A Fully Faceted Syntax
for Library of Congress Subject Headings

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ABSTRACT. Moving to a fully faceted syntax would resolve three problems facing Library of Congress Subject Headings (LCSH): (1) Inconsistent syntax rules; (2) Inability to create headings that are coextensive with the topic of a work; and (3) Lack of effective displays for long lists of subdivisions under a single subject heading in OPACs and similar electronic displays. The authors advocate a fully faceted syntax using the facets of a modern faceted library classification (The Bliss Bibliographic Classification, 2nd ed.). They demonstrate how this might be accomplished so as to integrate the new syntax with existing headings.

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INTRODUCTION

Lois Mai Chan, one of the most prolific writers on Library of Congress Subject Headings (LCSH), has written: "Considering the gradual steps the Library of Congress has taken over the years, even a person not familiar with the history of LCSH must conclude logically that LCSH is heading in the direction of becoming a fully faceted vocabulary." Faceted syntax offers solutions to three problems that confront the current LCSH system: (1) Inconsistent syntax rules; (2) Inability to create headings that are coextensive with the topic of a work; and (3) Lack of effective displays for long lists of subdivisions under a single subject heading in OPACs and similar electronic displays. Facets are fundamental categories, aspects, or "faces" of phenomena similar to the journalist’s "who, what, where, when, why." Facets represent fundamental characteristics by which any documentary topic or form can be analyzed and described. The term comes from the French diminutive for "face," "facette." Examples of generic facets are:

- entities or things (persons, artifacts, natural objects, animals and plants, institutions, etc.)
- attributes or constituent materials
- actions (operations, processes, events)
- places
- times

LCSH already recognizes and labels the facets of place, time, and format, but thus far it has not identified other topical facets. Faceted syntax is syntax (rules for ordering words in natural language or terms and descriptors in indexing languages) based on their facets. Here too, LCSH already has rules for when place precedes topic, or topic precedes place. Generally speaking, LCSH puts format terms at the end of a heading. But current LCSH syntax is inconsistent. A fully faceted syntax prescribes a consistent order of terms based on their facets.

PROBLEMS AND CRITIQUES OF LCSH: SYNTAX

LCSH is the largest and oldest system of subject headings in continuous use. This indexing language of over "245,000 authorized headings" celebrated its 100th birthday in 1998. It is by far the most widely
used indexing language in the world. By 2003 it had grown to 270,000 terms, adding thousands of new terms each year.

Because of its importance, LCSH has inspired a large literature, which for the most part highlights problems and failures and to a lesser extent suggests specific reforms. Most of this rich literature has been collected and reviewed by a series of three bibliographic essays, beginning with Monica Kirtland and Pauline Cochrane in 1982, updated by Steven Blake Shubert in 1992, and most recently by Karen S. Fischer. These bibliographic essays are classified by the major areas of concern, including specificity, syndetic structure, subdivisions, form of headings, currency and prejudices, sparseness of headings, ease of use, mapping with other vocabularies, indexer consistency, and local use.

This paper focuses on the problem of syntax. Syntax per se has not merited a separate section in the series of bibliographic essays, but Fischer confirms that over the past six decades there have been “persistent complaints about . . . complicated syntax . . . and complicated, inconsistent application of subdivisions.” Indeed, problems with subdivisions, which do merit a separate section, are largely questions of syntax.

**FACETED SYNTAX**

Current LCSH syntax is, to use Elaine Svenonius’ terms, enumerative rather than synthetic. This means that rules are enumerated for specific headings and subdivisions, or categories of headings and subdivisions. There are no general rules for combining terms (synthesizing terms) into headings. Faceted syntax is synthetic syntax. It provides a general syntax that would apply across the board. It can be applied by providing a list of facet categories and permitting catalogers to place single-concept terms in appropriate facet categories.

Faceted syntax would accommodate another frequent complaint/suggestion—that LCSH become less “pre-coordinated” and thus more useful for “post-coordinate” online searching. For example, Chan and Hodges have suggested “simplifying the syntax (i.e., separating the terminology from the syntax) and having LCSH become more faceted and post-coordinate.” However, Chan and Hodges do not suggest a specific means for achieving this goal.

A post-coordinate vocabulary of single-concept terms may be effective for electronic searching, but it would be a disaster for browsing, a long-time strength of LCSH. Browsing single concept terms would be
like using a terrible back-of-the-book index without subheadings, so that under most headings, the number of references or items would be enormous and therefore difficult if not impossible to peruse.

Faceted syntax offers a simple solution to this problem. It encourages the use of post-coordinate single-concept terms, but it provides syntactic rules for combining them into subject strings that in many cases can be coextensive with the content of the work indexed. With a growing body of research that recognizes that browsing can be the most effective means for accessing useful documents in some situations, this is no time for LCSH to abandon one of its strongest contributions to effective information retrieval.

