Reference and Informational Genres

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Abstract

In order to reduce the problems of information overload, librarians and indexers have created systems of categorization that allow large numbers of individual books or articles to be perceived initially through smaller numbers of categories of literature. These categories can be either subject or format groupings. Format designations are particularly useful in segregating reference works from larger collections or retrievals. The distinctive nature, and the purposes and uses of reference works ("tertiary literature" composed of 60% or more of files or lists, as opposed to "primary" or "secondary" literature) are discussed. The mechanisms for finding such works via *Library of Congress Subject Headings*, or via the peculiarities of their shelving in either the Library of Congress Classification or the Dewey Decimal Classification, are explained. "Publication types" and "document type" searches within databases covering formats other than books are also treated.

The phrase "reference and informational genres" refers to types of literature that are distinctively formatted in such a way as to expedite the discovery of particular kinds of information. Such genres include almanacs, atlases, chronologies, dictionaries, encyclopedias, and so on, that usually present informational content in brief, segmented displays, rather than in connected narratives or continuous expositions.

The need for such genres arises from the fact that efficient research cannot be done in large, unsorted collections of resources, whether printed or electronic. Some kind of categorization of the material is necessary to prevent information overload. While the mind cannot grasp huge numbers of individual items in relationship to each other, it can more easily discern relationships among broader—and fewer—*categories* into which the items may be sorted or assigned.

In book literature, for example, one can get a better sense of what is or is not contained within the category of works on "Afghanistan—history" if one can readily see that subdividing categories other than "history" per se have been created for country's "antiquities," "boundaries," "civilization," "economic conditions," "foreign relations," "geography," "intellectual life," "politics and government," "social life and customs," and so on. That is, one can more readily discern what may be contained within a "history" of Afghanistan category by being able to note, quickly, the relationship of this category itself to an array of all the other subject-aspects that impinge on "history" without being included by it. (These particular categorizations are all formal terms within the *Library of Congress Subject Headings* system.)

The segregation of large collections of resources into smaller and more manageable "chunks," however, is not solely accomplished by the creation of *subject* groupings; it is also brought about by *format* and *genre* categorizations. In the same example, a researcher interested in "Afghanistan—history" may, in a large research library, still be overwhelmed by too much material within that subject itself; but further subdivisions of the topic into types of literature such as "Afghanistan—history—bibliography," "—chronology," "—dictionaries," "—encyclopedias," can provide the additional options needed to make the various aspects of the "Afghanistan—history" group more perceptible and manageable.

Format and genre groupings thus allow very useful discriminations to be made on a basis other than subject content: on the one hand, they enable immediate focus to be directed toward some particular types of relevant resources "within" a subject; on the other, they enable whole groups of irrelevant sources to be immediately excluded, which would otherwise remain as cluttering elements if only subject (rather than format/genre) categories were available to choose from. In this same example, still other format designations ("personal narratives," "pictorial works," "registers of dead," "songs and music," and so on) may appear as subdivisions of "Afghanistan" directly—e.g., "Afghanistan—pictorial works" rather than "Afghanistan—history—pictorial works," thus allowing other relevant *genre* categories to be recognized in the same roster in which *subject* subdivisions appear.

The major types of format and genre categorizations used in the library field were initially developed as mechanisms to sort and characterize literature contained in books; but similar or analogous types of category designations have been created to prevent, in comparable ways, the retrieval of "too much" information within other kinds of knowledge records. (For example, within journal

literature it is possible to focus on, or filter out, letters-to-the editor, book reviews, editorials, etc. from conventional "articles"—points that will be discussed below.) The present entry therefore starts with a consideration of mechanisms for sorting book collections, and then moves on to consider nonbook resources.

Several key formats and genres within book literature are traditionally distinguished:

Almanacs. These contain miscellaneous data and information for quick look-up purposes. They are good sources for information concerned with statistics, awards, historical dates and anniversaries, geography (i.e., basic data on countries, states, large cities, and natural features such as mountains, rivers, volcanoes), sports records, flags, lists of governmental agencies and officials, directory information for consumers, information on national or world figures, brief chronologies or overviews of world historical events, astronomical data and calendars, postal information, basic world maps, and so on. Almanacs are particularly useful for answering questions having to do with *who*, *what*, *when*, and *where* when only brief, objective information is required.

Atlases. These are usually compendiums of maps that display information graphically and spatially. Maps can show not just national or political relationships but also data on atmosphere and weather, temperature and rainfall, climate variations, crop production, vegetation, soil conditions, biodiversity, ecological changes, mineral concentrations or distributions, geologic processes, fishing patterns, military power balances, wars and conflicts, status of women, literacy levels, technological levels, population trends, occupational distributions, trade patterns, spread of diseases, health levels, standards of living, area histories, and the like. Many atlases also include representations of astronomical information on stars and constellations, the solar system, planets, moons, comets, and so on. (The term *atlases* is also sometimes used in an older sense, referring to compilations of statistical tables rather than maps.)

