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July 2005

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CannCasciato, Daniel, "Retrospective Application of Subject Headings, Part 2: a Case Study at the Central Washington University Library" (2005). *Library Philosophy and Practice (e-journal)*. 13.
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Retrospective Application of Subject Headings, Part 2 –a Case Study at the Central Washington University Library

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ABSTRACT

This article describes implementation of a methodology followed for the retrospective application of 474 subject headings to already existing bibliographic records. Findings and considerations for future application are discussed.

INTRODUCTION

The purpose of this article is to describe the results and some of the ramifications of a project to apply subject terminology retrospectively. As outlined in part one of this article¹, a list of subject authority records (SARs) from 1995 in the Central Washington University Library were extracted and printed out. The headings and references were then searched in the online catalog, CATTRAX, and suitable records were updated with the terminology, subdivided as appropriate. The number of headings reviewed in this study was 474. No selection criteria were used to eliminate headings not likely to produce results.

The development of the procedure used was discussed in the first part of this article. The results to be discussed are from following that procedure as it is described here. The number of changes made to bibliographic records as a result of this process have been significant (greater than 1000). Local changes in subject authority records (SARs) have been noted as well, many of which will be submitted as proposals via the Subject Authorities Cataloging Project (SACO) through the Library of Congress.

Procedure:

- Step 1. Searched each subject as a phrase in technical mode and then recorded the number of hits
- Step 2. Searched each heading string as a word search (in general, omitting terms used in qualifiers)

Limited by title words of the subject string

- Browsed for appropriate titles
- Applied the new subject headings if appropriate
- Step 3. Searched at each see from reference as a word search
- Truncated plural forms to eliminate re-keying and to increase recall (or searched by plural and singular form when recall was too large). I limited results by words in title of the new heading or the reference
- Browsed for appropriate titles
- Applied the new subject headings if appropriate
- Step 4. Searched each broader term from the SAR
- Limited results by words of the new heading in the title
- If the broader term were subdivided, searched it also in its un-subdivided form
- Searched ad-hoc broader terms, if they were used
- Browsed for appropriate titles
- Applied the new subject headings if appropriate
- Step 5. If alternative terminology were appropriate, did a word search on that terminology
- Limited results by words of the new heading in the title
- Browsed for appropriate titles
- Applied the new subject headings if appropriate
- Step 6. Searched each heading again as a subject string
- Recorded the number of hits, from which the original number of headings was deducted. The net results are recorded as the primary changes made to the bibliographic records.

Limiting by word in title was done only on the occasions when recall was too great to make browsing the file effective. In most cases, retrieving fewer than fifty or so records still allowed browsing, so limiting was not used.

During this process, I attempted to resolve appropriateness of the new heading for the work by searching other catalogs or having the item paged from the stacks, when either step was needed. This was rarely done.

Step 7. Additions of additional subject headings were tracked as secondary changes, e.g., corrected headings, additional headings for other related topics, etc. Stylistic changes or those unrelated to this specific process were not counted. For example, when examining the heading for the fictional place, **Thalia, Tex.**, upgrades to other records for the works of fiction by Larry McMurtry were not counted in this study.

Step 8. Potential SACO applications were also identified. In the earlier sample, this process indicated that **Traditional costume** be added as a see reference to **Ethnic costume**. That proposal was sent in through the SACO procedure and was accepted. The Library of Congress upgraded the SAR for that subject to include that reference and others.

RESULTS

The following tables indicated the total additions of primary headings (Step 6), secondary headings (Step 7), and a summary of headings identified as potentials for SACO enhancement (Step 8).

Column 1 in the first two tables reflects the number of changes per SAR. Column two reflects the number of SARs for which there were that number of changes, and column 3 is the total number of changes per category during this process.

Table 1

PRIMARY changes to bib record	Number of SARs	Total
1	56	56
2	41	82
3	14	42
4	9	36
5	12	60
6	9	54
7	5	35
8	3	24
9	5	45
10	5	50
11	1	11
12	3	36
13	1	13
14	1	14
15	1	15
17	3	51
21	2	42
30	1	30
33	2	66
41	1	41
49	1	49
71	1	71
85	1	85
TOTAL	178	1008

Table 2

SECONDARY changes to bib record	Number of SARs	Total
1	52	52
2	24	48
3	19	57
4	5	20
5	6	30
6	4	24
7	4	28
8	1	8
9	2	18
12	1	12
TOTAL	118	297