Pauline Cochrane was one of the first to suggest a kind of faceted syntax in her 1986 book *Improving LCSH for Use in Online Catalogs*, although she doesn’t call her suggested syntax “faceted”. There have been discussions at the Library of Congress about how the subject cataloging could be done differently in order to accommodate permutation of the subject heading string. Since the logic behind the string’s construction is lost on most catalog users and some catalogers, a worksheet was devised to guide the cataloger who would analyze a work and assign subject headings in parts or “elements.” These parts would then be available for computer manipulation to construct headings for catalog cards and for computer-based catalogs, with varying display options. This suggestion has not been implemented at the Library of Congress, but it is noteworthy and may stimulate another library to consider analyzing its subject headings in this way, recoding the parts of the headings in its subject authority files, and creating a new way of displaying subject headings in its online catalogs. Although this may seem revolutionary, remember that it still is within Library of Congress rules for construction of subject headings. It just makes the formulated headings more flexible and accessible for manipulation.

More recently, OCLC has pursued a faceted syntax for LCSH, albeit on a limited scale, with its FAST (Faceted Application of Subject Terminology). This system is based on eight facets already recognized by LCSH: Topical, Geographic (Place), Personal Name, Corporate Name, Form (Type, Genre), Chronological (Time, Period), Title, and Meeting Name.
FAST puts most topics into a single topical facet. The only exceptions are places, time periods, and individual persons, corporate bodies, and texts. This is hardly what most experts mean when they refer to faceted syntax. Ranganathan, often considered the grandfather of the faceted approach, suggested five basic facets for topics: personality (i.e., entities), matter (i.e., attributes), energy (i.e., actions, processes, events), space (place), and time. But most faceted systems take these basic five topical facets only as a starting point. It would be a stretch to call the FAST approach “fully faceted.” But of course FAST does not claim to be fully faceted; instead its goal is to create a simple syntax that non-catalogers can understand and use.

**EARLY EXAMPLES OF FACETED SYNTAX**

PRECIS (Preserved Context Indexing System) was an early attempt at faceted string syntax for indexes or subject headings. String syntax refers to the creation of strings or sequences of terms by computer algorithms after human indexers have tagged descriptors or terms by facet or other categorization. Derek Austin, who developed PRECIS, was an active member of the Classification Research Group in the United Kingdom and was influenced by its emphasis on facet analysis. He was also influenced by the linguistic theories of Noam Chomsky. As a result, PRECIS made use of basic facets for entities, actions, agents, viewpoint, audience or form, but it also had many linguistic categories. Adjectival terms, for example, were categorized by types such as “non-lead direct difference,” “lead direct difference,” “salient difference,” “non-lead indirect difference,” “lead parenthetical difference,” etc. The result was an exceedingly complex system. Its *Manual of concept analysis and subject indexing* was more than 551 pages long. PRECIS was designed for, and used by, the British National Bibliography, but it was later abandoned and has now been replaced by LCSH.

At one point, the Library of Congress did consider adopting PRECIS, but, in the words of Bella Hass Weinberg, “this was never a real possibility. Too many libraries used LCSH, and too many machine-readable cataloging records contained those headings.” Part of the problem was that no one considered that PRECIS might be used with LCSH terminology. But even without terminological conflicts, PRECIS was just too complex, as suggested by Weinberg in the title of her article “Complexity in Indexing Systems—Abandonment and Failure.”
CIFT (Contextual Indexing and Faceted Taxonomy) was a simpler system of faceted string syntax developed in 1979 by Anderson for the Modern Language Association of America. It is still used by the MLA for its *International Bibliography* and database. It is based on facets relating to literature, folklore, and linguistics. After indexers have indicated the facet categories of terms, a computer algorithm creates strings of terms for the alphabetical indexes and also for the classified displays of citations. The facets for literature include national literatures, performance media, languages, periods, individuals, works, groups/movements, genres, features, literary techniques, themes/motifs, influences, sources, processes, methodological approaches, theories, devices/tools, and disciplines.\(^{16}\)

**COEXTENSIVE SUBJECT STRINGS**

The Working Group on Principles Underlying Subject Heading Languages, sponsored by the Section on Classification and Indexing of the International Federation of Library Associations and Institutions (IFLA), has developed principles for subject heading systems. One of these principles is:

*Specific Heading Principle (Specificity Principle):* “To increase the precision power of a subject heading language, a subject heading should be coextensive with the subject content to which it applies.”\(^{17,18}\)

With the current enumerative syntax of LCSH it is often impossible to create a heading, or string of terms, that is coextensive with the subject content of a work. Instead, LCSH often applies a set of separate headings, which taken together, approaches coextensiveness.

In their analysis of LCSH in light of the IFLA Principles, Hoerman and Furniss\(^{19}\) equate multiple LCSH headings with the coextensive heading that the Specific Heading Principle calls for. We believe this contradicts the intent of the principle.