Bibliographies. These are compilations of citations to books, journal articles, conference papers, dissertations, reports, and so on. They may be *enumerative* (listing works from a country or other locale, from an author, or from a printer), *descriptive* (providing details of the physical characteristics of published works), or *subject* compilations. The latter are usually assembled by experts who have specialized knowledge of the topic, and so the listings in subject bibliographies are often annotated with descriptive summaries or evaluative notes on the intellectual content of the works cited. A particularly valuable feature is that these bibliographies may include many sources that lie beyond the range of database indexing. They serve to provide overviews, often comprehensive, of the extent of literature on a topic; and, being compiled by human scholars rather than machine algorithms, they often provide readers with a better survey of research options than computer printouts can supply. They usually

have some arrangement or categorization of entries reflecting something of the internal structure or chronological development of the topic itself, an overall mapping of parts or aspects of the subject that cannot be captured or conveyed by automated term-weighting. Frequently subject bibliographies have detailed indexes revealing additional connections among the citations that are not apparent from the structured order of the listings within the body of the bibliography. Bibliographies compiled by experts, in short, are often much better than databases in providing starting points for research, or initial overview listings of resources. They are especially important in historical and literary research.

Catalogs. Catalogs provide listings of objects rather than bibliographic citations; the objects may be merchandise, art objects, equipment, machine parts, professional or art/craft supplies, and so forth, that are located at particular places or that are available for sale. Catalogs, like bibliographies, may also list publications; but catalog listings are usually for publications as physical objects residing in a particular place. Catalogs often provide descriptive details, technical specifications, and prices of the listed objects.

Chronologies. These present historical facts arranged by the time sequence of their occurrence. Some chronologies present parallel listings that display the developments within different areas of interest (e.g., politics, arts, technology, and religion) simultaneously, so that a reader may correlate the events of one area with contemporaneous, earlier, or later developments in other subject areas.

Concordances. These are alphabetical lists of individual words derived from particular texts (usually literary or philosophical classics) that enable researchers to determine exactly where any particular word or words appear within the text.

Dictionaries. These provide an alphabetically arranged list of words with their definitions, pronunciations, etymology, scope of usage, variant forms or spellings, and so on. Often they contain biographical and geographical names. Their scope may vary from coverage of an entire language to a focus on only the technical terms or jargon of a particular subject area. The term "dictionary" is often synonymous with "encyclopedia," referring simply to an alphabetical (rather than a systematic) arrangement of entries, regardless of whether the entries are brief and factual or lengthy and expository.

Directories. Directories are sources for identifying and locating individual people, organizations, or institutions; they list persons or corporate bodies that are situated in certain geographical areas, or that are related by thematic, professional, commercial, or subject concerns. Nowadays they usually list names, addresses, telephone and fax numbers, e-mail addresses, Web home pages, or other contact data; and they may provide basic information about an individual's qualifications and background, or an institution's purposes, history, and internal structure.

Directories may be arranged alphabetically, geographically, or numerically (e.g., by telephone numbers or street addresses).

Encyclopedias. Encyclopedias are usually compilations of information in expository form in articles arranged alphabetically. The articles are generally intended to provide concise (rather than exhaustive) overview-summaries of the basic facts on a subject, written for an audience of nonspecialists who do not start with any prior knowledge of the subject or its technical jargon. Encyclopedia articles, too, usually provide brief bibliographies of basic works rather than exhaustive lists of all relevant sources. The aim of an encyclopedia, as a whole, is to summarize established or objective knowledge at a level comprehensible by lay people, and to provide a starting point for more extensive or in-depth research. The scope of individual encyclopedias may vary from attempting to survey all knowledge in all fields to focusing on particular subject areas or academic disciplines. (Note that encyclopedias specialized in a particular *subject area* still tend to be written with a nonspecialist *audience* in mind.) Subject encyclopedias, as a form, may be contrasted to treatises, which also attempt to survey entire subjects, but which do so exhaustively (rather than concisely) in both their texts and bibliographies, in a systematic (rather than alphabetical) order of presentation, and at a level of detail appropriate to specialists. Encyclopedias often include cross-references among articles, and frequently have detailed indexes that reveal specific data and interrelationships not discoverable by the alphabetical arrangement of the articles themselves.

Gazetteers. These are alphabetical dictionaries of geographic place-names; entries often include brief descriptions of the history, population, economic characteristics, and natural resources of the places listed. Gazetteers are also useful for identifying the larger geopolitical units in which a smaller locale is included (e.g., an entry on a town name will also designate the county, state, or other larger district of which it is part).

Handbooks and manuals. These are a type of information source intended to be easily transportable for actual use "in the field" rather than just in libraries. They are related to encyclopedias and treatises in that they try to provide the principles and important facts of a subject area, and in that they can be arranged either alphabetically or systematically. Their major distinction from these other forms is their emphasis on practice, procedures, and other "how to" directions for producing actual results or specific identifications of natural objects (plants, birds, botanical specimens, etc.), rather than just broad intellectual understanding. Also, they tend to be much more concisely written, as well as formatted in smaller-sized volumes, so as to be more easily carried about in field situations.

