

# EDUG 2012 Symposium

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## Building a DDC-RVK Concordance: Local Problems, Universal Issues

Project „coli-conc“

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# Outline

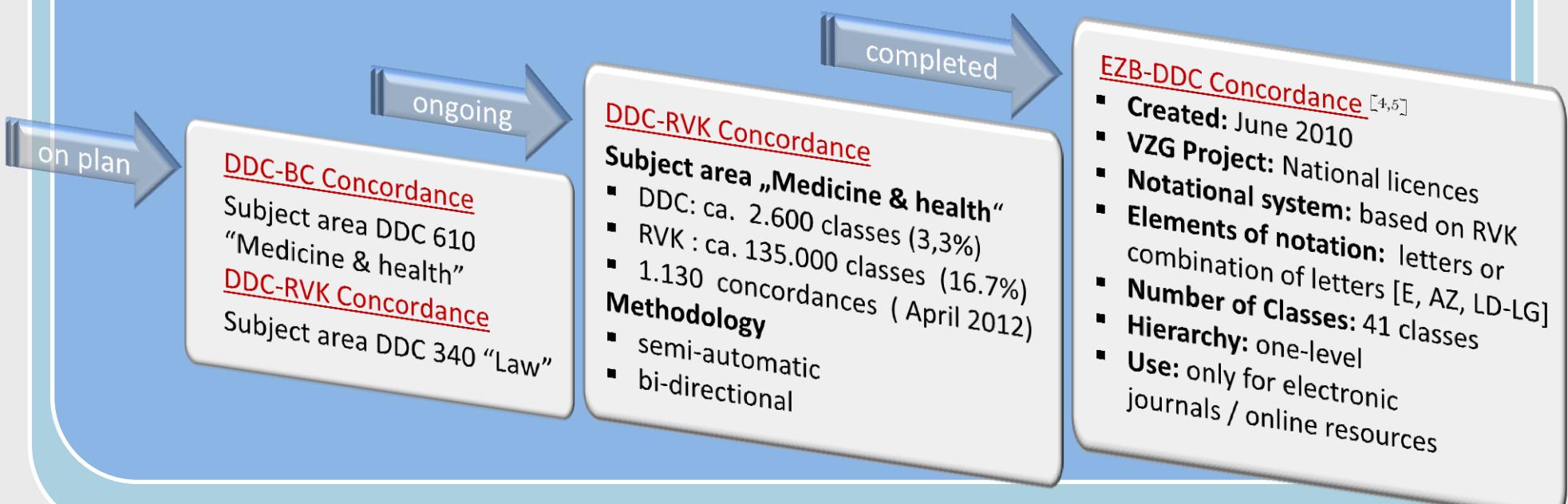
- Introduction: Project „coli-conc“
- The classification systems RVK and BC
- Background of the Project „coli-conc“
- A comparison between DDC and RVK
- Methods used & issues involved in building a DDC-RVK  
Concordance
- DDC-RVK Mapping relationship
- Perspective

# Introduction of the Project „coli-conc“

## Subproject of the VZG Project „Colibri/DDC“ [10]

[COntext generation and LIinguistic tools for Bibliograhpic Retrieval Interfaces]

- Project „coli-conc“ start in 2010
- Aim: To build exhaustive concordances between DDC [1] and other library classification systems, especially RVK [2] and BC [3]
- Purpose: To enable access to international ressources



# The Classification Systems RVK und BC

## Basic Classification (BC)

- Developed in 1980s
- Designed for shared cataloguing within PICA OPAC (GBV,...)
- Use: German National Library, Library Networks

## Regensburg Classification System (RVK)

- Developed in 1960s
- Shelf arrangement for open access resources
- Use: Currently the most widely used classification system in Germany and German speaking regions (in 130 academic libraries)