Table 3

Number of potential SACO changes (step 8)	
Bibs changed too	31
Bibs not changes	7
TOTAL	38

Sub-total--number of PRIMARY changes (Table 1):	1008
Sub-total--number of SECONDARY changes (Table 2):	<u>297</u>
TOTAL number of changes:	1,305

DESCRIPTION OF PRIMARY AND SECONDARY HEADING CHANGES

- There were 79 SARs (1.5%) where both primary and secondary changes were made to bibliographic records.
- There were 38 headings checked where there was no primary change made to the bibliographic record (that is, the specific subject heading being reviewed was not added to any bibliographic record), yet secondary changes were made.
- There were 257 headings (54%) where no changes were made to catalog records.

Of these, the headings tended to be of the following types:

- Geographic heading followed by standard subdivisions (**Turkmenistan--Economic conditions**)
- Headings created to fulfill the reference hierarchy.

For example, **Veterinarian--United States**, was created because it was needed as a broader term on the heading **Afro-American veterinarians**, but otherwise not a new heading in the sense of being newly authorized.

- Concept headings (**Psychological fiction, American**)
- Music headings

Of these, the last two (concepts and music headings) are reliably limited in usefulness and could be ignored in future applications of this procedure.

There were 217 SARs (46%) where changes of some kind were made to bibliographic records. Just over half of the primary changes (524 of 1008 or 52%) were made due to 19 SARs (4% of study size). The actual headings and counts of those 19 SARs are in Table 4.

Table 4

Steam locomotives	11
Manipulatives (Education)	12
Population Economic aspects	12
Mining camps	12
Owens River Valley (Calif.)	13
Indian country (United States law)	14
Sex discrimination in justice administration	15
Forest management Law and legislation	17
Consolidation and merger of corporations	17
Taxation Law and legislation	
Benthic animals	17
Ozone-depleting substances	21
Jungian psychology	21
Contaminated sediments	30
Railroad accidents Investigation	33
Federally recognized Indian tribes	33
High performance computing	41
Political violence	49
Abandoned mined lands reclamation	71
Geological cross sections	85
Total	524

A majority of these headings were added to records for government documents materials.

It is important to note that the new heading,

Europe, Western

was not included in the results of this study. While it fit the criteria (authorized in 1995), it was not a heading that could be included in this workflow since the retrieval volume of records was extremely high. A special project would be needed to review and update appropriate records with that heading or subdivision. It appears that hundreds of records will need to be changed.

DISCUSSION

The volume of headings changed points out the need for timely heading creation. Subject headings for clearly stated concepts (**Abandoned mined land reclamation; Jungian psychology; Ozone-depleting substances; Steam locomotives**) should be formulated at the time of initial need, as indicated as the current practice in the *Subject Cataloging Manual*:

*Subject Headings*². In addition, they are among the easiest to formulate. Conceptual headings, while more difficult to define and fit into the reference hierarchy of the Library of Congress Subject Headings are, possibly, more important to define early on. It is difficult to identify suitable bibliographic records after the fact for these types of subjects, though the growing use of contents and summary notes will help in a process such as this.

There are a number of benefits of this procedure, in addition to the increase in subject access. While the most important benefit is the use of newer terminology, there are secondary benefits as well.

STANDARDIZATION

By having a procedure for systematic review of headings, one is able to standardize the way headings are formulated on like materials. This takes shape in a number of ways. In some cases this involved the use of additional geographic subdivisions on subject headings already on bibliographic records thus helping to collocate them in the catalog.

SPECIFICITY

In other cases, additional specificity was added in a consistent manner in two categories. The first category was when the subject heading, for example **Salmonidae--Diseases**, was used on some bibliographic records yet there had been no attempt to indicate where the disease was affective (kidney, pancreas, etc.) On other bibliographic records, the diseased body part was indicated. During a systematic review, the heading for the affected part of the body can be applied consistently in practice, though currently no specific heading exists for the disease as named in the title (enteric red mouth disease, for this example).

Similarly, more specific headings can be applied when they are found. **Jupiter (Planet)--Satellites** was applied to bibliographic records years before the heading **Io (Satellite)—Maps** (sh 98000376) was created. Even though the heading for the moon Io falls outside of this study as to year of formulation, as part of this systematic review, this heading and SAR were added to the catalog.