Newsletters. These are sources for current information in fields that develop or change rapidly. In print form, they appear daily, weekly, or monthly.

Sourcebooks. These are compilations of primary sources relevant to a particular topic or subject area. They conveniently assemble in one place original documents important to an understanding of the history or development of the subject, often with introductions that provide context and point out relationships not apparent from the texts themselves.

Union lists. These are location devices; they enable researchers who have already identified specific sources to determine which libraries (or other repositories) actually own a copy of the desired works. They are like catalogs in that they list physical objects; but the items recorded in union lists are drawn from multiple institutions in different locales.

Yearbooks. This type of literature seeks to provide a record of the year's developments in a particular field, often with evaluative commentary on what has transpired. Such annuals are often cumulations of the updating information contained in newsletters, but with more structured arrangement, additional introductory material, and better indexing; they are also usually produced as hardbound volumes to serve as permanent replacements for the ephemeral newsletter formats they may cumulate or supersede.

Many other formats and genres have also been customarily distinguished within book-format literatures. The *Library of Congress Subject Headings* roster provides numerous standardized form categories; note that in each instance in the following list, as with the above roster, the particular *subject* of the work to which these designations can be given is not relevant. (One obvious qualification is in order, however, some format and genre designations do have defined subject *scope ranges*—i.e., a form designation such as "description and travel" may have wide applicability within works on geographical topics, but not be appropriate at all for works in biology or physics.) Among the many traditional form and genre subdivisions, in addition to the above list, are

Abstracts
Archival resources
Bio-bibliography
Case studies
Charts, diagrams, etc.
Correspondence
Criticism and interpretation
Cross-cultural studies
Description and travel
Diaries
Discography
Fiction
Film catalogs
Guidebooks
History
Indexes
Interviews
Inventories

Manuscripts—catalogs
Microform catalogs
Patents
Periodicals—bibliography
Personal narratives
Photograph collections
Pictorial works
Portraits
Quotations
Registers
Problems, exercises
Sermons
Statistics
Tables
Textbooks

A practical problem for librarians arises in distinguishing *reference* genres within the larger roster of all form and genre designations. That is, within the entirety of a library's book collection, librarians need to create subcollections of *reference books* segregated from the general collections, and located in close proximity to the reference staff whose job is to provide quick information on some topics, and overall guidance into the larger collections not immediately at hand.

Although every book may be said to contain information, not every one qualifies as a *reference book* on its topic. Format and genre considerations come into play here, although not *all* format and genre considerations. "diaries" and "correspondence," for example, are labels indicating formats (rather than subjects), but not formats that would be considered appropriate for assignment to a reference collection. The "history" label is less clear cut. In one sense, "history" is a subject in itself (as distinguished from, say, "anthropology" or "religion"). In another, however, "history" is indeed a format designation, indicating a presentation of information in connected narrative sequence, as opposed to other presentation possibilities ("encyclopedias," "quotations," and "pictorial works"). Even if "history" is regarded as a form, however, all histories cannot possibly be shelved in working reference collections, which have particular space limitations.

How then can librarians make practical distinctions of reference genres from other informational genres? Two considerations are generally useful. The first is the distinction among *levels* of literature: primary, secondary, and tertiary. *Primary literature* is generated by participants in a particular activity or event, recording their original impressions, experiences, observations, experiments, or creative expressions. *Secondary literature* is generally comprised of either popularizations or scholarly analyses of the primary literature; it is based on surveys of, or research into, primary sources. *Tertiary literature* consists of works that identify, point out, summarize, abstract, compile, or repackage the information provided by the other two levels. As Ranganathan[1] has pointed out, they are works intended to be consulted for one or more of their parts, rather than read through consecutively and completely. Reference works, such as almanacs, dictionaries, chronologies, and encyclopedias, are usually at this third level.

A second distinction between reference genres and others is provided by a particularly insightful analysis by Bates.[2] "Reference books," she writes, "have traditionally been defined administratively (e.g., as books that are noncirculating) or functionally (e.g., as books used for reference), rather than descriptively (i.e., in terms of the essential characteristics that distinguish reference books from other books)." She then provides a very useful definition of reference books based on their organizational structure: they are

> books that contain a substantial percentage of their length—operationally defined... as 60 percent or more in pages—in files and/or lists. Files are sets of records ordered according to a readily recognizable ordering principle [e.g., alphabetical order, chronological date, geographic continent/country relation, biological phylum/species relationship, etc.], and lists are sets of records ordered in the same manner as [an] author's idiosyncratic ordering of the contents of a book.

