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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 → RVM
- Automatic translation: Dandelon
- Adaptation / Derivation: RVM → RAMEAU ;
LCSH → 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?

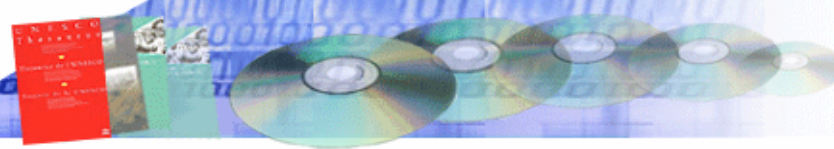
- Establishing compatibility between thesauri
- Monolingual thesauri developed according to ISO 2788 Guidelines for the establishment and development of monolingual thesauri (1974 & 1986)
- Multilingual thesauri (results of translation / merging) done according to ISO 5964 Guidelines for the establishment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



Merging of Thesauri: UNESCO



United Nations Educational,
Scientific and Cultural Organization



UNESCO THESAURUS

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2 records found for: **UN=Multilingualism Multilingualism**

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[\(help\)](#)

Term: **Multilingualism** [211] ⌵
 Terme français: [Multilinguisme](#)
 Término 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



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AMICUS No. 826236
Monograph

NAME(S) : *Heye, Jürgen B
TITLE(S) : A sociolinguistic investigation of multilingualism in the
canton of Ticino Switzerland / by Jürgen B. Heye
PUBLISHER: The Hague : Mouton, 1975.
DESCRIPTION: 87 p. ; 26 cm.

SERIES: Janua linguarum. Series practica 241

SUBJECTS: Multilingualism--Switzerland--Ticino (Canton)
Sociolinguistics
Multilinguisme--Suisse--Tessin (Canton)
Sociolinguistique
Ticino, Switzerland (Canton)--Languages
Tessin, Suisse (Canton)--Langues



Adaptation / Derivation: RVM → RAMEAU

Catalogue **Bn-Opale plus** Accueil BnF | Glossaire | Aide | ✉ | ©

Recherche autorités RAMEAU > Index VMACÉ > **Notice d'autorité sujet**

Notice d'autorité sujet

Rappel de la recherche : VMA/NC/AE = multilinguisme Mes recherches | Mes préférences | Panier

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Recherche

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- équation
- par cote

Recherches spécialisées

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Affichage public | **Intermarc** | Voir les notices bibliographiques

Multilinguisme [+ subd. géogr.]

Vedette matière nom commun . S'emploie en tête de vedette

<<Employé pour :
Plurilinguisme
Trilinguisme

<<<Terme(s) générique(s) :
[Langage et langues](#)

>>><<Terme(s) associé(s) :
[Écolinguistique](#)

>>>Terme(s) spécifique(s) :
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[Bilinguisme](#)
[Compétence linguistique -- Perte](#)
[Secrétaires multilingues](#)

Equiv. LCSH : Multilingualism (May Subd Geog)

Notice n° : FRBNF11936549 **Origine :** Laval RVM
Création : 81/03/16 **Mise à jour :** 82/02/10

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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



Recherche Index

recherche rapide recherche simple recherche avancée

Terme multilinguism Langue eng

1 résultats trouvés

Commence par ...

Multilinguisme

La suite des résultats ...

résultats

Interroger -> Cat.inist.fr Interrogation avancée

Ce concept dans : NLM INSERM

TERMES FRANÇAIS

Multilinguisme

- Sources
 - Base FRANCIS
 - Vocabulaire Linguistique
 - INIST
 - Vocabulaire multidisciplinaire PASCAL
 - Vocabulaire des sciences de l'éducation
 - Vocabulaire des sciences juridiques

Plurilinguisme

- Sources

Bilinguisme

- Sources

TERMES ANGLAIS

Multilingualism

- Sources
 - Base FRANCIS
 - Vocabulaire Linguistique
 - INIST
 - Vocabulaire multidisciplinaire PASCAL
 - Vocabulaire des sciences de l'éducation
 - Vocabulaire Littérature
 - Vocabulaire des sciences juridiques
 - Vocabulaire Sociologie
 - NLM
 - MESH

Multilingualism



Automatic translation: Dandelon

Bücher [Artikel](#) [Websites](#)