DDC -

Dewey Decimal Classification

GHBS NRW - Systematik der Gesamthochschulbibliotheken in Nordrhein-Westfalen

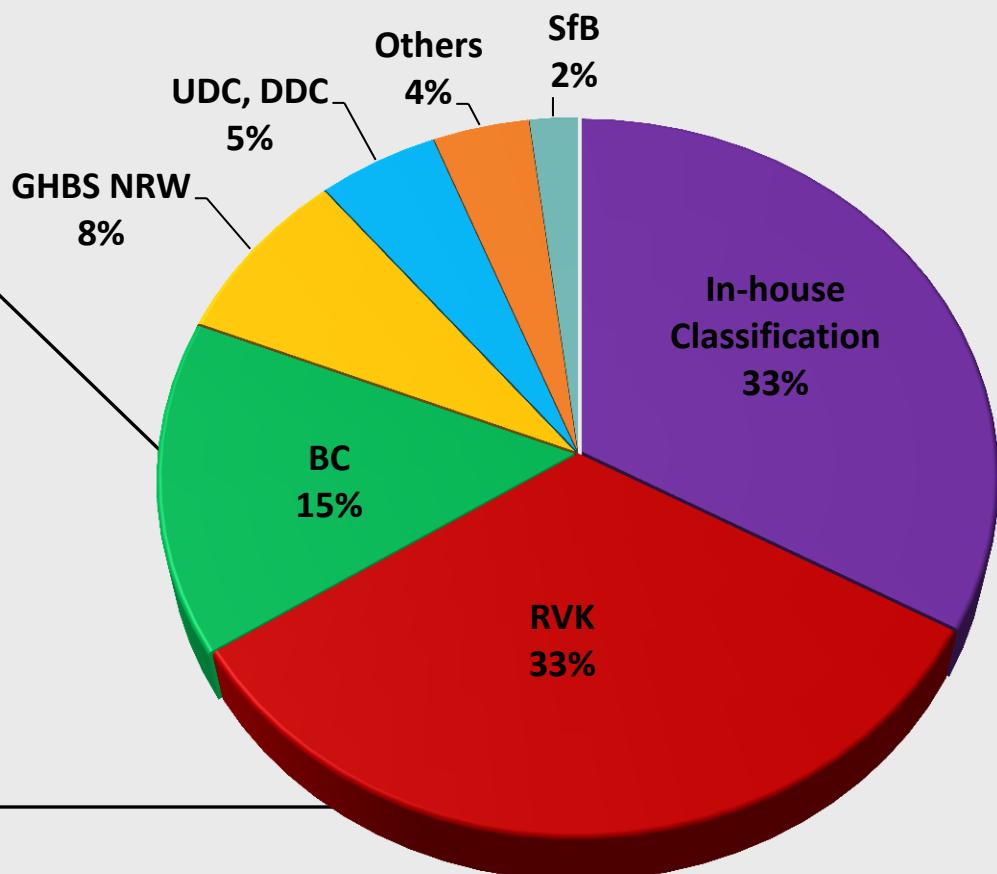
SfB -

Systematik für Bibliotheken

UDC -

Universal Decimal Classification

**Distribution of classification systems in German academic libraries (as of 1999)\***



\*Source: Die Verbreitung von Klassifikationen in deutschen Bibliotheken 1993 (Nach: Zerbst [1993], Hans-Joachim; Kaptein, Olaf: Gegenwärtiger Stand und Entwicklungstendenzen der Sacherschließung. In: Bibliotheksdiest 27, S. 1526-1539; eigene aktuelle Ergänzung Stand 1999) <http://www.ib.hu-berlin.de/~kumlau/handreichungen/h67/>

# Background of the Project “coli-conc”

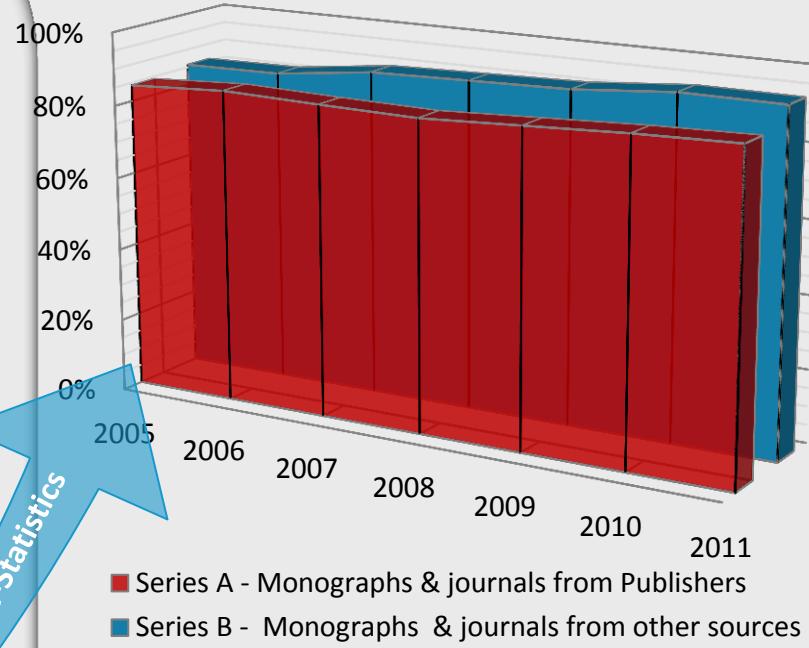
- The strong interest shown by academic libraries and the Germany National Library (DNB) to provide access to world-wide literature

- Efforts of the German National Library to incorporate DDC as an uniform nationwide classification system, due to the huge diversity in the classification landscape in Germany

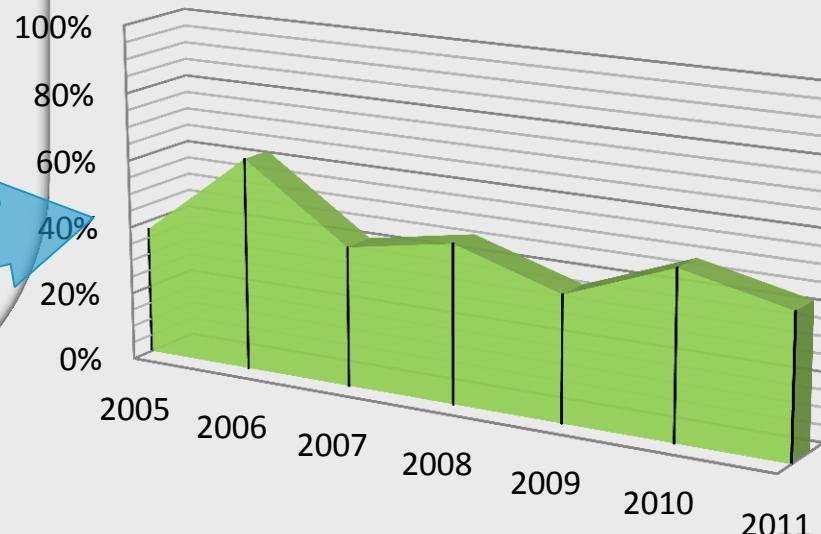
- Criss-Cross Project “[<sup>6</sup>] (2007-2010)
- KoMoHe Project “[<sup>7</sup>] (2004 -2007)
- Project „DDC-Deutsch“[<sup>8</sup>] (2002 – 2005) of the German National Library
- Classification of German National Bibliography with DDC since 2007