The best example of an author's "idiosyncratic ordering" of material would be, exactly, the *table of contents* of his or her book, which is likely to show an arrangement or conceptual structure other than that of an alphabetical, ordinal, geographic, or other immediately-recognizable sequence (as in a "file"). If the actual book itself, however—i.e., the *content* of the book that follows the *table* of contents—is primarily composed of discrete informational units or entries that "can stand alone" (i.e., rather than being integrated in continuous expository or narrative text), and if these discrete units could have been "arranged in different orders with respect to each other without harming their meaning or use," then such an idiosyncratic order is designated a "list" rather than a "file." "Reference books," again, are defined as those having 60% of more of their pages made up of files or lists. Thus not all genre or form designations (e.g., "case studies," correspondence," "diaries," "personal narratives") are *reference* genres.

Bates's theoretical distinctions were backed by an empirical study of the characteristics of actual books in the reference collections of three libraries, in comparison to the "stacks" books of the same libraries. Nearly 90% of the volumes designated "reference" books did indeed have "60% or more of their pages made up of files or lists." One notable exception was discovered: "canonical texts" are frequently included in reference collections although they are not made up primarily of files or lists. Such texts are things like standard treatises on particular subjects; compilations of laws and regulations; collections of standards and specifications; or literary, religious, and other authoritative texts (e.g., the *Bible*, the *Qu'ran*, or an indexed set of *Great Books*).

The primary virtue of having form and genre designations, in addition to subject groupings of material, to work with is that these categorizations greatly facilitate research for certain kinds of information *within* any subject area. The fact that the reference literature of any topic can be expected to fall into bibliographies, chronologies, dictionaries, directories, encyclopedias, and so on, provides a predictability factor to research that enables immediate attention to be directed toward some sources rather than others. Without the existence of predictable *formats* of literature being available, much time would be wasted— i.e., some questions are immediately answerable by directories, whereas regular monographs or dictionaries or chronologies within the same subject area would be irrelevant; others are best answered by encyclopedias, where monographic or atlas-format sources would only get in the way if they showed up in the same retrievals.

If one has a foreknowledge of the existence, as well as of the range and functions of the different reference formats available within *any* subject area, one can immediately think in terms of those categories, and thereby channel one's search efforts right from the start to only those resources whose format characteristics are appropriate to the question, while bypassing the others. For example, if one wishes to get brief overview knowledge of the Muslim historian Ibn Khaldun—his dates, his most important writings, his key ideas, and so forth—without having to read through hundreds of full-length books on him, one's search time and effort will be greatly reduced if one knows enough to anticipate the likely existence of an "encyclopedia" format reference source within the field of Islamic studies. In this case, the *Encyclopedia of Islam* (E.J. Brill, 1960–2002) provides a seven-page article that provides just the overview desired. Similarly, a researcher looking for an overview of the extensive literature on the British essayists Addison and Steele would be well served by first looking for a "bibliography" on the topic, such as Charles A. Knight's *Joseph Addison and Richard Steele: A Reference Guide, 1730–1991* (Prentice Hall, 1994), a 561-page annotated listing of 2006 directly relevant books, editions, articles, and doctoral dissertations—*none* of which have "the right keywords in the wrong contexts," the bane of Internet type searches. The important point here is that searchers who can frame their questions in terms of predictably existing *reference formats* may, even without having any prior *subject* knowledge of the field in question, be much more efficient in finding desired information about a topic, without any wasted effort, than even full professors who have subject expertise but who lack an understanding of the predictability of various formats.

The same predictability of genre formats facilitates not just research itself but also the teaching of how to do it. Many courses in library research methodology use texts that are themselves structured by formats or types of literature. Such texts may seek to provide the means of searching, via reference formats, within all subjects across the board[3]; or they may confine themselves to research within a specific discipline. An example of the latter is C. D. Hurt's *Information Sources in Science and Technology*[4]; the first three sections of its contents are structured as follows:

MULTIDISCIPLINARY SOURCES OF INFORMATION

1. Multidisciplinary sources of information
   Guides to the literature
   Bibliographies
   Abstracts and indexes
   Encyclopedias
   Dictionaries
   Handbooks
   Serials
   Directories
   Biographical directories
   Theses and dissertations
   Meetings
   Translations
   Copyrights and patents
   Government documents and technical reports
   Internet guides
   Web sites

THE BIOLOGICAL SCIENCES

2. Biology
   History
   Guides to the literature
   Abstracts and indexes
   Encyclopedias
   Dictionaries
   Handbooks
   Treatises
   Directories
   Web sites
3. Botany
   Guides to the literature
   Bibliographies
   Abstracts and indexes
   Encyclopedias
   Dictionaries
   Handbooks
   Directories
   Web sites

Essentially, the same few format breakdowns are used in 21 different subject areas (zoology, astronomy, chemistry,

environmental sciences, general engineering, civil engineering, health sciences, etc.) It is, again, *predictable* that such reference genres can be found within *any* subject. While no one can remember the 1542 individual sources described in Hurt's book, anyone with a bit of training can remember the much smaller number of *types* of literature that can be expected to exist, no matter what subject is being researched. The predictability of this format structure within any topic area, once more, allows many inquiries to be much more immediately focused, with fewer wasted steps, and accomplished without the searcher having to wade through massive retrievals of term-weighted irrelevancies. (The phrase "relevance ranking"—*term weighting* is more accurate—is misleading in more ways than one. Not only does such algorithmic weighting fail to bring about the conceptual categorization of relevant sources, no matter what keywords [or languages] the sources themselves use; it also fails to bring about format categorizations that allow immediate focus to one's search efforts.)