The problem with sets of subject headings as a substitute for a single coextensive string of terms is that users do not see the complete set of terms until they have retrieved a record. Thus the set of terms cannot help the user make a preliminary decision as to the relevance of an item (Timothy Craven’s principle of eliminability—the ability to eliminate unwanted items based on the subject description).\(^{20}\)

Take, for example, the work *Black Baptists and African missions: the origins of a movement, 1880-1915*, by Sandy D. Martin (Macon, GA: Mercer, c1989). To indicate the subject content of this work, the follow-
ing LCSH headings can be used, but they cannot be combined into one comprehensive heading according to current syntax rules:

- West Africans -- Missions -- History -- 19th century.
- African American Baptists -- Southern States -- History -- 19th century.
- Carey, Lott -- Contributions in missions.

In contrast, here are the same LCSH descriptors (main headings and subdivisions) merged into a single string using faceted syntax. The procedures for creating such a faceted string are explained later in this article. In accordance with standard practice in faceted indexing, natural language role indicators may be inserted within angle brackets to clarify the relationship between descriptors:


This comprehensive LCSH heading would appear in the alphanumeric subject catalog under each descriptor, providing significantly more direct access than current LCSH syntax allows. For example, this comprehensive heading could be found under the following additional headings, compared to current LCSH practice: Missions; History; 19th century; Southern states; and Africa, West. Here is the complete list of headings under which this faceted heading could be found:

- 19th century
- Africa, West
- African American Baptists
- Carey, Lott
- History
- Missions
- National Baptist Convention of the U.S.A.
- Southern States
- West Africans

**DISPLAY OF LCSH HEADINGS WITH MANY SUBDIVISIONS**

A problem that has received too little attention is browsing an LCSH heading with many subdivisions. It is often impossible for users to get
an overview of what is available. Homosexuality is not a large topic in
the Rutgers University Libraries catalog, yet there are nearly 200 sepa-
rate unique headings beginning with the term “Homosexuality.” For a
user to scan through this list, it would take 10 separate screens, if 20
headings were displayed on each screen. Few users would have the pa-
tience for such a task, and it is even worse for large topics such as
“Women” or “United States.” Some way to summarize these headings
is essential.

For several years the Subject Access Committee (SAC) of the Cata-
loging and Classification Section, of the Association for Library Collec-
tions and Technical Services (ALCTS), a division of the American
Library Association, has addressed problems of display for subject
headings, although most of their emphasis has been on the improvement
of syndetic structure (cross reference structure) in OPACs. This,
while exceedingly important, is outside the scope of this paper. Nothing
in this paper contradicts the importance of integrating cross-references
into subject heading displays. (Unfortunately SAC and its subcommit-
tees have abandoned the long-established terms for syndetic or cross
reference structure and renamed them “reference structures,” which,
when we first encountered their work, we assumed related to reference
services, one of the major areas of librarianship, perhaps organizational
structures for providing those services.)

One of SAC’s subcommittees did deal directly with the problem of
displaying subject headings in OPACs. However, the emphasis in
their report is the ongoing debate between strictly alphabetical dis-
plays (as recommended by the ALA Filing Rules versus so-called
structured displays, such as those advocated by Library of Congress
Filing Rules). They did not deal with the problem of how to compress
large numbers of subdivisions to provide an overview to browsers.
Gregory Wool takes a similar approach in his “Filing and Pre-
coordination: How Subject Headings Are Displayed in Online Catalogs
and Why It Matters.”

The need to provide an overview of subdivisions was briefly ad-
dressed by the 1991 Library of Congress conference on “The future of
subdivisions in the Library of Congress Subject Heading system.” One
of its recommendations, so far not implemented was:

4. The question of whether subdivisions should be coded specifically
to improve online displays for end users should be considered... The
consolidation of subdivisions into broad, conceptually-based cate-
gories could significantly reduce the length of the index display un-
der a specified search term. A compressed display based upon unique subfield coding for subdivisions representing economic aspects (e.g., -- Accounting, -- Costs, -- Custom rates, -- Economic aspects, -- Finance, -- Forecasting, -- Taxation, etc.), technical aspects (e.g., -- Documentation, -- Energy conservation, -- Energy consumption, -- Quality control, -- Safety measures, -- Technology transfer, etc.), and form of material (e.g., -- Bibliography, -- Handbooks, manuals, etc., -- Maps, -- Statistics, -- Terminology, etc.) could look like this:

"Agriculture = [economic aspects]
Agriculture = [technical aspects]
Agriculture = [place]
Agriculture = [bibliographies, dictionaries, etc.]

(Brackets are used in the original example.)

Yee and Layne, in their 1998 book *Improving Online Public Access Catalogs*, recognize the problem but do not pursue it. Toward the end of their chapter on “Demonstration of Relationships -- Subjects: Display Decisions” they say “It should not be forgotten that LCSH uses many form subdivisions. Designing effective displays of subject headings with form subdivisions helps users make choices regarding forms such as dictionaries, handbooks, dramatic or historical treatments of a topic, or indexes.”27 In our opinion, the problem of effective display of geographic and topical subdivisions is a much greater one.