- Records with DDC notations from external databases like LoC “[<sup>9</sup>] and DNB
- Large number of records with RVK-Notations

DNB records - German National Bibliography



LoC - Delivery records for VZG



# Online Survey 2011

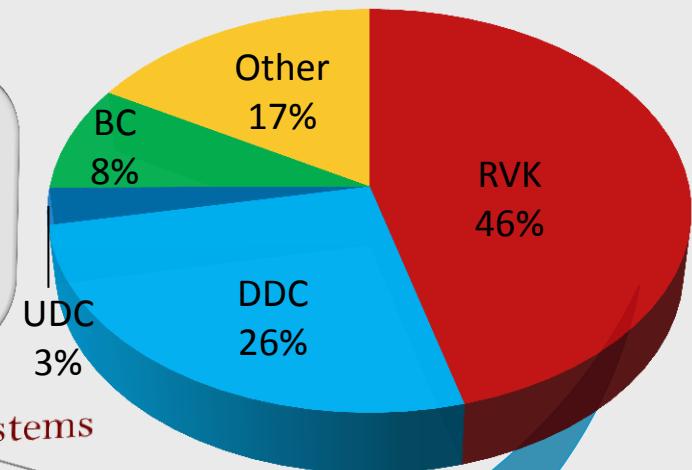
Current status of a DDC-X (X = {EVB, RVK,...}) concordance

The tools and techniques used

The issues involved in DDC-X concordances

- Reipients of the Questionnaire (Mailing lists)
- RVK (The Regensburg Classification system)
  - BAK (Berliner Arbeitskreis Information)
  - InetBib (Internet in Bibliotheken)
  - EDUG (European DDC Users Group)
  - DNB Expert group "Indexing and classification"

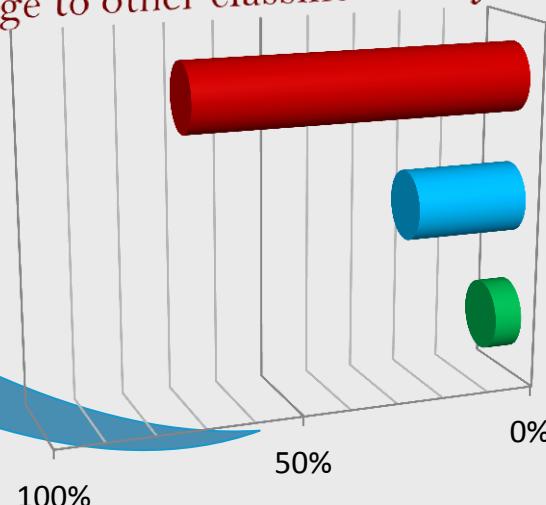
Classification systems of the respondents



Interest in a DDC-RVK concordance

- 75% - Yes
- 20% - No
- 5% - Unsure

Change to other classification systems



# Survey Results - List of available concordances with DDC (Germany)

Concordance	Subject Areas	Contact Person
DDC – BC	Chemistry	Thomas Hapke, Hamburg University of Technology, University Library
	Political Science	Maria Kesting, State and University Library Hamburg
DDC – EZB	41 EZB Subject areas	Uma. Balakrishnan Project „coli-conc“, Headquarters of library network GBV (VZG)
DDC – RVK	Library and Information Science	Prof. Heidrun Wiesenmüller/ Fabian Heel Institute for Media and Communication, Stuttgart
	Human and Social Sciences	University Library Greifswald
	Medicine & health	Uma. Balakrishnan Project „coli-conc“, Headquarters of library network GBV (VZG)
RVK – DDC	Biology Chemistry Geology Mathematics Paleontology Physics	Dr. Philip Mayr KoMoHe Projekt Leibniz Institute for Social Sciences GESIS
	Psychology	Manuela Queitsch, Saxon State and University Library Dresden
SWD – DDC	All disciplines	Helga Karg Criss-Cross Project, German National Library
	Library and Information Science	Prof. Heidrun Wiesenmüller/ Fabian Heel Institute for Media and Communication, Stuttgart
DDC – MSC – BC	Mathematics	Bernard Tempel, German National Library of Science & Technology, University Library Hannover