One drawback in reliance on reference-format materials to pursue inquiries should be noted: a foreknowledge of the various types of literature enables a researcher to zero in quickly on reference sources relevant to a topic—i.e., those made up essentially of 60% or more of files or lists—but it does not enable the searcher to see "regular" books that are written in connected narrative or expository form. In terms of the distinction made earlier, not all primary literature or secondary literature is adequately covered by the tertiary literature of reference works. Direct access to the former levels, unconstrained and unchanneled by access through listings in reference sources, is still imperative. To gain this direct access (at least in research libraries in the English-speaking world) one must also know how to use the *Library of Congress Subject Headings* (*LCSH*) system within the library's general catalog; and one must also be aware of the trade-offs between searching via standardized conceptual and format categories (determined by *LCSH* terms) versus searching by keywords, no matter how the words are term-weighted by computer algorithms. Research instruction classes, in other words, need to cover more ground than a survey of reference-types of literature alone; they must also cover additional methods of searching (e.g., via controlled vocabularies [such as *LCSH*], via keywords, via citation links [showing which articles cite a known source], via related record links [showing which articles have footnotes in common with a known source], via bookstacks-browsing [exploiting LC or Dewey classification shelving arrangements], etc.). The predictable availability of this larger array of search methods (for gaining access to primary and secondary literature) is just as useful in focusing some searches as is the predictable availability of certain reference formats (for gaining access to tertiary literature) in focusing other inquiries.[5]

Form and genre designations are primarily useful within library catalogs or subject bibliographies, as mechanisms for *subdividing* larger categories of items that are themselves created on the basis of subject similarities. (Again, the subject "Afghanistan" is subdivided by the formats "bibliography," "encyclopedias," "gazetteers," etc.). To a lesser extent, format considerations also play a role in library classification schemes, in determining how physical book volumes may be shelved in relation to each other. The Library of Congress Classification (LCC) scheme, for example, is primarily structured according to subject categorizations (e.g., Class E books for American History, Class L for education, R for medicine, etc.). These groupings are further subdivided primarily by other subject considerations—but also, in some cases, by considerations of literature formats. A structured order of these subgroupings was largely standardized by Charles Martel, one of the architects of the LCC system in the early years of the twentieth century. As Immroth[6] has noted, "The order of entries or foci within a class or subclass or individual subject is another unifying feature of LC classification. This order is called the General Principle of Arrangement within the Classes or 'Martel's Seven Points' as Martel is said to have instructed the subject specialists to follow this order as appropriate in the development of any section of the classification." That order is as follows:

1. General form divisions
    Periodicals
    Societies
    Collections
    Dictionaries
    Encyclopedias
    Congresses
    Exhibitions
    Museums
    Yearbooks
    Documents
    Directories
2. Theory, philosophy
3. History
4. Treatises, general works
5. Law, regulation, state relations
6. Study and teaching
7. Special subjects and subdivisions

As Immroth further notes, "Usually the general form divisions that are applied [within any subject class] precede any other divisions. There is no absolute internal order for the general form divisions."

An example of the form subdivisions within Martel's structure may be found within the N (Visual Arts) class in the current LCC schedule:

N	(Visual arts)
N1–N8.Z	Periodicals
N9.A1–N9.9.Z	Yearbooks
N10–N17.Z	Societies
N21	Congresses
N25–N27	Collected writings (serial)
N31	Encyclopedias
N33	Dictionaries
N34	Terminology
N40–N44.Z	Biography
N45	Artists's marks and monograms
N50–N55.Z	Directories

The clustering of distinctive formats at the beginning of a class arrangement may be found in the Dewey Decimal Classification (DDC) system as well as in LCC. In Dewey, several form subdivisions are indicated by standard numerical designations that subdivide many different subject-classes at the same numerical position within each. Thus the 100s group in DDC (i.e., classes 100 through 199), representing the subjects "philosophy, parapsychology and occultism, pyschology," has several form clusters at its start:

103	Dictionaries, encyclopedias, concordances of philosophy
105	Serial publications of philosophy
106	Organizations and management of philosophy (roughly corresponding to "societies" in Martel's Seven Points within LCC)

The designations -03 for dictionaries, -05 for serial publications, and -06 for organizations show up in the same positions within other topical classes, for example, 403 for dictionaries, 405 for serial publications, and 406 for organizations within the overall 400s (language) class.