More than anyone else, Karen Markey Drabenstott has addressed this problem of displaying long sequences of subdivisions, especially in her landmark work with Diane Vizine-Goetz, *Using Subject Headings for Online Retrieval: Theory, Practice, and Potential*. When a user selects a heading with many subdivisions, the subdivisions should be summarized. Here is their example for the heading “Korea (North)”:28

<table>
<thead>
<tr>
<th>Broad topic:</th>
<th>Korea (North)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad category:</td>
<td>Armed forces</td>
</tr>
<tr>
<td>Business and economics</td>
<td></td>
</tr>
<tr>
<td>Culture and civilization</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Foreign relations</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
</tr>
<tr>
<td>Politics and government</td>
<td></td>
</tr>
<tr>
<td>Society, ethics, and religion</td>
<td></td>
</tr>
</tbody>
</table>

If the searcher selects the broad category “Politics and government,” the more detailed subdivisions belonging to that broader category are displayed:
The difficulty in implementing such summary displays for subdivisions is that these summary categories would have to be created and coded for display. At the moment, LCSH has codes only for four types of subdivisions: (v) form, (x) topical, (y) chronological, and (z) geographical. But even these, to our knowledge, have not been used to provide even this level of overview for headings with many subdivisions.

One of the advantages of a faceted syntax is that categories of terms that can be used to provide an overview under prolific headings are provided automatically by the cataloger when terms are placed into facets. Here, for example, is how an overview based on facets can be provided for the headings used in the examples that come later in this article.

Appendix 1 is a list of all subject heading terms, along with postings information, from the sixteen examples discussed later in this article. It is designed to represent all of the headings in a subject catalog. The postings information is imaginary, for illustration only. Each heading term appears only once, even though several appear many times among our sixteen examples. Complete subject descriptions in the form of strings of terms are displayed only when a user selects a particular heading term. The number of postings is included to give users an idea of how many items appear under each heading term.

If a user picks “Homosexuality,” a summary of all headings that include this term is first displayed based on a selection of facets represented in full subject descriptions. The first option is “general works,” which stands for works with the heading “homosexuality” but without any other terms. For these summary displays of headings with many terms, we have selected only the more important topical facets, plus facets for methodological approaches (e.g., history), formats or media, and types of audience (e.g., children). The complete list of cataloging facets is given below.

Homosexuality (125)
   Please choose from the following categories of headings.
   General works (10)
Or, Homosexuality, in relation to:
   Entities/things (persons, institutions, objects, artifacts, etc.) (50)
   Properties/attributes (20)
Now, if the user picks “Space/Places/Environments,” all the places in strings related to “Homosexuality” will be displayed:

Homosexuality, in relation to:
Space/Places/Environments (75):
  Africa (1)
  America (10)
  Berkeley (Calif.) (10)
  Brazil (15)
  California (7)
  England (12)
  Europe (25)
  London (England) (5)
  North America (3)
  Spain (6)
  United States (15)

Now, when the user picks a particular place, in this case “Africa,” then subject description full strings will be displayed:

Homosexuality, in relation to:
  Space/Places/Environments:
    Africa (1)
    Gay men; Lesbians. Identity; Homosexuality; Public opinion <about>. <and> Homophobia. Africa. <treatment in>
    Literature; Anthropology: History (1)

A FULLY FACETED SYNTAX FOR LCSH

Anderson and several of his students have explored the possibility of a fully faceted syntax for LCSH. For facets, they chose those used by the Bliss Classification, 2nd edition. The Bliss classification is the most modern general faceted classification. Its facets are based on the pioneering work of Ranganathan, followed by decades of research and exploration by the Classification Research Group in the United Kingdom. The Bliss Classification is a comprehensive classification scheme designed to accommodate every possible topic, thus its facets should be
appropriate for LCSH, which likewise must be able to accommodate every possible topic.

Here are the Bliss facets, in the order in which they are applied, with slight modification in their labels (e.g., “patient” has been changed to “client”):

**Topical facets:**

- thing/entity (objects, persons, institutions, texts)
- kind (kinds of things/entities)
- part (parts or components of things/entities)
- property/attribute
- material (from which things/entities are made)
- process (usually a naturally occurring process, like aging, maturation; usually experienced by the entity; usually does not have an object)
- operation (usually performed by an agent, and often with an entity as the object of the action; also used for events)
- client (for whom some operation is performed)
- product
- by-product (unintended and often negative results of operations)
- agent/means
- space
- time

To these, the following non-topical facets have been added to describe important non-topical features of messages, texts, and documents.

