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The Subject Cataloging and Searching of Biomedical Documents in the Library Systems of the Slovak Republic

Possibilities and Perspectives

The automatization of library systems highlights among others also the issue of the subject cataloging of documents. We can say that the majority of libraries have built their subject catalogs on the bases of subject headings that vary to such extent that they cannot serve as a tool for subject searching in automatized databases built by different libraries (for example an automatized cumulative catalog) though these libraries cover the same scientific branch. If we use key words the situation is little bit less complicated but nor this way is ideal for subject analyses and following searching.

Slovak Medical Library (Slovenská lekárska knižnica)

Slovak Medical Library (SML) was founded on September 1, 1951. It operates as the headquarters of the medical libraries network in Slovakia which at the moment comprises 194 libraries of health care facilities subordinated to the Slovak Ministry of Health and 22 medical and health libraries that work under other ministries. SML develops central library and information activities aimed at Slovak Ministry of Health-directed libraries and shelters the Automatized Library and Information System (ALIS) in health care sector from the methodological point of view. It fulfills fundamental and specific tasks of a public scientific and specialized library.

SML bibliographically processes and preserves the national production and builds the reference collection, a cumulative catalog of foreign periodicals covering medical sciences, health care and related branches. It organizes national seminars, training, and publishes instructive documents and other publications.

In its project of the Automatized System of Medical Libraries (ASML) under Slovak Ministry of Health administration the SML solves the problem of the indexing languages unifying based on the best Slovak and foreign experience with systematic and subject classification in the field of medical sciences and health care.

Taking into consideration more than twenty years of experience with the use of the Universal Decimal Classification (UDC) in the systematic classification of documents while building medical libraries' classical catalogues and in the base of foreign monographs accessions, the UDC remains a highly recommended indexing language for the ASML. SML provided the UDC updating by publishing a 4-volume full Slovak translation of the UDC, class 61, the latest English edition.

The cooperation with the Slovak National Library in 1997 resulted in the elaboration of an authority file for systematic classification of documents that is based on the Slovak translation of the medium edition of class 61 of the UDC licensed version. The complete edition of this version published by UDC consortium in Hague contains 62,000 UDC classification notations, their Slovak translation, English equivalents and references to the subject register. The edition will become part of the Slovak National Bibliography issued on CD-ROM by the Slovak National Library.

Regarding the subject cataloging of documents we decided to switch on the MeSH thesaurus published by the National Library of Medicine in Bethesda, USA. The thesaurus represents a creditable indexing tool in biomedicine. It is a pre-coordinated indexing language of a descriptor type on the basis of natural language. It serves to the subject cataloging of monographs and special types of documents.

Works on the Slovak translation of the MeSH thesaurus began in 1989 when we got a translation license. The first version in classical file form was based on the printed American original version of the MeSH thesaurus. As we had good experience with indexing and information retrieval in MEDLINE database we decided to create an automatized version of the Slovak translation of the MeSH thesaurus in the database program Clipper using the structure of the Czech version. The database of English and Slovak terms is based on the MeSH thesaurus card file revised in 1991 which contained about 11,000 headings. In 1993 the first electronic version was available on discs. The program enabled to search individual descriptors in both English and Slovak according to the chosen criterion and create text files that could be printed through a text editor. Because the first automatized version failed to go through language and experts' reviews it could serve for internal purposes only.

After the change-over to the new network library system Rapid Library by Cosmotron Systems, Ltd. in 1993, we decided to start works on the second automatized version of the Slovak translation of the MeSH

thesaurus that was created by converting the first version's data into Rapid Library system in the original structure. Because this version did not include a reference apparatus, also relations linkages between individual descriptors were missing. The structure of the first electronic version of the Slovak translation of the MeSH thesaurus was developed according to the abbreviated Czech translation of the MeSH thesaurus, the so called Micro-MeSH and therefore it was impossible to make full use of the Rapid Library's program environment. The Czech Micro-MeSH thesaurus was based on the systematic part of the MeSH thesaurus which caused enormous multiplicity of descriptors in the database.

These shortages inspired new analyses of the American original of the thesaurus MeSH - Annotated Alphabetic Lists and additional language and experts' review of the Slovak translation. During the terminological authorization the already existing Slovak equivalents of the MeSH descriptors from 1991 were edited and new terms of the MeSH thesaurus' version from 1992 were translated and added. In the process of the terminological authorization we used the printed output of individual systematic classes from the first electronic version of the Slovak translation and amended American original of the MeSH thesaurus from 1992. We generated a massive reference apparatus from Slovak synonymous terms.