The clustering of forms—particularly reference forms—at the beginning of any new class area, in either LCC or DDC, facilitates reference work for those who know what to look for. To begin with, the appearance of long runs of volumes of the same height, and having uniform bindings, immediately signals the presence of serial publications within a library's book stacks. Since "periodicals" (LCC) or "serial publications" (DDC) always appear at the beginning of any new subject-class area, such visual markers indicate transitions on the bookshelves from one major subject-category to the next. But then, because of Martel's Seven Points, a stacks-browser in an LCC library who notices a clustering of uniform serial volumes will also be able to predict that reference formats such as yearbooks, encyclopedias, dictionaries, and directories will *follow* the bound journals in reasonably close proximity. In a DDC library, the browser who spots the serial runs will similarly be able to predict that dictionaries, encyclopedias, and concordances will immediately *precede* the cluster of journal

volumes. The classes in both systems were designed by practicing librarians who, more than a century ago, did not have the array of databases and full text electronic sources that we take for granted today; for them, the arrangement of the books themselves, in the stacks, was structured to enable reasonably efficient access even in the absence of a card (or other) catalog of the collection. Even today, the structure of that arrangement retains a practical utility for reference work that cannot be matched by any system of mere "mark it and park it" inventory control shelving, in which neither subject nor format relationships of volumes determine the order of their arrangement.

Format considerations also show up the LCC in other significant ways, beyond Martel's use of them as structuring elements within individual classes. Specifically, large parts of two entire classes (A and Z) are mainly composed of nothing but reference format material. Class A (General Works), right at the start of the entire LCC sequence, brings about some very useful groupings of reference genres. "General," here, means "not discipline-specific"; for example, the *Encyclopaedia Britannica* seeks to cover all areas of knowledge; and a standard index to journals, *Readers' Guide to Periodical Literature*, similarly covers articles in all subject areas. The various subdivisions of Class A deliberately bring together such "initial overview" sources:

AE	Encyclopedias
	For example: *Encyclopaedia Britannica* [AE5], *La Grande Encyclopedie* [AE25], *Brockhaus Enzyklopadie* [AE27], *Enciclopedia Universal Ilustrada* [AE61]
AG	Dictionaries and other general reference works
	For example: *The Columbia Encyclopedia* [AG5], *Famous First Facts* [AG5], *The New York Public Library Desk Reference* [AG6], *Guinness World Records* [AG243]
AI	Indexes
	For example: *Readers' Guide to Periodical Literature* [AI3], *Essay and General Literature Index* [AI3], *Poole's Index to Periodical Literature* [AI3], *New York Times Index* [AI21]
AP	Periodicals (general or multi-topical, not discipline-specific)
AS	Academies and learned societies
	For example: *Gale Directory of Learning Worldwide* [AS2], *The Europa World of Learning* [AS2], *Encyclopedia of Associations* [AS22], *The Foundation Directory* [AS911]
AY	Yearbooks, almanacs, directories
	For example: *World Almanac* [AY67], *Whitacker's Almanack* [AY754]

One of the overall purposes of Class A as a whole is thus to serve as a kind of "table of contents" to all of the other classes (B through Z1199). Works shelved here tend to provide introductory-level information—wide in scope but not very deep in coverage, providing a kind of overview

mapping of the terrain that will be covered in greater depth, in its various parts, within each of the following classes. Thus the general encyclopedias in Class AE provide articles that are very brief (compared to full books) in all subject areas; and their articles also usually have concise bibliographies of the most important "starting place" sources for further reading (rather than exhaustive listings of all relevant sources). In a similar way, the periodical indexes in Class AI provide access to general magazines and newspapers; the articles contained therein may be on any topic, but they do not match the depth of subject penetration provided by whole books and specialized journals, which will be shelved in the subsequent classes starting with B. Class A, then, is a mixture of categorizations created by both "general" subject and reference-format characteristics, but it is especially laden with the latter.

The DDC has somewhat analogous clusters of general encyclopedia-format material near its beginning, in Class 000 (computer science, information, general works): Class 030 consists of "general encyclopedic works." Bringing all of the general encyclopedias to the front of the entire scheme here, too, provides a kind of introductory overview mapping of subjects that are covered in much greater detail within the whole books and specialized journals shelved in the subject categorizations to follow (100 through 999).

Whereas Class A in the LCC system serves as the "table of contents" to the classes which follow, Class Z at the very end serves much like the "index volume" at the end of a large encyclopedia. The Z (bibliography and library science) grouping has two major parts: Z4 through the Z1100s are classes mainly composed of monographs and serials about books, publishing, and library science as subjects in themselves; the Z1200s and above are clusters of actual reference-format bibliographies covering *all* subject areas (i.e., not limited to bibliographies about books, publishing, and libraries).