**Non-topical facets (features):**

- approach (methodological approach, point of view, etc.)
- format
- medium
- audience

In certain circumstances, these features can constitute topics of works that discuss them, but when that is the case, the appropriate terms should be placed in the appropriate topical facets. For example, a “psychological approach” as a topic, as opposed to an approach to another topic (LCSH: “Psychology -- Research”) can be placed in the operation
facet, whereas an “anti-abortion point of view” as a topic (LCSH: “Pro-life movement”) can be placed in the property/attribute facet (as a point of view) or in the entity facet as an institution. As explained below, “Psychology -- Research” should be decomposed to “Psychology” and “Research.” Here, “Psychology” constitutes the name of a discipline, which as an institution should be placed in the entity facet. (Disciplines and professions, such as physics, librarianship, law and medicine, are considered to be institutions because they consist of members organized for the purpose of training new members and managing the work of the discipline/profession through associations and boards. As such, they constitute important institutions in modern societies.) As a topic “Pro-life movement” can be modified with a role indicator to clarify its role: “Pro-life movement <point of view>” or “Pro-life movement <bias>” as appropriate if the descriptor best fits in the property/attribute facet. Movements are also human institutions which can be placed in the entity facet.

The suggested syntax is simple. Single concept terms, plus any needed or helpful natural language role indicators, are placed into facets, in the order listed. These terms are then combined into strings of terms for display. Within facets, terms are separated by semicolons or colons (which indicate whole-part relationships, e.g., New Jersey: New Brunswick). Facets conclude with a full stop (period or dot).

This faceted syntax allows catalogers to create headings that are more frequently coextensive with the content of a work. Thus one comprehensive heading (or string of terms) can often be used instead of several separate and unconnected headings (see the previous example of Black Baptists and African missions).

SOME WORKING RULES

Here are preliminary working rules for a fully faceted LCSH:

1. Use LCSH terminology, so that fully faceted headings can be integrated in catalogs with older LCSH headings. This is a form of superimposition, which old-timers will recall as the initial strategy for implementing the Anglo-American Cataloguing Rules, when new headings were integrated (superimposed) with older headings in author catalogs.

2. Decompose precombined LCSH headings, such as “Homosexuality and education” and “Homosexuality in literature.” Instead, use each
single-concept term as a separate term. But ignore this rule for terms that have little or no importance by themselves, e.g., “associates” in “Friends and associates.”

3. Place each term in the appropriate facet. Note that several facets are function facets rather than type facets. Hence, things and entities (including objects, persons, institutions, etc.) can be placed in the entity/thing facet, or in the client, product, by-product, or agent/means facets, depending on their function (or role) in the overall topic.

4. Use natural language role indicators within angle brackets to clarify relationships, e.g., West Africans. Missions <to>. <by> African American Baptists: National Baptist Convention of the U.S.A.; Carey, Lott. <from> Southern states. <to> Africa, West. 19th century. These role indicators are not part of the formal terms and should be used freely.

5. With faceted syntax, every term becomes a main heading, which is followed by the entire string of terms assigned to the work. Thus in an initial display of main headings, all terms appear by themselves. When one main heading is selected, then the staged display of facets related to that main heading begins, followed by displays of full strings, as illustrated above.

6. Suggested procedural steps for subject analysis and faceted cataloging:

a. Treat the facet list as a questionnaire.

b. Begin with facets for operation and process. Is there an operation or process? If there is an action, the object or recipient of that action goes into the entity facet, e.g., cataloging of maps: cataloging is the operation and maps are the entity.

c. Is the performer of the action named? E.g., cataloging of maps by paraprofessionals. Paraprofessionals are the agent.

d. Are they cataloging the maps for a particular clientele, e.g., for children? Children would be the client.


f. Do the maps have any particular qualities, e.g., three-dimensional? If so, “three-dimensional maps” can go into the kind facet. By placing “maps” in the entity facet and “three-dimensional maps” in the kind facet, access can be provided under both terms.

g. If a place is mentioned, that goes into the space facet; and any time would go into the time facet.
7. After this subject analysis, the initial terms must be translated into LCSH terminology.

8. An often helpful technique: Because facets are closely aligned with grammatical categories, it is often helpful to first create a sentence to describe the subject content of a work and then to translate the grammatical categories into their corresponding facets. To use the previous example of African American missions to West Africa, a possible sentence would be: African American Baptists, including the National Baptist Convention of the U.S.A. and Lott Carey in the Southern States evangelized West Africans in the 19th century.

The grammatical verb corresponds to the operation facet: “evangelization,” for which LCSH uses “Missions.” The grammatical object of the verb corresponds to the thing/entity facet: West Africans. The grammatical subject of the verb corresponds to the agent facet: African Americans, National Baptist Convention of the U.S.A. and Lott Carey.

Prepositional phrases are usually used to introduce places and times in a sentence. These terms go into the space and time facets. Natural language role indicators in angle brackets can be freely used to clarify relationships, e.g., <from> Southern states; <to> Africa, West.

For an extended discussion of facets, see chapter 2 in Anderson and Pérez-Carballo, Information retrieval design.31

SOME EXAMPLES

The following sixteen examples are based on subject cataloging provided by the Library of Congress. Terms are moved from LCSH headings into the proposed facets. In some cases, the relationship among terms was guessed, because they are often not explicit in LCSH headings. But the purpose of these examples is to show how comparable subject descriptions might look using the proposed facets instead of the current style of LCSH headings. If the resulting strings of terms were based on the works themselves rather than on LCSH headings, they might well be different. But our purpose here is to indicate possibilities, and we believe the procedure we have followed does this.