# Comparison between DDC and RVK

Dewey Decimal Classification (DDC)	Regensburger Verbundklassifikation (RVK)
<b>NUMBER OF MAIN CLASSES</b>	
10	34
<b>STRUCTURE OF THE NOTATION</b>	
Fine structured, Only Arabic numerals	Mixed notations. Main classes represented with alphabetical notations from: AA-ZY, additionally with 3 to 5 digits
<b>ONLINE PRESENTATION</b>	
Mostly implicit, e.g. 614.47 Immunisation (2 subclasses) 614.47083 Children --Immunisation,... 614.470846 Older People --Immunisation,...	Explicit [enumerative character] e.g. XD 3000 – 3099 (105 subclasses)
<b>NOTATION AND HIERARCHY</b>	
Expressive, e.g. 614 Forensic medicine; Incidence of injuries,... 614.4 Incidence of and public measures to prevent disease 614.43 Disease vectors and disease transmission by water 614.432 Insects 614.4322 Flies	Non-expressive, e.g. XD 9800 – XD 9899 Medical Entomology (Anthropods): Spiders, Centipedes, Insects, Lice, Bugs, Fleas, Mosquitoes, Flies, Larvae, Ticks [XD, XD 3800 – XD 9899, XD 8800 – XD 9899, XD 9000 – XD 9899]
<b>LENGTH OF NOTATIONS</b>	
Built notations can become long	Built notations are part of the base notation [depth of a class is indicated by the digits added to a main notation]
<b>NUMBER BUILDING</b>	
With rules and tables	With subject keys like Formalschlüssel, Sachschlüssel,...

# Methods used and issues involved in building a DDC-RVK Concordance

Subject area „Medicine & health“

- 1.130 Concordances ( April 2012)

Methods Used

- semi-automatic
- partially bi-directional
- 1:n mapping (DDC-RVK)
- systematic truncation of a DDC notation  
in absence of an equivalent RVK class

Art of building the Concordance

- classification system and title data based

Stage I  
DDC - RVK

- Classification system based
- Includes all levels of DDC hierarchy
- Partial inclusion of obsolete/displaced notations
- Exclusion of standard subdivisions

Stage II  
RVK-DDC

- Title data based
- Ca. 1.5 Mio. SWB/GVK title data with both DDC and RVK notations)

# Stage I Classification system based (1)

The screenshot shows a search interface with the following elements:

- Header: Suchen | Suchergebnis | Erweiterte Suche | Zwischenablage
- Search bar: Suchen [und] (dropdown) [ALL] Alle Wörter ohne V
- Filter: rechtsmedizin
- Text: Weniger Suchoptionen
- Text: Suchgeschichte, Kurzliste, Titelanzeige
- Text: Ihre Aktion suchen [und] (ALL) Alle Wörter ohne V
- Left sidebar: PPN: (checkbox), Titel: (checkbox), Verfasser: (checkbox), Sonst. Personen: (checkbox), Ort/Jahr: (checkbox), Umfang: (checkbox), Hochschulschrift: (checkbox), Anmerkung: (checkbox), Schlagwörter: (checkbox), Sachgruppen: (checkbox), Inhalt: (checkbox).

## STEPS INVOLVED

### 1. FIND

- German subject headings authority file - SWD terms
- Synonyms & other subject related terms (Wikipedia, online dictionaries)
- Index terms in online catalogues (subject coverage/class content)

### 2. SEARCH

- Term or register search in the RVK-Online system
- In the XML files of the RVK system

### 3. Selection process (comparison & evaluation of the results)

### 4 List out possible concordances

### 5 Cross-check

The catalog entry includes the following details:

- PPN: 684543087
- Zit.: Zur Qualitätsicherung in der Leichenschau: Auswertung und Analyse von 101 Leichen. / von Susann Landgraf
- Stadt Leipzig / von Susann Landgraf
- Landgraf, Susann
- Lessig, Prof. Dr. Rüdiger [Gutachter]; Bajanowski, Prof. Dr. Thomas [Gutachter]
- 2012
- III, 56 Bl., Graph. Darst.
- Hochschulschrift: Halle, Univ., Medizinische Fakultät, Diss., 2012
- Andere Ausgabe: Online-Ausg.: Landgraf, Susann: Zur Qualitätsicherung in der Leichenschau
- Anmerkung: Tag der Verteidigung: 31.01.2012
- Schlagwörter: \*Hochschulschrift
- Sachgruppen: Basis-Klassifikation I
- Inhalt: Leichenschau; Todesbescheinigung; Obduktion; Qualitätsmanagement; Qua...

Source: DDC

Includes all levels of DDC hierarchy

Base: DDC captions

Relative index entry

Target : RVK

merkmungen, Hinweise und Verweisungen

schließlich: forensische Krankenpflege

auch: forensische Pathologie, Gerichtsmedizin

stereinträge

Autopsie — Rechtsmedizin

Forensische Krankenpflege

Forensische Medizin

Forensische Pathologie

Gerichtliche Medizin

Gerichtsmedizin

Obduktion — Rechtsmedizin

Rechtsmedizin

### SWD-Schlagwörter

ls/Rechtsmedizin

ls/Autopsie

ls/Gerichtliche Entomologie

ls/Körperlage

ls/Leichenschau

ls/Obduktion

ls/Todesursache

ls/Todeszeitbestimmung

Relevanz

hoch

mittel

# Stage I Classification system based (2)

The screenshot shows the RVK-Online classification system. At the top, there are tabs for 'Gerichtsmed' (highlighted), 'Register', 'Begriff' (with a red arrow pointing to it), 'Rechtsmed', and 'suchen'. Below the tabs is a tree view of medical categories:

- WW - YV Medizin
- WW - WX Vorklinische Medizin
- WW Morphologie, Anatomie und Physiologie  
Organsysteme
- WX Ernährung, Verdauung, Stoffwechsel  
Entwicklungsphysiologie, Angewandte Physiologie
- XA - YV Theoretische und Klinische Medizin
- XA Medizinische Zeitschriften
- XB 0990 - XB 1999 Medizinische Nachschlagewerke
- XB 2000 - XB 6399 Geschichte der Medizin
- XC Allgemeine Medizin, Krankenhausmedizin
- XD Medizinische Mikrobiologie  
(Allgemeine Mikrobiologie s. WF; Klinik d. Mikrobiologie)

A red dashed line connects the 'Begriff' tab to an XML editor window titled 'rvk\_WW-YV.xml (C:)\ - GVIM'. The XML code is as follows:

```
<node notation = "WW - YV" benennung = "Medizinische Zeitschriften">
  <children>
    <node notation = "XA - YV" benennung = "Medizinische Nachschlagewerke">
      <children>
        <node notation = "XA" benennung = "Zeitschriften (alphabetisch)">
          <content bewertung = "(1000 - National Library of Medicine. Index-Catalogue)">
        </content>
      </children>
    </node>
  </children>
</node>
```

**STEPS INVOLVED**

- 1. FIND**
  - German subject headings authority file - SWD terms
  - Synonyms & other subject related terms (Wikipedia, online dictionaries)
  - Index terms in online catalogues (subject coverage/ class content)
- 2. SEARCH**
  - Register or term search in the RVK-Online system
  - In the XML files of the RVK system
- 3. Selection process (comparison & evaluation of the results)**
- 4. List out possible concordances**
- 5. Cross-check**

# Stage I Classification system based (3)

RVK-Online

Gerichtsmedizin Register

Begriff RVK-Online

Gerichtsmedizin Register

PH 9020

Strafjustiz; Strafverfahren; Rechtsmedizin; Gerichtlicher Sachverständiger; Rechtsmedizin (BF Gerichtsmedizin)

PO 3595

Rechtsmedizin

XB 5400

Rechtsmedizin / Geschichte

XF 1275

Rechtsmedizin

XL

Rechtsmedizin

XL 1400 - XL 6099

Allgemeine Rechtsmedizin

XL 1600

Allgemeine rechtsmedizinische Diagnostik und Methodik (z.B. Tod und Leiche / Rechtsmedizin | Rechtsmedizin / Diagnostik | Tötung / Rechtsmedizin)

XL 1700

Spurenanalyse / Rechtsmedizin

XL 1800

Identifikation, Daktyloskopie

XL 3000

Daktyloskopie / Rechtsmedizin | Identifikation / Rechtsmedizin

XL 3100

Tod und Körperschäden durch äußere Einwirkungen

XL 3200

Tod / Rechtsmedizin | Verletzung / Rechtsmedizin

XL 3800

Plötzlicher Tod (aus Sicht der Rechtsmedizin)

XL 3900

Plötzlicher Tod / Rechtsmedizin

XL 4500

Selbstmord

XL 4700

Selbstmord / Rechtsmedizin

Impfschäden

Impfschäden / Rechtsmedizin

Serologie

Serologie / Rechtsmedizin

Streitige geschlechtsbezogene Angelegenheiten

Jungfräulichkeit

Schwangerschaft

Kindesstörung

Blutalkohol

Blutalkohol / Rechtsmedizin

Gerohus, praep. Reichersbergensis s. [Gerohus <Reichersbergensis>](#)

Geriatrie

Geriatrie / Augenheilkunde

Geriatrie / Chirurgie

Geriatrie / Dermatologie

Geriatrie / Geschichte

Geriatrie / Infektionskrankheit

Geriatrie / Knochenbruch

Geriatrie / Neurologie

Geriatrie / Onkologie

Geriatrie / Orthopädie

Geriatrie / Tuberkulose

Geriatrie / Zahnmedizin

Gericht / Soziologie

Gericht / Strafrecht

YB 4800

YO 4300

YI 3000

YF 2300

XB 5500

YD 1800

YK 4500

YG 4000

XH 2400

YK 2700

YE 2600

YP 2200

MS 6850

VN 8800

YH 8100

CW 8000

YH 8300

XX 9000

XL 5000

## Evaluation Criteria

- Context
- Hierarchy level
- Specificity of the topic & span of the topic in a main schedule

### STEPS INVOLVED

#### 1. FIND

- German subject headings authority file - SWD terms
- Synonyms & other subject related terms (Wikipedia, online dictionaries)
- Index terms in online catalogues (subject coverage/class content)

#### 2. SEARCH

- Register or term search in the RVK-Online system
- In the XML files of the RVK system

#### 3. Selection process (comparison & evaluation of the results)

#### 4. List out possible concordances

#### 5. Cross-check

# Stage I Classification system based (4)

## STEPS INVOLVED

### 1. FIND

- German subject headings authority file - SWD terms
- Synonyms & other subject related terms (Wikipedia, online dictionaries)
- Index terms in online catalogues (subject coverage/class content)

### 2. SEARCH

- Register or term search in the RVK-Online system
- In the XML files of the RVK system

### 3. Selection process (comparison & evaluation of the results)

### 4. List out possible concordances

### 5. Cross-check

The screenshot shows the SWB-Online Katalog search interface. The search bar at the top contains "search [and]" and "All words [ALL]". Below the search bar are checkboxes for "periodicals only" and "online resources only". The main search results are displayed, with the first result being "346605245 Rechtsmedizin : mit ... 111 Tabellen". The left sidebar lists bibliographic details: PPN, Title, Author, Collaborator, Published, Extent, Series, ISBN, DNB-Nr., WV-Nr., EAN, Other numbers, RVK-Classification, Subject, and Inhaltsverzeichnis. The right sidebar shows a detailed view of the book's information, including its classification number {614.1} and its concordances: PH 9000 – PH 9020, PO 3595 – PO 3599, XB 5400 – XB 5499, and XL.