The noteworthy point is that these subject bibliographies (covering particular subjects or geographic regions *as* subjects, in depth) are not shelved with the regular books on their corresponding topics. For example, regular monographs on Indians of North America tend to be classed in E51–E59 (pre-Columbian America and Indians of North America), but bibliographies on the same subject are classed in Z1209–Z1210. Similarly, monographs on President Millard Fillmore tend to be classed in E426–E430 (United States—Revolution to the Civil War); but bibliographies on him are in Z8295.9.

As mentioned earlier, in most instances in either the *LCSH* system (in the library catalog) or the LCC system (in the bookstacks), format considerations are used to subdivide subject groupings, rather than vice versa. The subdivisions of the "index volume" bibliographies at the end of Class Z, however, are an exception. The material in this range is all of a particular reference format—bibliographies—to begin with; the arrangement of the bibliographies' sequence is then subdivided by topical considerations, in three large clusters:

Z1201–Z4890 Geographically localized subject bibliographies (by continent, country, state, county, etc.) arranged in the order of North America, South America, Europe, Asia, Africa, Australia, and Oceania, with narrower localized subdivisions within each continent.

For example:

North America	Z1201–
The United States	Z1201–1363
Alaska	Z1255–1256
Arizona	Z1257–1258
Canada	Z1365–1401
Mexico	Z1411–1431
Central America	Z1437–
Belize	Z1441–1449
Costa Rica	Z1451–1459
South America	Z1601–

Z5000–Z7999 Subject bibliographies (usually lacking geographical limitations or focus, arranged alphabetically by subject).

For example:

Agriculture	Z5071–5076
Anthropology	Z5111–5119
Astronomy	Z5151–5156
Bees and bee culture	Z5256
Biology	Z5319–5323

Z8000–Z8999 Personal bibliographies (on individual people, usually literary authors or historical figures), arranged alphabetically by the surname of the subject.

For example:

Adams, Henry	Z8015.3
Austen, Jane	Z8048
Burton, Sir R.F.	Z8136.2
Chesterton, G.K.	Z8166.5

The use of simple and easily remembered ordering mechanisms (continent/country, alphabet) for these unusually important reference-format materials once again enables stacks-browsers to recognize where they are in relation to the whole scheme, even in the absence of a separate catalog of the collection. The class scheme thus increases the predictability of finding bibliographies on

any topic—i.e., even if one does not know in advance that a bibliography actually exists on a particular subject, the arrangement of the Z classes gives an informed searcher a foreknowledge of which niches within the overall system are likely to contain such works, since the existence of the geographical and alphabetical niches is itself predictable, even if their specific contents are not.

The clustering together of all subject bibliographies, on all topics, at the very end of the LCC scheme also enables them to be browsed in relation to each other, as reference sources, without the cluttering presence of millions of non-reference works on the same subjects. This gives the bibliographies a cumulative utility that would be dissipated if each one were shelved with the monographs on its topic, in the regular B through Z1100s subject classes. (For example, the ability to see whole shelves of hundreds of subject bibliographies on women's studies, in Z7961 through Z7965, gives searchers in this subject area the capability of seeing relationships, and paths of access into the relevant literature, that could not otherwise be noticed.) The aggregation of reference sources at the end of the LCC scheme, again, enables them to serve as a kind of "index" to material to be found in all of the other classes. Whereas Class A provides relatively superficial "overview" access to all subjects, Class Z provides corresponding in-depth access to each of them. These functions are brought about primarily by the respective clustering of different *reference formats*, in strategic beginning and ending positions in the overall LCC sequence, which placements serve the different purposes.

The DDC system has a class analogous to LCC's Z1200–Z8999 for grouping together all subject bibliographies; but Dewey puts its "index volume" class at the beginning of its sequence, in Class 016 (Bibliographies and catalogs of works on specific subjects or in specific disciplines) within the 000s, rather than at the end, in the 900s.

Libraries must collect or provide access not just to conventional monographic books, but to other kinds of knowledge records as well. Journals, periodicals, and magazines have always been sought for research collections; but, as a rule, their individual articles are not indexed within a library's own catalog. Further, although journals do receive classification numbers in both LCC and DDC systems, the shelving of all volumes of the same journal in one location does little to indicate to a shelf-browser the particular subject content of any particular article(s) contained within the extensive runs of issues. Thus, neither the designations of reference formats in the library's catalog through form subdivisions of LCSH headings (e.g., Philosophy—encyclopedias, France—history—chronology), nor the classification schemes' various clusterings of reference formats (i.e., via Martel's arrangements within classes, or via the A and Z groupings) reveal the content of individual journal articles in the way that the catalog and the class scheme reveal *books'* content. The various printed indexes themselves are indeed clustered intelligibly within the A

and Z classes in LCC (or 016 in DDC); but this placement also separates the indexes from physical (and browsable) proximity to the hundreds of journals, shelved throughout the entire classification scheme, whose contents they index.