We faced most problems when translating the N category that includes terms from health care with social and economic context. Subcategories N2, N3 and N4 were very difficult to be translated because the structure, management, and operation of health services and insurance agencies in the USA differs too much from the Slovak health care system. Many English terms have no Slovak equivalents and vice versa. We solved this shortage by using the most suitable, more general descriptor. In the process of editing we established good contacts with many specialists from the Faculty of Medicine of the Comenius University in Bratislava, the Jesenius Faculty of Medicine in Martin, hospitals and other health facilities and the Slovak Academy of Sciences. Our translators are acclaimed experts who publish in renowned foreign biomedical periodicals abroad. Many of them are co-authors and members of the editorial board of our 12-volume Medical Encyclopedia the first three volumes of which has already appeared on the market.

All reviewers worked with enthusiasm and often for a song. Because of high costs and financial cuts we suffered from all the time the Slovak translation of the MeSH thesaurus would not see the day light without ardent work of SML staff and its cooperators. At the end of 1996 the

authorization of the Slovak translation of the American original of the MeSH thesaurus from 1992 came to its end.

The result of an extensive analytical work is the third version of the Slovak translation of the MeSH thesaurus that was included into the Rapid Library system, version 2.0. It contains 16.629 English descriptors, reference apparatus and codes of the tree structure that were recorded in the pre-defined screen form in 1994. The structure of fields corresponds with universal MARC format for authorities issued by IFLA in the framework of IFLA Universal Bibliographic Control and International MARC Program in 1991. Slovak equivalents of the English descriptors were recorded in the database after reviews of the systematic classes were completed. The structure of the screen form contains English and Slovak items for data recording according to the American original of the MeSH thesuarus - Annotated Alphabetic Lists from 1992. The only exceptions are Slovak on-line remarks, history and annotations to individual headings which have been created during the process of the MeSH thesaurus development. (pictures No 1 and 2).

Poznámky	
Tezaurus MeSH	
Kód	HEART DISEASES
Deskriptor(A)	HEART DISEASES
Deskriptor(S)	choroby srdca
Číselné notácie	C14.280+
ANGLICKÉ (X) Odkazy	SLOVENSKÉ (X) Odkazy
Pozri príbuzné - SEE RELATED	Pozri príbuzné - SEE RELATED
NEUROCIRCULATORY ASTHENIA	neurocirculačná asténia
XR Odkazy	XR Odkazy
CARDIOLOGY	kardiológia
Beslo/podbeslo pôvodný termín	Heslo/podheslo pôvodný termín
HEART DISEASES/congenital	choroby srdca/vrodené
Nahradený termín	Nahradený termín
HEART DEFECTS, CONGENITAL	srdcové defekty kongenitálne

Indexová poznámka (anotácia)

obyčajne funkčné choroby: rozlísiť od "choroby myokardu";
choroby tkaniva myokardu; /vrozené = srdcové defekty
kongenitálne; cyanotické choroby srdca sú pravdepodobne
"srdcové defekty kongenitálne" a nie "cyanóza" pokiaľ nie je
zvláštne prejednaná; parazitické choroby srdca: porovnaj
"parazitické choroby" alebo špecifické prazitické choroby s
"choroby myokardu", nie "choroby srdca"; choroby srdca
špecifické a nešpecifické, s reumatickou horúčkou
sú pravdepodobne "reumatická karditída"

CATALOG: podnesia formy povolené

Historická poznámka

95

Online poznámka

srdce-choroby do r. 1995 podľa českého prekladu Micro-MeSH '91

Interactive Subject Cataloging in SML Catalog Database

In close cooperation with Cosmotron Systems, Ltd., we developed a fully functional authority file for subject cataloging and apparatus for interactive classification in the Rapid Library system.

The current version of the MeSH thesaurus provides:

a/ formal control of the so called classification solution during the subject classification of the topic-related documents in the review of already used descriptors and thus the elimination of heterogeneous use of Slovak equivalents. In menu CATALOG and sub-menu INFORMATION

RETRIEVAL, in their item "MeSH Thesaurus headings" all descriptors, including those multiplied with various sub-headings are displayed through the functional key.

b/ interactive classification of documents which uses an authority file of the MeSH thesaurus which in this case does not only serve to communicate the contents of a document but also can communicate with a classifier and a user.