- Study of sample titles through “advanced search” with the assessed concordances in online- catalogues (e.g. SWB, GVK, BVB)
- Building concordances in the reverse direction

# Stage II – Title data based (1)

Source: RVK

Target : DDC

Datapool:

- GBV - ca. 500.000 title data records
- SWB - ca. 1 Mio. title data records

## Title data in Pica + format

...  
021A aPrinciples of forensic mental health  
assessment.

028A91845972776026747281PaHeilbrundKiri  
kJacques M. May

...  
033A pNew York [u.a.] nKluwer  
Academic/Plenum Publishers

...  
045F a614.41  
045R 920504383600222817aCW  
8000bForensische Psychologie...

Conversion of the title data into a DDC oriented form (via VZG Colibri/DDC awk programs)

### Step 1.

614.1|<021A>|health  
614.1|<021A>|assessment  
614.1|<021A>|principles  
614.1|<021A>|forensic  
614.1|<021A>|mental

...  
614.1|<045R\_nota>|CW 8000  
614.1|<045R\_cap>|Forensische Psychologie  
614.1|<045R>|CW 8000 Forensische Psychologie

### Creation of the MySQL-Database „ddc\_rvk\_db“

### Step 2.

```
dl385-122 colibri/mysql> mysql -u root -p
Welcome to the MySQL monitor.
Commands end with; or \g.
Your MySQL connection id is 14 to server version: 5.0.26
mysql> create database ddc_rvk_db;
```

# Stage II – Title data based (2)

Creation of the MySQL table „ddc\_rvk\_table“ and loading of the relevant data , for e.g. ppn 0096...

Step 3.

```
mysql> create table ddc_rvk_table (dno varchar(60) not null, descr char(10) not null, descr_val varchar(300) character set utf8 not null);  
mysql> load data infile 'in_ppn_0096124458' into table ddc_rvk_table fields terminated by "|";
```

Total no. of unique notational pairs:

- For all DDC classes - ca. 955.000
- DDC class "6"- ca. 11.5%
- DDC class "61"- ca. 4.1%

Selection of the DDC-/RVK notational pair, („614.1“)

Step 4.

```
mysql> select distinct dno as DDC_notation, descr_val as RVK_notation_caption from ddc_rvk_table where (descr=<045R> and dno like "614.1");
```

Output

DDC_notation	RVK_notation_caption
614.1	CW 8000 Forensic psychology

# Stage II – Title data based (3)

## Evaluation/selection criteria

- The notations allotted with highest priority
- Frequency of assignment of a notation for a subject
- Proximity of the notation to the subject area
- Validity of the notation (obsolete or displaced)

## Results of the Stage II. Example : DDC class „614.1“

614.1 | 31| {XL}  
614.1 | 8| {YH}  
614.1 | 7| {XB}  
614.1 | 6| {XF,XG}  
614.1 | 5| {WG}  
614.1 | 4| {PH,WC}  
614.1 | 3| {CU,CW,MS}  
614.1 | 2| {EC,PQ,WD,XC}  
614.1 | 1| {CC,CZ,NF,PC,PD,PG,PI,PN,PU, QB,ST,VN,VS,WF,XD,YI,YK,YP,YR,YU, ZO}

## Step 5. Comparison

## Results of the Stage I. Example : DDC class „614.1“

{614.1} ~ {PH 9000 – PH 9020, PO 3595 – PO 3599, XB 5400 – XB 5499, XL}

# Structural difference DDC : RVK in the notational building sequence subject area „Medicine & health”

**614.4273**  
Diseases--humans--  
incidence—United States, ...



**614.42**  
Incidence  
(Main Schedule)



**73**  
United States  
(Table T2)

**RU 10585**  
Spreading of diseases  
and influence of the  
geographical  
environment  
(Geomedicine)



**R**  
Geography



**RU 10000**  
USA



**585**  
Subject key  
Main Schedule  
„Geography“ -  
S1R  
Spreading of  
diseases and  
influence of the  
geographical  
environment  
(Geomedicine)

# Specific structural feature of the RVK

Classification practice:  
under main schedule  
„Biology“ applying the  
taxonomy subject key  
for „Homo“

**WW-YV  
Medicine**

**Medicine**

WW Morphology, Anatomy and General Physiology;  
Biochemistry of each Organs and System of Organs

**Medicine**

WX Nutrition, Absorption, Metabolism,  
Energy efficiency, Reproduction, Development physiology,  
Development physiology, Applied physiology

**Biology**

WX Nutrition, Absorption, Metabolism, Energy  
efficiency, Reproduction, Development physiology  
of Man and Animals, Applied physiology