Although libraries catalog and classify the indexes that provide access to individual journal articles, they do not usually create such indexes to begin with; with the exception of some few special libraries' catalogs that do cover articles,[7] this matter has largely been left to commercial publishers. Of course computerized versions of such indexes are the norm today; and many databases now provide full text access to journals, too; but these databases as well are generally created by commercial services rather than by libraries themselves. (Research libraries, all with chronic budget limitations, have always found it less expensive to subscribe to the indexing work done by private industry than to duplicate such costly labor on their own.)

But here, too, format and genre designations come into play, in ways analogous to their functions in the realm of book collections—i.e., journal articles, like books, may often be indexed not just according to their subjects, but also according to their various formats. And some of these journal formats are unusually important as reference genres. For example, the commercially-produced database *RILM Abstracts of Music Literature*, from the National Information Service Corporation, is not simply a subject index to thousands of journals (also books, conference papers, dissertations, etc.); it also enables users to search or limit by formats and genres. Specifically, it provides a search box allowing access by "publication type," including all of the following:

All
Article in a collection of essays
Article in a dictionary of a related discipline
Article in a newspaper
Article in a periodical or yearbook
Article in a symposium proceedings or Congress report
Article in a volume of essays printed as a Festschrift
Article in translation
Book division or chapter
Book in facsimile or reprint form
Book in translation
Book of collected essays, letters, or documents
Book of essays printed as a Festschrift
Book of symposium proceedings or a Congress report
Book, monograph, or pamphlet
Book: periodical as a whole
Commentary accompanying a recording
Commentary printed in the program of a concert or opera
Commentary printed within an edition of music
Commentary, printed separately, on an edition of music
Dissertation, doctoral
Dissertation, master's or other non-doctoral thesis
Electronic resource

Motion picture
Music recording, sound recording
Review of a book, monograph, or pamphlet
Review of a dissertation
Review of a facsimile or reprint edition
Review of a new edition or music other than scholarly
Review of a periodical or yearbook
Review of a recording or film
Review of a scholarly edition of music
Review of a symposium proceedings or Congress report
Review of a translation
Review of a volume of collected essays
Review of a volume of essays printed as a Festschrift
Review of an article
Review of an opera or concert
Review of electronic resource
Review of motion picture (video)
Technical drawing of a musical instrument

Similarly, the *ISI Web of Science* database, from the Institute for Scientific Information (a subsidiary of The Thomson Corporation) is an index to 9000 scholarly journals in all subject fields (including social sciences and humanities, not just sciences); and it allows searches to be limited to a variety of "document types":

All document types
Article
Abstract of published item
Art exhibit review
Bibliography
Biographical item
Book review
Chronology
Correction
Correction, addition
Dance performance review
Database review
Discussion
Editorial material
Excerpt
Fiction, creative prose
Film review
Hardware review
Item about an individual
Letter
Meeting abstract
Meeting summary
Music performance review
Music score
Music score review
News item
Note
Poetry
Record review
Reprint

Review (i.e., literature survey articles)
Script
Software review
TV review, radio review, video
Theater review

Many other commercial databases offer such "publication type" or "document types" search features. Several of these literature types—especially "reviews" of various sorts—are unusually important for reference work. Reviews are not easy to find within books; but such format-search capabilities in journal databases make them quite easy to zero in on, without burying them within much larger keyword retrievals—and it is within journals that most reviews appear in any event. As with the reference formats distinguished within book collections, such types of literature here, too, are not dependent on particular *subjects* (although there are sometimes *scope ranges* involved, as with the various formats connected to music—i.e., document types such as "dance performance review" or "music score review" will obviously not be found within journals devoted to subjects such as linguistics or nursing). The fact that most of these nonbook reference formats will predictably appear within multiple journals, usually regardless of the overall subject area of the journals, similarly enables many searches to be done much more efficiently, quickly, and precisely, than they could be if only subject (or keyword) searching were possible.

The predictability of reference formats, and their use in narrowing and focusing searches that would otherwise result in information overload, is, on the whole, still lacking in Internet search environments. Although it is now possible to limit Net searches to some large format-segments of sites—e.g., blogs, images, games, maps, news stories, patents, videos—the range of such types of sites is noticeably limited compared to the wider variety and greater specificity of format options available within library catalogs and commercially produced index databases. A major reason for the difference lies in most search engines' reliance primarily on automated computer algorithms to bring about the sorting of retrieved results; and term-weighting of keywords, designed mainly to cut down the clutter of sites irrelevant by subject, is not adequate either to make important distinctions among, or to clearly segregate, formats of records. Cataloging or indexing according to document types, especially the subset of types that are reference formats, has up to now been successfully accomplished only by human beings. Whether it can be accomplished in the future by machine algorithms is a question not yet answered.

In any event, whether human-created or machine-generated, reference form and genre designations play an increasingly important role in research today: the greater the size of any subject retrieval, the more necessary are filtering mechanisms that sort, categorize, and subdivide

the results in ways that prevent information overload and allow searches to be efficiently focused on only the most appropriate sources. In addressing this need, form categorizations are equally as important as subject groupings.

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