

MACS Update: Moving toward a Link Management Production Database

Patrice Landry
Swiss National Library
Bern, Switzerland

Introduction

Multilingualism has long been an issue that have been discussed and debated at ELAG conferences. Members of ELAG have generally considered the role of automation as an important factor in the development of multilingual subject access solutions. It is quite fitting that in the context of this year's theme of "Cross language applications and the web" that the latest development of the MACS project be presented.

As the title indicates, this presentation will focus on the latest development of the Link management Interface (LMI) which is the pivotal tool of the MACS multilingual subject access solution. It will update the presentation given by Genevieve Clavel-Merrin at last year's ELAG 2002 Conference in Rome.¹ That presentation gave a thorough description of the work that had been undertaken since 1997. In particular, G. Clavel-Merrin described the development of the MACS prototype in which the mechanisms for the establishment and management of links between subject heading languages (SHLs) and the user search interface had been implemented.

MACS approach

Before describing the present status of the LMI, it seems important to give a brief summary of MACS for readers not familiar with this project². MACS (Multilingual access to subjects) was created in 1997 in response to a request by the Conference of European National Librarians (CENL) to find a solution to the problem of multilingual subject access to bibliographic databases. A working group, under the Cobra+ (Computerised Bibliographic Record Actions), was set up in order to discuss this issue with regard to national libraries. Among many approaches discussed, the idea of establishing links between different subject heading languages (SHLs) was, for four of the participating libraries, a promising solution. These four libraries, the Swiss National Library (SNL), the Bibliothèque nationale de France (BnF), the British Library (BL) and the Deutsche Bibliothek (DDB) accepted the task of defining a concept and conducting a study to determine the feasibility of such a concept. The MACS project was then set up with its main goal "to provide the means by which library databases can be accessed on a multilingual basis by the use of equivalent headings from subject authority files". The approach taken was to create broad multilingual access that could be used as widely as possible by using indexing languages that are commonly available in most libraries in any given country.

¹ Genevieve Clavel-Merrin, "Multilingual Access to Subjects: The Macs prototype", 26th ELAG Library System Seminar, Rome, 17-19 April 2002, < <http://www.ifnet.it/elag2002/programme.html> > (April 19, 2002) Seen September 15 2003. (Printed version in preparation).

² for additional information on the MACS approach, see Elisabeth Freyre and Max Naudi, "MACS: Subject access across languages and networks", in *Subject Retrieval in a Networked World: Proceedings of the IFLA Satellite Meeting held in Dublin, OH, 14-16 August 2001 and sponsored by the IFLA Classification and Indexing Section, the IFLA Information Technology Section and OCLC*. I.C. McIlwaine ed. (München: K.G. Saur, 2003): 3-10.

The ultimate goal of MACS is to enable users to simultaneously search with a single query in the language of their choice (English, French or German) for all relevant documents indexed by the project's partner libraries in their own language. This multilingual search is made possible thanks to the equivalence links established between the three Subject Heading Languages used in these libraries: SWD/RSWK for German, RAMEAU for French and LCSH for English.

The MACS approach can be summarized by the following principles:

- Equality of languages and SHLs: No language or SHL is used as a pivot; each language is managed autonomously outside of MACS
- Establishment of equivalences between SHLs: Headings are not translated
- Equivalence links conceived as concept clusters: Mapping is done on the basis of concepts represented by SHLs
- Consistency of results: The quality of linking is based on the retrieval of consistent and similar sets of bibliographic records from different sources
- Extendable to other SHLs: Concept clusters can be increased by almost unlimited SHLs

Toward a production database

Since 2002, the MACS project has concentrated its efforts in developing the MACS Prototype into a production system. The MACS prototype (developed in 2002-2001) made it possible to test the initial hypothesis that linking SHLs is an effective method of offering multilingual subject access to online catalogues. The project was also encouraged by the positive responses of over 400 people who had signed up to test the MACS prototype. With the comments received and tests conducted by the MACS partners, refinement of the organisational structure has resulted in the design of a new version of the MACS system. The principal aim of this version was to improve the management of the tasks of creating and managing links in a decentralised work environment. The system should be able to meet the following MACS organisational principles:

- Partners share equal responsibility for link authorisation. There is no central editor
- Each partner is responsible for validating links proposed to their own SHL. For example, the Die Deutsche Bibliothek and the Swiss National Library are both responsible for the validation of the SWD headings part of a link
- Partners may make proposals concerning any other parts of the link and these must be validated by the responsible SHL partner
- All partners may comment on links through annotations. This acts as an informal editorial function where the use of a particular SHL heading in a link may be questioned

The specifications for this version were written up in the early part of 2002 and since then 3 releases were received from our provider, Infolab Tilburg. These were tested and it is expected that a new version will be released soon. As we are now in the second year of the phase of the development of the MACS production database, there is a sense of urgency to complete this phase. Delays can always occur in decentralised projects such as the MACS project where members are in different European countries and where work schedules can conflict. There have also been delays on the side of the provider which are not necessarily due to the complexity of the tasks but to

the work organisation and schedule. It is hope that the final release will be accepted by the end of this year so that link production can start in 2004.

New features in the Link Management Production Database

The task of moving from a prototype to a fully fledged production system did entail adding and modifying many functions. As mentioned, the main challenge of designing a new system was its capacity to be used efficiently in a web-based environment. Some of these new or modified functions will be briefly explained.

Subject domain approach

One important element in the workflow management of the system is to distribute the linking work according to each individual (link editor) competence. The approach chosen is to use subject domain numbers developed by the Bibliothèque nationale de France (BnF) and assign them to links. These domains (about 60) act as areas of work or area restrictors. In the following example, the SWD editor is restricted to work on the following areas: 100 (Philosophy), 150 (Psychology), 200 (Religion), 510 (Mathematics), 720 (Architecture).



Search for Subject Heading

SNL/editor/macs02

To conduct searches on all of the links, the editor can change the default settings and conduct a search in all of the domains.

Rights and permissions

Another management feature is the Rights & Permissions function. In the MACS system, functional roles are established according to the tasks and competences of each participant. For example, readers are guest users with read only access; annotators are external reviewers who may comment on links through annotations; editors work (create and edit headings and links) in a specific SHL and domain set; administrators (limited to one per SHL) review the work of editors of his own SHL and finally, supervisor takes on the system maintenance responsibility.

Full Name	Role	Authority	Domains
Aeronwen Allison	editor	LCSH	
Andrew Macewan	editor	LCSH	
Angelique Saget	editor	RAMEAU	150 Psychologie 200 Religion 790 Arts du spectacle 910 Géographie 999 Mots outils
Aunomde Laloi	editor	RAMEAU	340 Droit 999 Mots outils
BnF Guest User	reader	RAMEAU	
Britta Woldering	editor	SWD	999 Mots outils
Corine Deliot	editor	LCSH	

To Do / To Know

Once domains have been set and rights and permissions distributed, the distribution of work can be viewed through two important workflow pages. The first one deals with work pending, the “To Do” list. It shows the links which need to be completed or edited in the SHL and domains of the editor. In the “To Do”, there are three categories of listing:

- Invalid SHL term identifiers
- Open annotations to the SHL editors in relevant domains
- Unlocked link parts of the SHL filtered by domain(s). These need to be reviewed and locked (validated) when corrected.

The following figure is a partial screen shot of the “To Do” page. It lacks the “open annotations for SWD” and the “Unlocked links to SWD” sections.

Readers	Domain filter 100,150,200,510,720. Change	
Annotators	SWD Terms with Invalid Identifiers	
New Search	äussere Algebra	4293935-5*
List Terms	Antikatholizismus	435473-9*
Logout	Antiklerikalismus	4142675-7*
Editors	Antitritarismus	4002341-2*
Admins	Apostasie	4198921-1*
Add a New Link	Archäologie	40028276*
To Do	Architekt	4002844-6*
To Know	Architekturgeschichte	4506315-1*
Discussion	Architekturpreis	4142965-5*
	Archivbau	4203532-6*

The second workflow page is the “To Know”. It is a sort of personalised (by SHL) log of activity that has been done. It shows which links pertaining to the editors of a specific SHL that have been recently modified, locked (validated) and annotated. It can also be used in a similar fashion as the “To Do” list, as it gives information on the

links without a heading from the SHL of the editor. The following figure shows all of the view options of the “ To Know” page.