SUBJECT HIERARCHY FILLED

Lastly, gaps in subject hierarchy were caught. The heading **Luvaridae, Fossil** was reviewed in this study. While it was not applied to additional headings, during this process, its broader term, **Perciformes, Fossil**, was searched (Step 4 of procedure). During that process, it was noticed that the heading for **Perciformes** itself was a broader term on many SARs in the catalog, yet the SAR for **Perciformes** itself was not in the catalog. By addition of the SAR for **Perciformes**, the hierarchical link from **Osteichthyes** to **Perciformes** was created.

SACO

For the purposes of this study, a heading was indicated as SACO when it, or a related heading, was identified to be enhanced. It is anticipated that not all enhancements will be permanent, nor accepted via SACO submission. However, many are anticipated as being easily within the realm of SACO enhancements. There were two categories of subject enhancements – cross-references and hierarchical references.

Simple cross-references were identified as a result of reviewing the file of records to which a heading in the review sample had been applied. A term in the title that appeared synonymous was then added in some form to the SAR locally. It will then be considered for proposal to the Library of Congress through the SACO program. For example, the heading **Afro-American loyalists** had been assigned to records with the term **Black loyalists** in the title, so that term has been added as a local cross-reference. While the reference from **Black loyalists** might not be approved by the Library of Congress (**Black churches** was recently rejected as a reference to **Afro-American churches**), it will likely remain a local cross-reference.

A more likely accepted and surprising reference is that of **London Blitz** to the SAR **London (England)--History--Bombardment, 1940-1941**. This is surprising only because it does not yet exist, yet is such a common term for this event and meriting description in an encyclopedia³.

Hierarchical references were identified less frequently than were new cross-references. In the previous example, a related term reference was made between the two headings

London (England)--History--Bombardment, 1940-1941

and

Britain, Battle of, 1940,

due to the text of the encyclopedia article. This linkage will probably change. However, the immediate goal was to identify the bombardment aspect of the Battle of Britain. The topic will then be evaluated and changes to the SAR for **Britain, Battle of, 1940** suggested via a SACO proposal.

A more readily identifiable and lasting hierarchical change will be that of **Language maintenance**, an SAR from the study sample. It has been enhanced locally to add as broader terms the headings of

Bilingualism

and

Biculturalism

Currently, **Bilingualism** is already a broader term on the SAR for **Language attrition**. The work reviewed when looking at the heading of **Language maintenance** was *Social and educational issues in bilingualism and biculturalism*, 1981.

Also identified in this process was the need for new headings. Since the headings needed were not directly related to the existing headings (for example, specific geographic features) they were not counted as among the thirty-eight headings identified for SACO enhancements. Also, enhancements that were a byproduct of reviewing records were not counted among the thirty-eight either. For example, the heading **Synthetic fuels** was identified as needing a reference from **Synfuels**. Though noticed in the process of this work, the heading is not directly linked to any heading reviewed, so not counted in this category. The term **Synfuels** was noted in the process of reviewing the heading **Uintah and Ouray Indian Reservation (Utah)**.

CONCLUSIONS

The main goal of this study was to evaluate the workability and effectiveness of retrospectively applying subject terminology to already cataloged items. The background aim was to support fulfillment of one of the long stated objectives of the catalog -- to help a patron find what a library has by subject. This author is convinced on the basis of this work that such a process is effective and necessary to fulfill the syndetic effectiveness of employing the Library of Congress Subject Headings in a library catalog with an authority module. While there is some concern, as always, about workload, it appears that this process or a similar one is doable.

The additions to subject authority records are valuable as well. The taxonomic activity of defining categories and relating them to each other is essential to retrieval and effectiveness. It also supports cataloging normalization – that is, helping catalogers worldwide to provide similar access points when creating bibliographic records for items on the same subject.

This procedure is not the only way to make many of the changes that following it effected. However, it would mesh well with a number of quality control and maintenance activities that catalog departments undertake. It would complement many authority control workflows.

Overall, the project led to the addition of 1,305 headings (new or changed) on existing bibliographic records. As stated in part 1 of this article, in an age of shrinking acquisition budgets, providing access to items already in the library's collection is vital.

FOOTNOTES

1. CannCasciato, D. "Retrospective Application of Subject Headings, Part 1." In *Library Philosophy and Practice*, v. 2, no. 1 (Fall 1999).

2. *Subject Cataloging Manual: Subject Headings*, 5th ed., 1996. Instruction sheet H 187, section 1.

3. Encyclopedia Britannica online, 2000 (http://www.search.eb.com/bol/topic?eu=16746&sctn=1-s_top)