 more precise medium more recall

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Sortierung nach Relevanz

Insgesamt gefunden: 251 Dokumente 1 bis 25

<input type="checkbox"/> Titel	<input type="checkbox"/> Autor	<input type="checkbox"/> Jahr	<input type="checkbox"/> Relevanz	<input type="checkbox"/> Bibliothek
<input type="checkbox"/> Multilingualism, Cultural Identity, and Education in Morocco	Ennaji, Moha	2005	77	
<input type="checkbox"/> Intercultural Language Use and Language Learning	Alcón Soler, Eva, Safont Jordà, Maria Pilar	2007	76	
<input type="checkbox"/> Die Mehrsprachigkeit des Menschen Mehrsprachigkeit	Wandruszka, Mario	1979	76	
<input type="checkbox"/> Die europäische Sprachengemeinschaft Vergleichende Sprachwissenschaft. Sprachmischung. Spracheinflüsse. Sprachfamilien. Spracheinteilung, Englischer Spracheinfluss. Englische Sprachvergleiche, Deutscher Spracheinfluss. Deutscher Fremdspracheinfluss. Denglisch, Französische Sprachvergleiche. Französische Fremdspracheinflüsse, Italienische Sprachvergleiche, Spanische Sprachvergleiche	Wandruszka, Mario	1998	76	
<input type="checkbox"/> Dolmetscher für ErzieherInnen	[Texte, Katrin Sauer, Sigrid Weber]	2006	75	
<input type="checkbox"/> Mehrsprachigkeit in Europa Europäische Mehrsprachigkeit. Europäische Sprachenvielfalt	Paula, Andreas	cop.	75	
<input type="checkbox"/> Vielerlei Zungen : Mehrsprachigkeit und Spracherwerb, Pädagogik und Psychologie, Literatur und Medien Mehrsprachigkeit, Aufsatzsammlung		2003	75	
<input type="checkbox"/> Die sprachliche Zukunft Europas : Mehrsprachigkeit und Sprachenpolitik			75	
<input type="checkbox"/> Geheimsprache Sexualität Sexualmedizin, Liebe, Sexualität, Sexualität, Kulturgeschichte	Loewit, Kurt	1989	74	
<input type="checkbox"/> Die Internationalisierung des Bildungswesens Dokumentation der 20. DGBV - Jahrestagung vom 4. bis 6. November 1999 in Bochum Bildungswesen, Internationalisierung	Deutsche Gesellschaft für Bildungsverwaltung (DGBV). [Red. Sibylle Krüger]	2000	74	
<input type="checkbox"/> Die Zweisprachigkeit Friedrichs des Großen : ein linguistisches Porträt Friedrich, , Zweisprachigkeit, Französische, Sprache Ausland, Sprachberührung, Interferenz (sprachliche), deutsch, Interferenz (sprachliche) französisch	Petersilka, Corina	2005	74	
<input type="checkbox"/> Viele Sprachen lernen ... ein notwendiges Übel? : Chancen und Probleme der Mehrsprachigkeit Mehrsprachigkeit, Spracherwerb, Sprachwissenschaft, Kongreßberichte	Maaß, Christiane	2003	74	
<input type="checkbox"/> Zweisprachige Kindererziehung Familie, Erziehung (Sozialisation), Spracherwerb, Entwicklungspsychologie, Zweisprachigkeit	Kielhöfer, Bernd	2004	74	
<input type="checkbox"/> Fremd im eigenen Land? Deutschland, Geschichte, Tschechoslowakei, Prager Frühling, 1960-1969, 1970-1979, 1980-1989, Erlebnisbericht, Aufsatzsammlung	Simon, Annette	2000	74	
<input type="checkbox"/> Aktuelle Themen im Zweitspracherwerb : österreichische Beiträge Mehrsprachigkeit, Aufsatzsammlung		2000	74	
<input type="checkbox"/> Werkausgabe / Martin Buber. Bd. 6: Sprachphilosophische Schriften		2003	74	



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)



Search Results

landry/super/mac02

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

SWD	LCSH	RAMEAU	Domains	MACS Link
Psychoanalyse*	Psychoanalysis	Psychanalyse	150	MACS0000839
Literatur* AND Psychoanalyse*	Psychoanalysis and literature	Psychanalyse et littérature	999	MACS0000840
Psychoanalyse* AND Kulturpsychologie*	Psychoanalysis and culture*	Psychanalyse et culture	150	MACS0005553
Psychoanalyse* AND Kunstpsychologie*	Psychoanalysis and art*	Psychanalyse et arts	150 700	MACS0005709
Psychoanalyse* AND Kunstpsychologie*	Psychoanalysis and the arts*	Psychanalyse et arts	150 700	MACS0005708
Psychoanalyse* AND Geisteswissenschaften*	Psychoanalysis and the humanities*	Psychanalyse et sciences humaines	150	MACS0005101
Psychoanalyse*	--	Psychanalyse	150	MACS0008821
Psychoanalytiker* AND Ausbildung*	--	Psychanalysten -- Formation	150 330	MACS0005049
Psychoanalytiker*	Psychoanalysts*	Psychanalysten	150	MACS0005048
psychodrama*	--	--	150	MACS0008730





LCSH-ES: LCSH → Various Spanish SHs

lcsch-es.org

LC Subject Headings in Spanish
Encabezamientos de materia LC en español

[Cambiar al español](#)

[Home](#)