For now, field 054 of the Exchange Format serves to the block of subject classification by MeSH descriptors. After records' conversion into UNIMARC format, fields 600-607 recorded in sub-field \$2 correspond to field 054. The Rapid Library system uses a functional key to activate the interactive classification program. The program enables a classifier:

- searching according to the Slovak descriptors in alphabetic order and its entry terms of the MeSH thesaurus (picture No 3)

No 3

Prehľad slovenských vstupných termínov tezauru MeSH	
Slovenský deskriptor	Anglický deskriptor
choroby slzných žliaz	LACRIMAL APPARATUS DISEASES
choroby spojivky	CONJUNCTIVAL DISEASES
choroby srdca	HEART DISEASES
choroby srdečových chlopní	HEART VALVE DISEASES
choroby šošovky	LENS DISEASES
choroby temporomandibulárneho	TEMPOPOROMANDIBULAR JOINT
choroby trachey	TRACHEAL DISEASES
choroby tyreoidy	THYROID DISEASES
choroby ucha	EAR DISEASES
choroby uvey	UVEAL DISEASES
choroby úst	MOUTH DISEASES
choroby úst a čel'ustí	STOMATOGNATHIC DISEASES
choroby vlasov	HAIR DISEASES
choroby z povolania	OCCUPATIONAL DISEASES
choroby zažívacieho systému	DIGESTIVE SYSTEM DISEASES

- searching according to the English descriptor and its entry terms in one review as in Slovak.
- searching according to the individual words of these mixed reviews, the so called permuted index.
- searching according to the tree structure, i.e. number notations.

The reference apparatus represents entry terms for searching only. According to the content analyses of the given document the classifier will find the respective descriptor by recording the entry term or its part on the screen of the displayed review. The system will immediately set on the requested term. If the searched term is only a entry term and the classifier does not know the exact formulation of the descriptor, the system automatically assigns a descriptor if the entry term is confirmed. The

classifier will get into the next level of the program which offers a part of the MeSH thesaurus - a descriptor with a related apparatus (picture No 4).

No 4

<i>Deskriptor s relačným aparátom</i>	
1	Anglicky - HEART DISEASES
2	Deskriptor - choroby srdca
3	SEE RELATED - NEUROCIRCULATORY ASTHENIA
4	XR odkazy - CARDIOLOGY

The related apparatus represents subordinated or supervisory descriptors that are connected by their application, etc. The classifier can select a more specific descriptor from the offer of the related apparatus.

On this level the program enables to proceed in two different ways:
a/ The classifier will decide not to browse in another level and will confirm in advance selected descriptor. The program will offer him specific systematic areas of the given descriptor in the tree structure. The tree structure ranks the descriptor in the systematic class and enables the selection of the subject subheadings that are allowed for the given descriptor. If the classifier wants to specify the given descriptor with the help of subject subheadings he can chose from one or several systematical subcategories according to the descriptor's ranking in the tree structure (picture No 5).

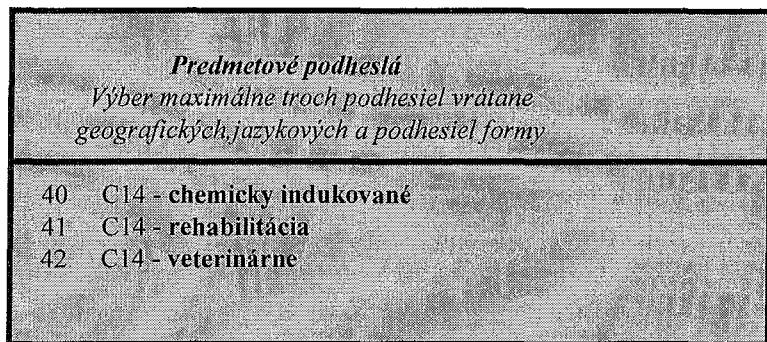
No 5

<i>Subkategórie pre podhľad</i>	
1	C14 - Kardiovaskulárne choroby

The menu precisely characterizes the way of assigning the subheadings.

