New Perspectives on Subject Indexing and Classification in an International Context

The Evolution of Subject Heading Languages in Europe and their Impact on Subject Access Interoperability

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Outline of the presentation

• Subject access in networked and Web environments
• Interoperability: basic approaches
• Interoperability and SHLs in Europe
• Conditions for an effective interoperability between SHLs in Europe
• Conclusion
Subject access issues in networked environments

- Many different types of controlled subject vocabularies used for access to resources in various networks (subject headings, thesauri, classification schemes and ontologies) and in different languages
- Subject queries across databases or networks limited by heterogeneous language environment
- Lack of interoperability between subject indexing tools limits access and use of libraries’ catalogues and databases
Interoperability: some basic approaches

- Merging (Integration) of thesauri: UNESCO, TermSciences
- Co-occurrence: LCSH/CSH = RVM
- Translation: LCSH $\rightarrow$ RVM
- Automatic translation: Dandelon
- Adaptation / Derivation: RVM $\rightarrow$ RAMEAU ; LCSH $\rightarrow$ FAST
- Mapping: between similar languages (MACS, LCSH-ES) or between different types (OCLC’s LCSH/DDC, CrissCross)
- Switching: using an existing language (DDC): Renardus or (UDC): MSAC
Some approaches used from 1960-1990

- Interoperability initiatives principally in the area of thesauri:
- Many thesauri produced and rapid changes of specialised subject databases (creation and merging)
- Methods used: Merging / Mapping / Translation / Adaptation of Thesauri
- Merging of databases = Merging of thesauri
- Early 1980s: beginning of interoperability in the area of SHLs
Interoperability conditions: Why merging / translating thesauri was so successful?

• Establishing compatibility between thesauri
• Monolingual thesauri developed according to ISO 2788 Guidelines for the establishment and development of monolingual thesauri (1974 & 1986)
• Multilingual thesauri (results of translation / merging) done according to ISO 5964 Guidelines for the establishment and development of multilingual thesauri (1985)
Merging of Thesauri: UNESCO

2 records found for: UN-Multilingualism Multilingualism

Click on the [number] to display the records indexed with that descriptor in unesco/unesdoc.

Term: Multilingualism [211]
Terme français: Multilinguisme
Termino español: Multilingüismo
Русский термин: Многоязычие

MT 3.30 Linguistics
UF Plurilingualism
BT Bilingualism [200]
....BT2 Language policy [448]
RT Foreign languages [241]
RT Language instruction [794]
RT Multiculturalism [302]
RT Sociolinguistics [240]

Term: Plurilingualism

USE Multilingualism [211] MT 3.30 Linguistics
Co-occurrence: LCSH/CSH = RVM

**Brief Record**

**NAME(S):** *Heye, Jurgen B.*

**TITLE(S):** A sociolinguistic investigation of multilingualism in the canton of Ticino Switzerland / by Jurgen B. Heye

**PUBLISHER:** The Hague : Mouton, 1975.

**DESCRIPTION:** 87 p. ; 26 cm.

**SERIES:** Janua linguarum. Series practica 241

**SUBJECTS:** Multilingualism--Switzerland--Ticino (Canton)  
Sociolinguistics  
Multilingualisme--Suisse--Tessin (Canton)  
Sociolinguistique  
Ticino, Switzerland (Canton)--Languages  
Tessin, Suisse (Canton)--langues
Adaptation / Derivation: RVM → RAMEAU
Some approaches used since the beginning of the 1990s

• Internet / Web an important factor in the expanded work in interoperability
• Development of existing methods, use of computer assisted methods
• Interoperability across more and diverse resources
Categories of subject access interoperability projects and initiatives

- Between subject headings: MACS, LCSH-ES, RVM, VIAF
- Between thesauri: Merimee, UMLS Metathesaurus, TermSciences
- Between subject headings and classification (UDC): MSAC
- Between subject headings and classification (DDC): OCLC’s WebDewey, CrissCross
- Between various types of subject indexing tools: HILT, Renardus
Merging of Thesauri: TermSciences
## Automatic translation: Dandelon

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* Note: The list is in German; the entries are likely to be relevant to the context of the conference or symposium.
Adaptation / Derivation: LCSH → FAST

LCSH:
Furniture–United States–History–19th century

FAST:
Topic: Furniture--History
Chronological: 1800-1899
Geographic: United States
### Mapping between similar indexing languages: MACS (SHLs)

Searched for **psycho** * in SWD.
Search retrieved 15 links in 0.20 seconds.

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LCSH-ES: LCSH → Various Spanish SHs

Home
13 terms for search: psychoanalysis
< Previous  Next >

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Key:
- NE: Biblioteca Nacional de España
- CE: Consejo Superior de Investigaciones Científicas de España (2000)
- Main heading  Subdivision  a Main heading or Subdivision
- Juvenile
Mapping between different indexing languages: WebDewey (LCSH → DDC)

Cultural innovations
Specific aspects of culture
Language
Bilingualism and multilingualism

Notes
- Standard subdivisions are added for either or both topics in heading.
- Class here bilingualism and multiculturalism among residents in an area of divergent cultural traditions centered upon different languages.
- Class treatment of bilingualism and multiculturalism in which difference in language is not a central element in 305.8;
- Class treatment of bilingualism and multilingualism in context of language planning and policy formulation in 305.446.
- See also 404.2 for linguistic aspects of bilingualism.