First an abbreviated MARC record is displayed, including only topically-oriented fields (classification notation, titles plus statement of responsibility, and subject headings). Then LCSH terms are moved to
facets and a string is created. Facets not used are not listed. Finally, some commentary is included about the process.

- thing/entity: Gay men; Lesbians
- property/attribute: Identity; Homosexuality; Public opinion <about>.
- by-product: <and> Homophobia.
- place/space: Africa.
- approach (methodological approach, point of view, etc.): <treatment in> Literature; Anthropology: History

Gay men; Lesbians. Identity; Homosexuality; Public opinion <about>.
<and> Homophobia. Africa. <treatment in> Literature; Anthropology: History.

Commentary: Based on the title and the LCSH headings, it appears that gay men and lesbians are the main entities discussed in this work, along with their attributes of identity and homosexuality. Public opinion <about> is an attribute of that homosexuality. The role indicator <about> clarifies that this is not the “public opinion” of the lesbians and gay men, but opinions of the general public about them. Role indicators, in angle brackets, should be added freely for clarification; they are not part of the official terms or headings.

There are no terms for processes or operations, so these facets are left out of the string.

A product is something produced intentionally; a by-product is an unintended product or result. Hence, homophobia can be considered an unintended by-product of public opinion about identity and homosexuality of the gay men and lesbians. The role indicator <and> serves to set the “homophobia” by-product off from the attributes of the gay men and lesbians.

This homophobia, and the foregoing identity and homosexuality are treated in literature and in the discipline of anthropology. These are the
approaches used to deal with these topics—a literary approach and an anthropological approach. And these approaches are placed in a historical context. The colon preceding “History” is meant to imply that a historical approach applies to the literary and historical approaches.

The full string appears to be a good overall description of the content of the work. It can be displayed under each constituent term, and in each case, the topical description is complete and identical (unlike current LCSH practice, where each subject heading is different and incomplete). For example, the LCSH “Public opinion -- Africa” is not very expressive of the content of this work.

Commentary: The problem with the LCSH headings for this work is that a role for the invading Spaniards is clearly implied, but the Spanish as agents are not mentioned in any of the LCSH headings. The rules we are following call for using only the terms found in LCSH headings that have been applied by catalogers at the Library of Congress. However, using this faceted syntax, it would be possible to move “Dominance
(Psychology)” to the operation facet and add “Spaniards” to the agent/means facet as the perpetrators of this psychological dominance:

- operation: Dominance (Psychology)
- agent/means: <by> Spaniards.

**Indians: Berdaches. Sex customs; Sex role; Sex (Psychology); Sexual behavior; Homosexuality; Social life; Customs. Domi-
nance (Psychology). <by> Spaniards. America; Spain. History.**

On the other hand, some of the attributes such as “Sex role,” “Sex (Psychology),” and “Sexual behavior” might apply to the Spaniards as well, so that an alternative treatment would be simply to add “Spaniards” to the list of entities, and not to try to specify respective roles:

**Indians: Berdaches; Spaniards. Sex customs; Sex role; Sex (Psychology); Sexual behavior; Dominance (Psychology); Homosexuality; Social life; Customs. America; Spain. History.**

Regardless of the particular approach, combining all LCSH terms into a single string gives a better overall view of this work than do the separate LCSH headings, such as “Sex (Psychology) -- History.” We have separated “Social life and customs” into two separate terms, so that displays are possible under “Customs” as well as “Social life.” We have used a colon between Indians and Berdaches because the Berdaches are Indians; a whole-part relationship is implied.
Commentary: As is typical with a collection of separate LCSH headings, it is not always clear what role individual terms play in the overall description. For example, is “Literary collections” merely the form of this material? But “literary collections” is used in LCSH for collections that include several literary forms. It is highly unlikely that the essays in this book are literary forms, such as poetry, drama, or short stories, so we shall assume that the use of literary collections in curriculum planning, study and teaching, and education is the topic of the book. We have inserted a role indicator <use of> to clarify this. Education is both an activity (operation) and the name of a field or discipline. As a name of a discipline, it should be treated as an entity or an agent; here we treat it as an operation. We decompose “Study and teaching” into “Study; Teaching.” This way there will be direct access under “Teaching.”

Commentary: The LCSH headings include three individuals. Whether or not all of them are American poets, gay men, and/or friends and associates, we have listed them here as parts (i.e., components) of the groups described by the terms “Poets, American,” “Gay men,” and “Friends and associates.” Our rules suggest that precombined terms

 thing/entity: Poets, American; Gay men; Friends and associates.
 part: Spicer, Jack; Duncan, Robert Edward, 1919- ; Blaser, Robin.
 property/attribute: Intellectual life; Homosexuality.
 product: Literature; American poetry.
 place/space: United States: California: Berkeley (Calif.).
 time: 20th century.
 approach (methodological approach, point of view, etc.): Biography; History; Criticism.

linked by “and” should be decomposed, but in this case, “associates” by itself is pretty meaningless, so we have left this as a bound term. As a result, there will be no display under “associates,” only under “Friends and associates.” Colons are used to separate the places because there is a whole-part relationship. The qualifier (Calif.) is maintained with Berkeley. It is redundant in the string, but Berkeley can be pulled out as a lead term in a display, and there the qualifier is useful. The term “History and criticism” has been split into two separate terms, allowing direct displays under “Criticism” as well as “History.”