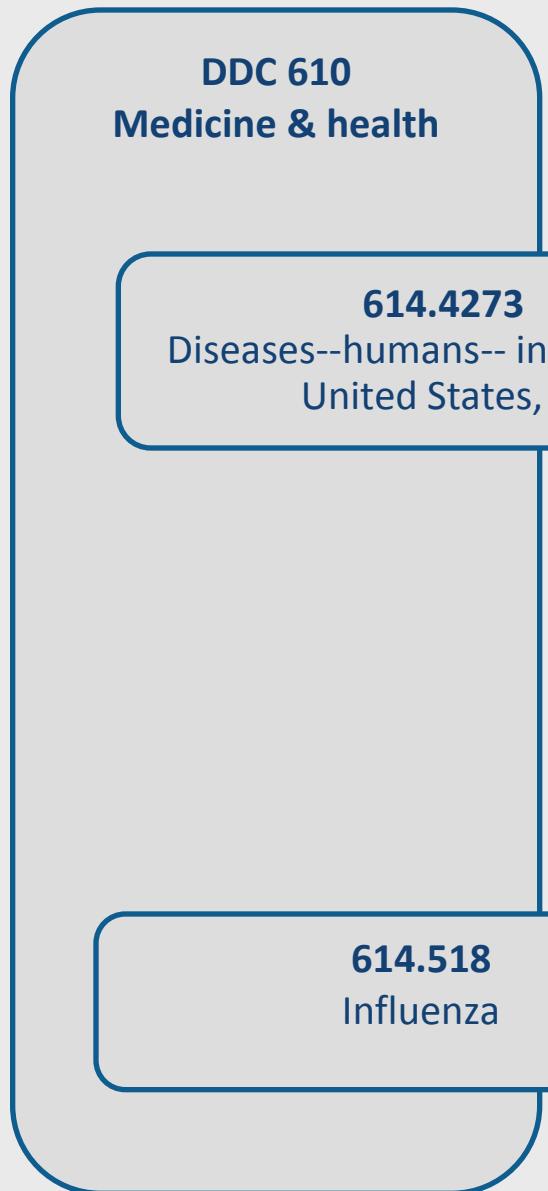
**Biology**

WW\_Morphology, Anatomy and General  
Physiology; Biochemistry of each Organs,  
and System of Organs of Man and Animals

**W Biology**

**WW – WX  
Pre-clinic Medicine**

# Conceptual differences (1)



**Example:**  
„Geographies of Health“  
*Author:* Gatrell, Anthony  
*RVK notation:* **RB 10585**  
*DDC notation:* **614.42**

**RVK: R**  
**Geography**

**RU 10585**

Spreading of Diseases and their  
Influence on the geographical  
environment (Geomedicine)

**Example:**  
„Laboratory correlates of  
immunity to influenza“,  
*Author:* Brown, Fred  
*RVK notation:* **YD 6922**  
*DDC notation:* **614.518**

**RVK: WW-XY**  
**Medicine**

**YD 6900 – YD 6999**  
Viral infections and other cough,  
sneeze related diseases (Influenza)

# Conceptual differences (2)

**615**  
Pharmacology and therapeutics

**DDC 610**  
Medicine and health

**616.024**  
Domestic medicine

**Topic: Pharmacology**  
**Example:**  
„Essentials of Pharmacology“  
**Author:** Oldham, Frances, k.  
**RVK notation:** XI 1400  
**DDC notation:** 615

**Topic: Toxicology**  
**Example:**  
„Toxicology in the use, misuse and abuse of food, drugs and chemicals“  
**Author:** Chambers, Philipp L.,...  
**RVK notation:** VT 5308  
**DDC notation:** 615.9

**Topic: Drugs**  
**Example:**  
„Aspirin and other Salicylates“  
**Author:** Vane, John, R.,...  
**RVK notation:** XI 4000, VW 5100  
**DDC notation:** 615.783

**Topic: Domestic Medicine**  
**Example:**  
„Selbstmedikation für die Kitteltasche,...“  
**Author:** Lennecke, Kirsten  
**RVK notation:** VR 5800  
**DDC notation:** 616.024