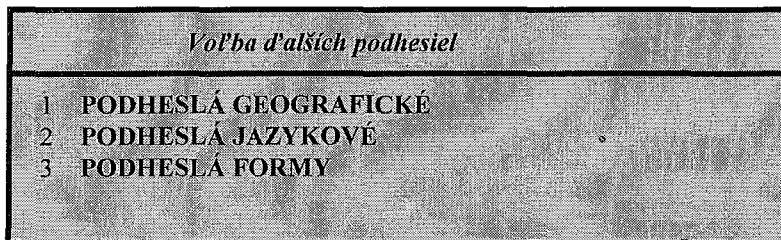
After the selection of a relevant subcategory the program offers the classifier all subheadings allowed for the given category and subcategory and a message that we can use 3 subheadings as the maximum for one descriptor, including geographic, language and form subheadings. The program will offer subheadings and their selection (picture No 6).

No 6



After the selection of subject subheadings the program offer follows - selection of geographic, language and form subheadings (picture No 7).

No 7

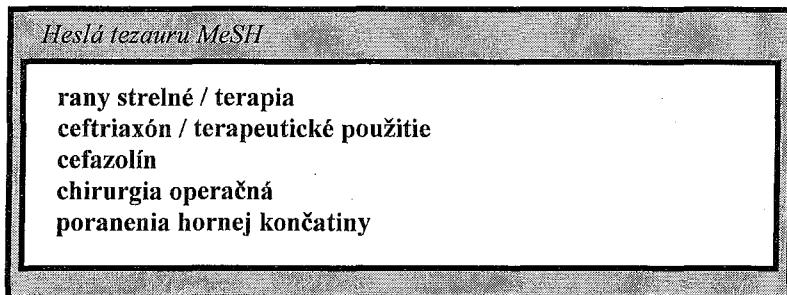


When selecting geographical subheadings the system warns that only one geographical subheading can be assigned to one descriptor.

After the selection of one descriptor with all subheadings is done, the classifier will save all previous operations and will return to the basic menu that enables the selection of other descriptors. The program will save all

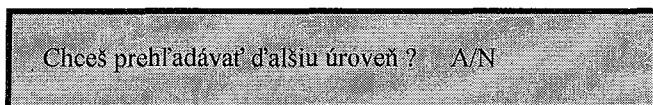
chosen descriptors and their subheadings in the field of the MeSH thesaurus headings in the agreed form of record. Every descriptor with its subheadings is recorded in a separate line. Subheadings are separated from the descriptor like this " / " and between each other in this way ", " (picture No 8).

No 8



b/ If the classifier decides for a descriptor from the related apparatus and confirms its selection, the program asks to confirm browsing in another level (picture No 9).

No 9



If the classifier decides to enter the next level, the related apparatus of the newly-selected descriptor will appear on the screen. The other functions are identical with the process of descriptor's and its specific subheadings' selection as described a few lines before.

Parallelly to the record of Slovak descriptors also English descriptors and notations of the tree structure to every chosen Slovak equivalent are recorded in separate fields. In this way processed document can be searched in English which will be appreciated by users who want to browse in SML Catalog through Internet (<http://www.healthnet.sk>).

In 1997 we provided the authorization of descriptors used in the MeSH thesaurus in SML Catalog database the amended version of which is

distributed to the libraries administrated by the Slovak Ministry of Health. The main goal of the cooperative cataloging in the network of medical libraries is thus fulfilled by taking over the SML entries into the catalogues of the local medical libraries in Slovakia.

In near future we would like to translate and amend the authority file according to the original MeSH thesaurus since 1993 and also amend the reference apparatus. In a long-term perspective we would like to cooperate with editorial boards of Slovak biomedical periodicals to reach an agreement on the use of MeSH thesaurus descriptors in abstracts of the published articles. This would create optimal conditions for processing of Slovak medical bibliography titled *Bibliographia Medica Slovaca*.

Entry Patterns

Documents of World Health Organization

We classify them as monographs but we always use descriptor *World Health Organization*.

018939 *W 1856*

* 614.2(4)(100)

* *paliatívna terapia* * *poskytovanie zdravotnej starostlivosti* * *Svetová zdravotnícka organizácia* * *zdravotnícke služby*

Health care delivery profiles and innovations in selected European countries / Hlav. aut. Milagros García-Barbero ; Aut. Joseph Goicoechea Copenhagen : WHO, 1997. - 15, 214 s. : graf., mapy, tab.

(*Health service resources and management* ; target 27)

ISBN 84-482-1397-1

Textbooks:

They are classified by scientific and technical descriptors and subheadings. For example, we use formal subheadings: *laboratory handbooks*, *encyclopedias*. We always write descriptor *textbooks*.