12 terms for search: **psychoanalysis**

< [Previous](#) [Next](#) >

BX NE CS SF QB	1 +	Psychoanalysis	Psicoanálisis
BX	2 +	Psychoanalysis - Cases, clinical reports, statistics	Psicoanálisis - Casos, historias clínicas, estadísticas
NE CS	3 +	Psychoanalysis and art	Psicoanálisis y arte
CS QB	4 +	Psychoanalysis and culture	Psicoanálisis y cultura <small>bidex</small>
NE	5 +	Psychoanalysis and education	Psicoanálisis y educación
NE	6 +	Psychoanalysis and feminism	Psicoanálisis y feminismo
NE	7 +	Psychoanalysis and folklore	Psicoanálisis y folklore
QB	8 +	Psychoanalysis and homosexuality	Psicoanálisis y homosexualidad <small>qbpl</small>
NE CS QB	9 +	Psychoanalysis and literature	Psicoanálisis y literatura
NE	10 +	Psychoanalysis and motion pictures	Psicoanálisis y cine
CS	11 +	Psychoanalysis and philosophy	Psicoanálisis y filosofía
BX NE CS SF QB	12 +	Psychoanalysis and religion	Psicoanálisis y religión

Key:

BX *Bilindex* (1984) SF *San Francisco Public Library* QB *Queens Borough Public Library*

NE *Biblioteca Nacional de España*

CS *Consejo Superior de Investigaciones Científicas-España* (2000)

+ *Main heading* - *Subdivision* ± *Main heading or Subdivision*

J *Juvenile*



Mapping between different indexing languages: WebDewey (LCSH → DDC)

Search Options ▾ * WebDewey ▾ Create Options ▾ Show Options ▾

Search Browse in All Fields

[Cultural institutions](#)

306.4 [Specific aspects of culture](#)

306.44 [Language](#)

306.446 **Bilingualism and multilingualism**

Notes

Standard subdivisions are added for either or both topics in heading

Class here biculturalism and multiculturalism among residents in an area of divergent cultural traditions centered upon different languages

Class treatment of biculturalism 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 [306.449](#) .

See also [404.2](#) for linguistic aspects of bilingualism .

Terms

Relative Index Terms	LC Subject Headings	EM	PPT	SM
Biculturalism--sociolinguistics	Bilingualism		•	
Bilingualism	Code switching (Linguistics)		•	
Bilingualism--sociology	Languages in contact		•	
Language attrition--bilingualism	Multiculturalism		•	•
Multiculturalism--sociolinguistics	Multilingualism		•	•
Multilingualism				
Multilingualism--sociology				



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

005 Tsx
012 /xxw
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
860 |s|Berufswahl
860 |s|Arbeitsberatung



Switching: using DDC (Renardus)



- [Top Level Subjects](#)
 - [Arts & recreation](#)

• Sports, games & entertainment ◀

- [Recreational and performing arts](#)
- [Public performances](#)
- [Stage presentations](#)
- [Indoor games and amusements](#)
- [Indoor games of skill](#)
- [Games of chance](#)
- [Athletic and outdoor sports and games](#)
- [Aquatic and air sports](#)
- [Equestrian sports and animal racing](#)
- [Fishing, hunting, shooting](#)

[graphical navigation](#)

[overview](#)



Find a different start-page for browsing:

'Sports, games & entertainment' - Related Collections

[Browse Help](#)

Narrower equivalent:

- Maps: [Sports and recreation \(UOR 600\)](#)
- [sport: general \(76.10\)](#)
- [branches of sport \(76.12\)](#)

[Merge](#) the resource-descriptions from all related collections listed here





Swiss Confederation

Switching: using UDC (MSAC)

	Databases of the National Library CR				Base: MSAC	
	Logout	Login	Databases	Preferences	Feedback	Help
	Browse & Search	Results list	Previous searches	Basket		
Add to Basket			Save/Mail			

MSAC - Full View of Record

Choose format: [Standard](#) -- [MARC](#)

Record 1 out of 1

[◀ Previous Record](#) [Next Record ▶](#)

Control no.	ph120088
Heading	● exil
UDC	● 314.15-026.49 (demografie) ● 343.264 (právní hledisko)
English	● exile
Croatian	● egzil -- 314.15-026.49 (demografija) ● egzil -- 343.264 (law)
Lithuanian	● tremtis -- 314.15-026.49 (demografija) ● tremtis -- 343.264 (teisė)
Macedonian	● Egzil -- 314.15-026.49 (demografija) ● Egzil -- 343.264 (pravo)
Slovak	● exil -- 314.15-026.49 (demografia) ● exil -- 343.264 (právo)
Slovenian	● Izgnanstvo -- 314.15-026.49 (demography) ● Izgnanstvo -- 343.264 (law)
System no.	000120088

[◀ Previous Record](#) [Next Record ▶](#)



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





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)

- Development of a new standard: BRITISH STANDARD BS 8723 Part 4 (DRAFT): Structured vocabularies for information retrieval — Guide. Part 4: Interoperability between vocabularies (2006)
- 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)**
Coureurs / Runners(Sports) / Laüfer
Coureurs / Runners (Sports) / Langstreckenläufer
 - **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 / Hochsprung / 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