Commentary: The only term omitted from the faceted string is “Bible,” from “Ethics in the Bible,” but “Bible” is clearly implied by the term “Biblical teaching.” “Ethics” can be considered a discipline (and therefore an entity), but here we considered it an attribute. The thing or entity possessing the attributes “Homosexuality,” “Ethics,” and “Christian ethics” is not mentioned, so the thing/entity facet is empty. “Ethics” and “Christian ethics” can also be interpreted as approaches to homosexuality and to sex in general. In that case, we would move these terms to the approach facet. “Sex” has many different meanings, but here we interpret it as a process because no object of sex is present (processes are generally experienced by the entity; operations are generally performed by an agent, with the entity as an object of the operation). “Biblical teaching” could well be placed in “approach,” but we put it in the “operation” facet. The difference in the resulting string of terms is without significance.
Here is an alternative string, with “Ethics” and “Christian ethics” moved to the approach facet:

**Homosexuality. Sex. Biblical teaching. Ethics; Christian ethics; Religious aspects: Christianity**

Commentary: Here “Homosexuality” is not a property or attribute of the Bible, unless one considers that anything that may be mentioned in the Bible is one of its attributes. Nevertheless, the resulting string of terms seems to make sense. An alternative would be to omit “Bible” because it is clearly implied by “Biblical teaching.”

**Gay men; Lesbians. Homosexuality. Healing <of>. <through> Spiritual warfare; <with> Biblical teaching. Religious aspects: Christianity.**

Commentary: We have taken the liberty of adding terms for “Gay men,” “Lesbians,” and “Healing,” because the title of this work clearly
implies that it is about healing gays and lesbians of their homosexuality using spiritual warfare and biblical teachings. We have added role indicators to clarify that the gay men and lesbians are to be healed by means of spiritual warfare, using Biblical teaching. Without the role indicators, it might be construed that gay men and lesbians are doing the healing.

Compare the above string to one without the role indicators:


Commentary: To keep “Church history” is probably redundant, but it’s a common term, so we include it.
Commentary: Sometimes two separate strings may be needed to express two separate and seemingly unrelated themes, and that may be the case here, but our single string of terms appears to make sense of this complex topic, except possibly for “Virgin birth.” (The title refers to virgins, not to virgin birth.) No principal entities (things, persons, or institutions that are the objects or recipients of actions or processes) are mentioned, so we omit the entity facet. Entities are implied, such as gay men or lesbians and slaves, but they are not needed for clarity, although they would provide additional access points. We have split “Moral and ethical aspects” into two separate terms, so that there can be access under each of these terms. The Inquisition is an institution, and therefore an entity, but here it plays the role of an agent of action or influence, rather than a principal entity. The colon between “Inquisition” and “Influence” is used to imply the influence of the inquisition. Canon law, as an approach to topics, is separated from “Sex crimes.”

Commentary: “Law and legislation” and “Legal status, laws” have been separated into separate terms. The colon between “Homosexuality” and “Legal status” is meant to imply that we are dealing with the legal status of homosexuality.

Indians. Homosexuality; Transvestism; Sex role; Sexual behavior; Social life; Customs. North America. Cross-cultural studies.

Commentary: Indians of North America has been split into two separate terms. “Sexual behavior” could be placed in the “process” facet instead of the property/attribute facet. It can be treated as a process, or an attribute. It makes little difference in the resulting string.
Commentary: The distinction between processes and operations is often hazy. A useful distinction is that operations are usually transitive, in a grammatical sense, and take a direct object (thing/entity facet) and an agent (the performer of the operation). Processes are usually intransitive, and if there is a thing/entity, it is performing or experiencing the process, e.g., aging maturation, etc. This string would be the same whether we consider “adultery” as a process or an operation.

Commentary: “Homosexuality -- Genetic aspects” is authorized in current LCSH. It has its own record in the authority file. “Bisexuality -- Genetic aspects” does not have its own record. The subdivision record for “Genetic aspects” instructs: “use as a topical subdivision under individual diseases.” Since bisexuality (or homosexuality) is not a disease (at least for reasonable folk), LCSH does not permit the use of “Bisexuality -- Genetic aspects.” This demonstrates how our faceted string is more coextensive because it applies “Genetic aspects” to both homosexuality and bisexuality. As in example #9, no things/entities are mentioned, so that facet is simply omitted.

- thing/entity: Gay men
- property/attribute: Homosexuality; Psychology.
- approach (methodological approach, point of view, etc.): Genetic aspects; Evolutionary psychology; History
Gay men. Homosexuality; Psychology. Genetic aspects; Evolutionary psychology; History.