008619 *U 8012-16, U 8044, U 8055*

* 616-097(075.8)

* *imunologické choroby* * *imunologické techniky* * *učebnice*

Základy klinickej imunológie / Hlav. aut. Milan Buc. - 1. vyd. Bratislava : Univerzita Komenského, 1994. - 245 s. : tab., graf., obr. (Vysokoškolské skriptá)

ISBN 80-223-0739-4

Language documents and dictionaries:

We use language subheadings when cataloging foreign language literature only.

019229

K 46439-41

** 030.1*

** encyklopédie * príručky * príručky lekárske*

Encyklopédia medicíny. 3. diel B / Hl. zost. Oskár Kadlec

Bratislava : Asklepios, 1996. - 399 s. : obr., tab.

ISBN 80-7167-011-1

Monographs and Supplements of Periodicals:

The most specific descriptors are used. Regarding congress documents we always use heading *Congresses* and a geographical heading.

Monography

019191

K 46403

** 616-097-008.64-085*

** nukleozidy / farmakológia, terapeutické použitie * AIDS / farmakoterapia * antiinfekčné látky / farmakológia * HIV infekcie*

Anti-HIV nucleosides : past, present and future / Edit. Hiroaki Mitsuya

Heidelberg : Springer ; Austin : Landes, 1997. - 178 s. : graf., obr., tab.

ISBN 3-540-61950-X

Supplement of Periodical

007879

C 568

** 616-089.5(061.3)*

** anestézia * antiemetiká * Ondansetron / terapeutické použitie * kongresy / Belgicko*

Ondansetron - a new concept in antiemetic therapy for postoperative nausea and vomiting (PONV) : proceedings of a symposium held during the European Society of Anaesthesiologists' Conference, Brussels, Belgium, 12-16 May 1993 / Edit. M. Harmer
London : Saunders, 1994. - 37 s.

(Anaesthesia, ISSN 0003-2409 ; Vol. 49, January (1994) ; Suppl.)

Dissertations and Proceedings

We classify them as monographs but we use descriptor *Dissertations scientific* when we classify dissertations and formal subheading *Proceedings* when classifying proceedings.

Dissertation

008287 D 28865
* 616.8-009.831-092(043.3)
* kóma * elektroencefalografia * mapovanie mozgu * dizertácie vedecké
Neuropathologische Untersuchung komätoser Patienten, die im Elektroenzephalogramm eine bilateral-synchrone Verlangsamung, ein burst-supresion Muster oder eine Alpha-Wellen-Aktivität zeigten / Hlav. aut. Thorsten Rosenkranz
Hamburg : Universität, 1991. - 77 s.

Proceedings

018948 Z 440-1
* 002+02(08)(061.3)
* knihovníctvo / zborníky * informačné systémy / zborníky * kongresy / Slovensko
Infos '97 : zborník z 27. informatického seminára konaného v dňoch 14.-17. apríla 1997 v Jasnej pod Chopkom / Hl. zost. Alojz Androvič, Eva Nedostostová
Bratislava : Spolok slovenských knihovníkov, 1997. - 246 s. : tab.
ISBN 80-85165-63-5

Bibliographies:

When classifying bibliographies we use descriptor *Bibliography*.

009879 K 38831
* 613/614:016(100)
* Svetová zdravotnícka organizácia * bibliografia * svojpomocné skupiny
Self-help : a bibliography / Hlav. aut. Jan Branckaerts, Peter Gielen
Copenhagen : WHO, 1989. - 428 s.
(EUR/HFA ; target 14)

Literature:

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In: I' 93 : časopis informačních pracovníků, knihovníku a uživatelu
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K perspektivám českého výměnného formátu aneb budeme mít formát
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35 (1993) č. 5, s. 134-137
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Aleph - software pre CASLIN
In: Knižnice a informácie, 25 (1993) č. 5, s. 193-199
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v predmetovej katalogizácii / W. Vavrová, M. Kadnárová, J.
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Lacková
In: Knižnice a informácie, 27 (1995) č. 7, s. 297-306
8. *Prezentácia tezauru MeSH - autorizovaného slovenského prekladu / W.*
Vavrová,
M. Kadnárová, J. Kekeňáková
In: Súbory autorít v národnom bibliografickom systéme , seminár,
Liptovský
Mikuláš, 18.-19. jún 1997