Terms

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Mapping between different indexing languages: CrissCross (SWD → DDC)

005 Tsx
012 foxw
021 4005878-5
800 |s|Berufsberatung
808 |x|be
808 |a|M, SWL
810 9.4a
816 331.702#3#
816 371.425#2#
816 T1--023#3#
816 658.385#2#
816 158.6#2#
830 |s|Laufbahnberatung <Berufsberatung>
850 |s|Beratung
860 |s|Berufsvorbereitung
880 |s|Berufswahl
880 |s|Arbeitsberatung
Switching: using DDC (Renardus)
Switching: using UDC (MSAC)
Interoperability and the development of SHLs in Europe (1)

• In the 1980s, many libraries went through the process of automating their library catalogues
• Subject headings seen as the best approach at that time to ensure subject access to their collections
• SHLs easier to manage (in principle) in an automated system and could be developed in networks
Interoperability and the development of SHLs in Europe (2)

- Some of the SHLs developed during that period:
  - RSWK /SWD (1986)
  - RAMEAU (1985)
  - EMBNE (1987)
  - SPIRORbase (1988)
  - LCSH (migration to an online authority file) = new structure (1985)
Preferred methods for establishing SHLs

- Adaptation / translation method preferred:
- Advantages: Quicker way of constructing a new SHL,
  availability of:
  - Subject headings
  - Syntax
  - Semantic structure
Overview of SHLs since the 1980s

1980
LCSH → RVM → Erfangen
EMBNE → RAMEAU → SWD

1990
Lithuania
Czech Rep.
Latvia
Slovakia
Swedish SHL

2000
Nuovo Soggettario
(1956, 2007)
Conditions for effective interoperability in Europe

• The development of many SHLs in Europe from translation / adaption (LCSH) offers a certain level of compatibility
• Few libraries have ensured at least a bilingual subject access by co-occurrence
• Linking method the most appropriate for SHLs
Overview of a multilingual interoperability project that focuses on subject headings:

- Not many interoperability projects that are using only subject headings
- Linking subject headings is challenging: methodological constraints, linguistic resources and long term commitment need to be resolved
- The best known are: MACS, LCSH-ES, MSAC
Conditions needed for effective linking of SHLs: Fully developed list

- Full range of headings (encyclopaedic) and extensive
- Providing access to many documents
- Known and used by the searchers
- Online authority records available (now on Web)
- For MACS: SWD, RAMEAU and LCSH met these criteria
Conditions needed for effective linking of SHLs: Compatibility between SHLs

- At least 3 levels of compatibility needed:
  - Uniform heading & consistency principles
  - Synonymy principle
  - Semantic principles

This is assured by:
  - National and international guidelines & standards

- RAMEAU and LCSH very compatible, SWD principally with RAMEAU
Conditions needed for effective linking of SHLs: Linking guidelines (1)

- Part 4 of the BS deals with all subject heading languages (not limited to thesauri as for ISO 5964)
- Also: ANSI/NISO Z39.19-2005 Guidelines for the construction, format and management of monolingual controlled vocabularies (Chapter 10)
Conditions needed for effective linking of SHLs: Linking guidelines (2)

• Recognize that linking can be done between linguistically different subject heading languages (SHLs), that have different semantic structures and application principles

• Deals with pre or post coordination SHLs

• Presents several linking scenarios

• Gives directives on creating and validating concordances

• Methodology based on the notion of linking from a source language to target languages
Conditions needed for effective linking of SHLs: Linking guidelines (3)

- Validates an approach that was developed without relevant standards support (ISO 5954 was the only one available in 1999)
- The MACS approach can be further refined, in particular, the work organisation of each partner library (notion of source language)
- Support complex links creation, for example « one to many », « many to one »
- Used as a source for the MACS Linking Manual
Conditions needed for effective linking of SHLs: Linking manual (1)

• Manual is needed in any bibliographic operation (subject indexing, cataloguing) to ensure consistency and coherence
• Manual is the practical application of Guidelines
• For linking SHLs, no manual has yet been fully developed
Conditions needed for effective linking of SHLs: Linking manual (2)

Types of links / levels of equivalence

• One-to-one: exact equivalence
  - Exact equivalence at the linguistic level
    Theology / Théologie / Theologie
  - Exact equivalence at the semantic level
    Sprinting / Kurzstreckenlauf / Course de vitesse
  - Exact equivalence at the subject headings level (indexing)
    Track-athletics—Coaches / Leichtathletiktrainer / Athlétisme + Entraîneurs
Conditions needed for effective linking of SHLs: Linking manual (3)

• **One-to-two: partial equivalence (semantic level)**
  - Using **UF (use for)**
    Courreurs / Runners (Sports) / Laüfer
    Courreurs / Runners (Sports) / Langstrekenläufer
  - **According to scope note**
    Sprinting / Kurzstreckenlauf / Course de vitesse
    Sprinting / Vierhundertmeterlauf / Course de vitesse
  - Using **BT (Broader term) / NT (Narrower term)**
    Jumping / Sprung / Sauts (athlétisme)
    Jumping / Hohsprung / Saut en hauteur
Concluding remarks

• Many interoperability projects started in the 1990s are moving to a more stable operational phase.
• Technology is making it easier to support interoperability.
• Controlled vocabularies (subject heading languages, classification) are prime candidates for these projects.
• Pressure on systems (subject access) to do more (i.e., web navigation and access).
• Pressure on “producers” of controlled vocabularies to do more.
Concluding remarks (2)

• New opportunities in Europe for subject interoperability projects
• Positive impact of European projects: TEL, TEL-MEMOR, EDLProject
• The European Library (TEL) is developing a multilingual search gateway incorporating MACS and other projects