Commentary: The “Male” has been dropped from “Homosexuality” because the entity is “Gay men.” “Psychology” is treated as an attribute of the gay men, while “Evolutionary psychology” is treated as an approach.

Gay men. Homosexuality, Male |z Europe |x History. Sodomy |x Religious aspects |x Christianity |x History of doctrines |y Middle Ages, 600-1500. Social history |y Medieval, 500-1500. Social history.

Commentary: For consistency, “Male” has been dropped from “Homosexuality, Male” and “Gay men” has been inserted in the entity facet. Like “Church history” in a previous string, “Social history” has been maintained as a separate term. The outdated term “Sodomy” could, like “Adultery” in example #12, be treated as a process or an operation, but in this case as well, it makes no difference in the resulting string.
CONCLUSIONS

We believe that we have demonstrated that a fully-faceted syntax is quite workable for LCSH. And by maintaining current LCSH terminology, faceted LCSH strings of terms can be integrated into current catalogs. We know from long experience that recataloging older works, with rare exceptions, is out of the question.

A faceted syntax is in line with current indexing theory. It makes use of single-concept terms, which are preferred for post-coordinate searching, yet it provides a syntax for creating complex headings that are co-extensive with the subject content of library documents. Facets also provide a simple means for providing users with overviews of headings for topics having many subheadings.

What is needed now is extensive testing of this type of faceted syntax for LCSH, including usability studies focusing on users and also on catalogers. How readily can catalogers adapt to this new system? Indexers
for the Modern Language Association’s *MLA international bibliography* have been using faceted indexing for more than twenty years. When it was first introduced, it took some getting used to. After catalogers get used to this faceted approach, would the quality of their cataloging improve? Would productivity increase? These are questions for future research, for future dissertations.

Would catalog users find these more comprehensive, coextensive subject descriptions more useful than the current limited scope of LCSH headings? Research by Drabenstott, Simcox, and Fenton have demonstrated that many users and as well as librarians do not understand the intended meaning of current LCSH headings. Some users may find longer faceted strings even more difficult, even with the aid of natural language role indicators. On the other hand, even if they treat faceted strings as no more than a list of descriptors pertaining to a document, such a list may well provide them with a better indication of the true scope of the document than can isolated LCSH headings that pertain only to a part of the overall scope.

Would users find browsing long sequences of subdivisions grouped by facets easier than the current long lists of undifferentiated subdivisions? We think so, but this, as well as user reception of faceted strings, requires study. We propose to initiate such studies among users and catalogers.

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REFERENCES


7. Ibid., 64-65.


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APPENDIX 1

| 500-1500 (1)   | Homophobia (10)       |
| 17th century (10) | Homosexuality (125) |
| 18th century (20) | Identity (10)       |
| 20th century (100) | Indians (100)   |
| Adultery (10)    | Influence (21)      |
| Africa (100)     | Inquisition (10)    |
| African American authors (10) | Intellectual life (10) |
| African American men (20) | Laws (22)    |
| America (10)     | Legal status (10)   |
| American literature (200) | Legislation (27) |
| American poetry (100) | Lesbians (75) |
| Anthropology (50) | Literary collections (10) |
| Berdaches (1)    | Literature (700)    |
| Berkeley (Calif.) (10) | London (England) (28) |
| Bible (300)      | Masculinity (10)    |
| Biblical teaching (10) | Medieval (100) |
| Biography (100)  | Mental health (77)  |
| Biological psychiatry (1) | Moral aspects (10) |
| Bisexuality (10) | North America (10)  |
| Blaser, Robin (1) | Poets, American (44) |
| Brazil (50)      | Protestant churches (10) |
| California (100) | Psychology (100)    |
| Canon law (10)   | Public opinion (78) |
| Christian ethics (20) | Race identity (33) |
| Christianity (100) | Reader-response criticism (10) |
| Church history (100) | Religious aspects (65) |
| Criticism (100)  | Sex (207)           |
| Cross-cultural studies (10) | Sex (Psychology) (10) |
| Curriculum planning (10) | Sex crimes (21) |
| Customs (200)    | Sex customs (10)    |
| Doctrines (30)   | Sex role (10)       |
| Dominance (Psychology) (5) | Sexual behavior (100) |
| Duncan, Robert Edward, 1919- (1) | Slavery (100) |
| Education (400)  | Social aspects (90) |
| England (200)    | Social conditions (100) |
| Ethical aspects (70) | Social history (100) |
| Ethics (100)     | Social life (100)   |
| Europe (300)     | Sodomy (10)         |
| Evolutionary psychology (7) | Spain (100) |
| Friends and associates (10) | Spaniards (12) |
| Gay interpretations (10) | Spicer, Jack (1) |
| Gay men (25)     | Spiritual warfare (1) |
| Gays (30)        | Study (10)          |
| Genetic aspects (10) | Teaching (20) |
| Healing (5)      | Transvestism (1)    |
| Heterosexuality (37) | United States (400) |
| History (500)    | Virgin birth (10)   |