macs
multilingual access to subjects

To Know
landry/editor/mac02

Readers
Annotators
[New Search](#)
[List Terms](#)
[Logout](#)

Editors
Admins
[Add a New Link](#)
[To Do](#)
[To Know](#)
[Discussion](#)

Domain filter 100,150,200,510,720. [Change](#)

Period to view (past days incl. today) (since 2003-09-09)

Links with no SWD expression

Recently modified SWD links

Recently modified SWD links by strangers

Recently locked SWD links

Recently annotated SWD links

Other features currently been developed and tested are: Deletion log file to keep track of links deletion, duplicate checking to make sure that terms are not entered more than once and an automated loading procedure programme. This loading procedure will permit the loading of existing RAMEAU-LCSH links presently managed by the BnF. It will report on duplicates and non-accepted terms (i.e.MESH) and will give information on records processed.

SWD links: Tactics & support

The new LMI production database will definitely improve the linking mechanisms and the maintenance of links. Despite the improvements, the basic task of establishing links will remain very time consuming. A positive perspective is the fact that the project partners can count on existing bilingual links in the RAMEAU authority files managed by the Bibliothèque nationale de France. Approximately 70'000 RAMEAU authorities containing a proposed LCSH heading and a subject domain number will be progressively loaded in the LMI. Work on adding the SWD headings to these links will start soon after, hopefully in early 2004 and will be divided between partners in Germany and Switzerland according to domains.

In order to speed up this work, methods to facilitate link creation will be studied, including computer assisted link creation. The Swiss National Library has already started to investigate one method on how the linking process can be improved. In collaboration with the Ecole de traduction et d'interprétation , Université de Genève, a test project was initiated in April 2003 to evaluate the feasibility of having translation students propose dictionary terms / SWD headings to help indexers locate the appropriate SWD headings. The hypothesis to be tested is as follow; is it faster to complete and validate a link with or without a proposal? This method will of course be evaluated to see if this is a cost effective method. The “task satisfaction” of the indexers doing the validation work and the quality / quantity aspects of the proposals will be important factors in the final decision to adopt this method.

MACS User Search Interface Z39.50 tests access

The ultimate goal of MACS is to enable users to carry out subject searches in the language of their choice, either in one online catalogue as could be the case in

Switzerland where a non Germanic user would search the SNL catalogue or across many target catalogues, using the Z39.50 protocol. It is envisaged that user would enter a term from one of the available SHLs (for example, LCSH, RAMEAU or SWD), select one or more target online catalogues, choose to browse a list of corresponding headings and their equivalents or conduct the search directly from the chosen term. The search result should correspond to a normal search query in each of the catalogues.

Since 2002, the MACS partners, in particular the DDB and the BnF, have progressively tested Z39.50 MACS access to their catalogues. The Swiss National Library has recently conducted preliminary tests in its Helveticat database in order to evaluate the system supplier system attributes. The initial results have been positive and detailed requests to the online system supplier are underway. Further testing will continue as more links are added in the LMI database before giving a public Z39.50 access.

Conclusion

After a few years of design work and testing, it now appears that the MACS project is almost ready to move to production. The latest LMI release has shown that it can be used in a federated work network and that it is robust enough to manage many thousands of links. Once in the production phase, consideration should be given to extend MACS to other SHLs in other languages. There is still a great interest from other CENL members to participate in this project and the consortium structure will need to be finalised in order to incorporate gradually and successfully new partners in the MACS system. Work will also continue to improve the Search Interface (SI) before it can be successfully integrated in each of the partners OPAC. In this context, some form of access to the local authority files should be investigated so that users can select the most appropriate heading within each subject hierarchies before sending their search to the different target databases. Testing of Z39.50 access to the partners' library catalogues will also continue to further refine search results.

The long range prospect of the MACS initiative will have to be addressed in the foreseeable future. Financial as well as institutional support will need to be reinforced and possibly new types of partnership identified. As the need to improve subject access continues to be an issue for many European national libraries, MACS will hopefully remain a viable tool for ensuring cross-language access. One of the potential targets is the TEL project. Within the scope of that initiative, is it possible and useful to envisage the integration of MACS in TEL as an additional access point? It is worth stating the question in light of the challenge to European national libraries to offer improved access to their collections.