagine new models that will permit them to maximize the benefits of automation. An authority-based system will contribute to that end.

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