**RVK: WW-XV**  
**Medicine**

**XI**  
**Pharmacology and Toxicology**

**RVK: V**  
**Chemistry and Pharmacy**

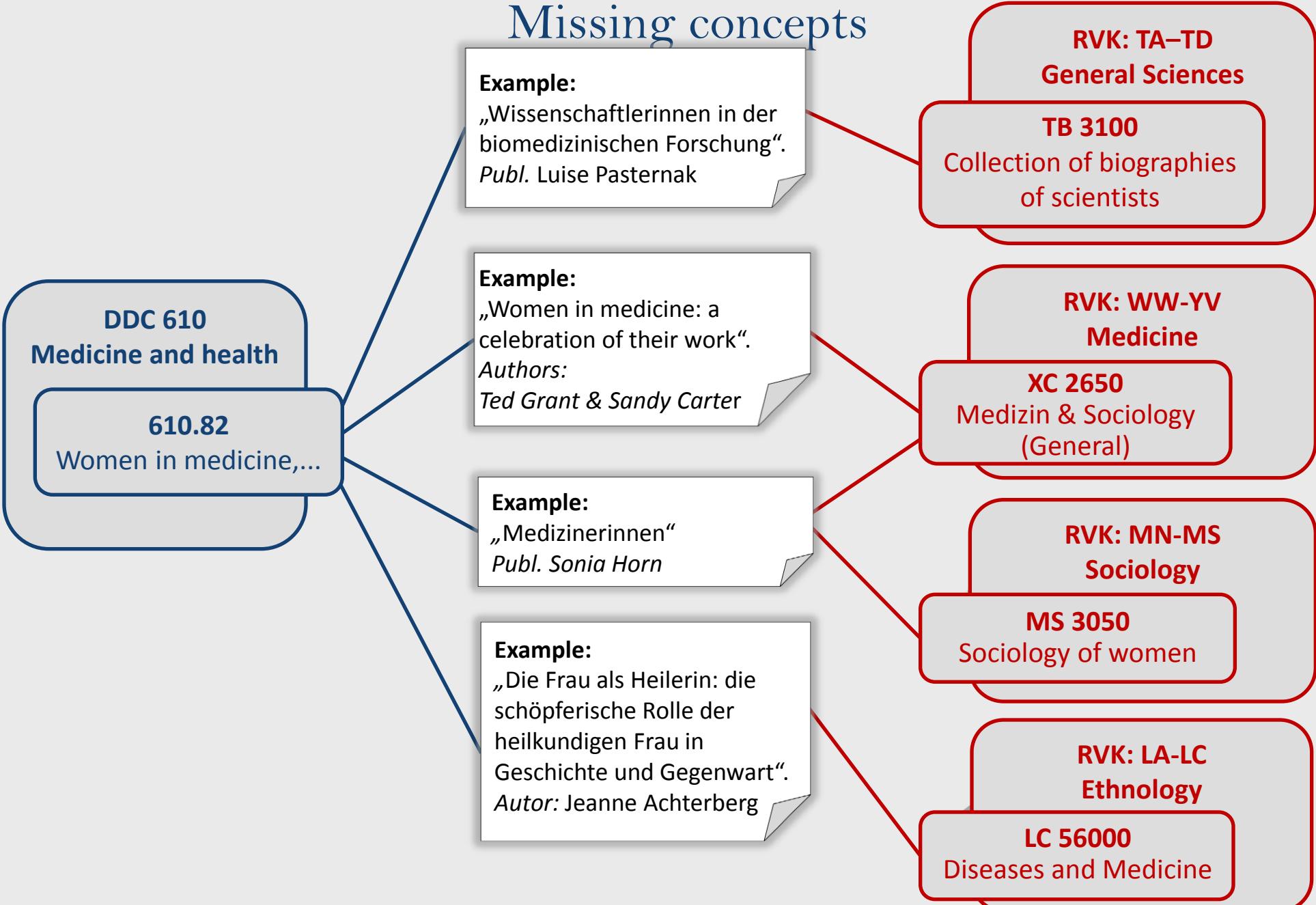
**VT**  
**Pharmacology and Toxicology**

**VW**  
**Pharmaceutical Biology**

**VR**  
**General Pharmacy**

# Conceptual differences (3)

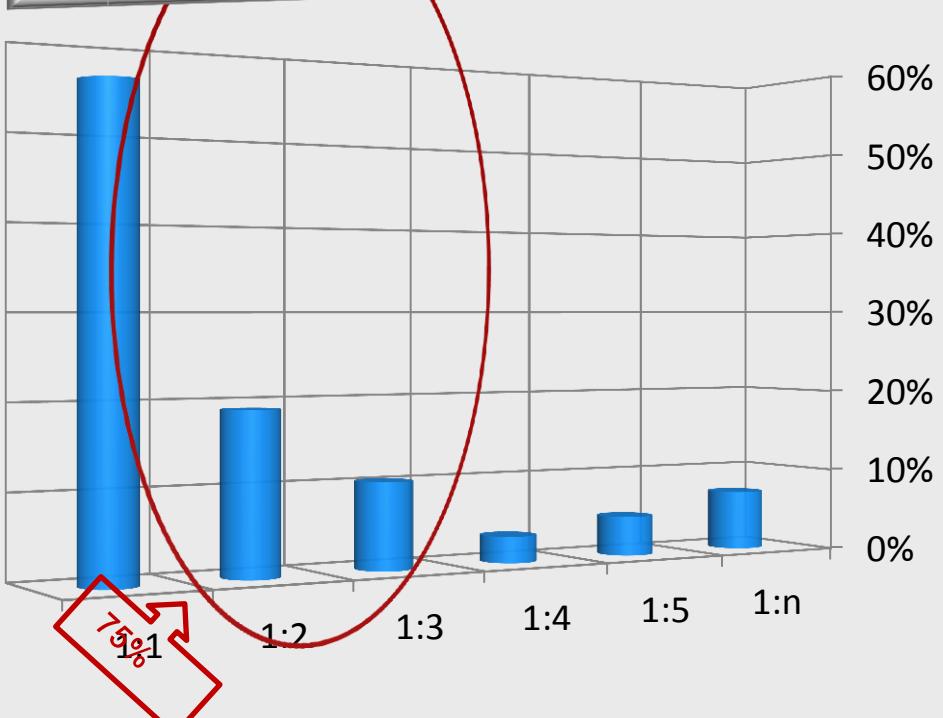
## Missing concepts



# DDC-RVK Mapping relationship

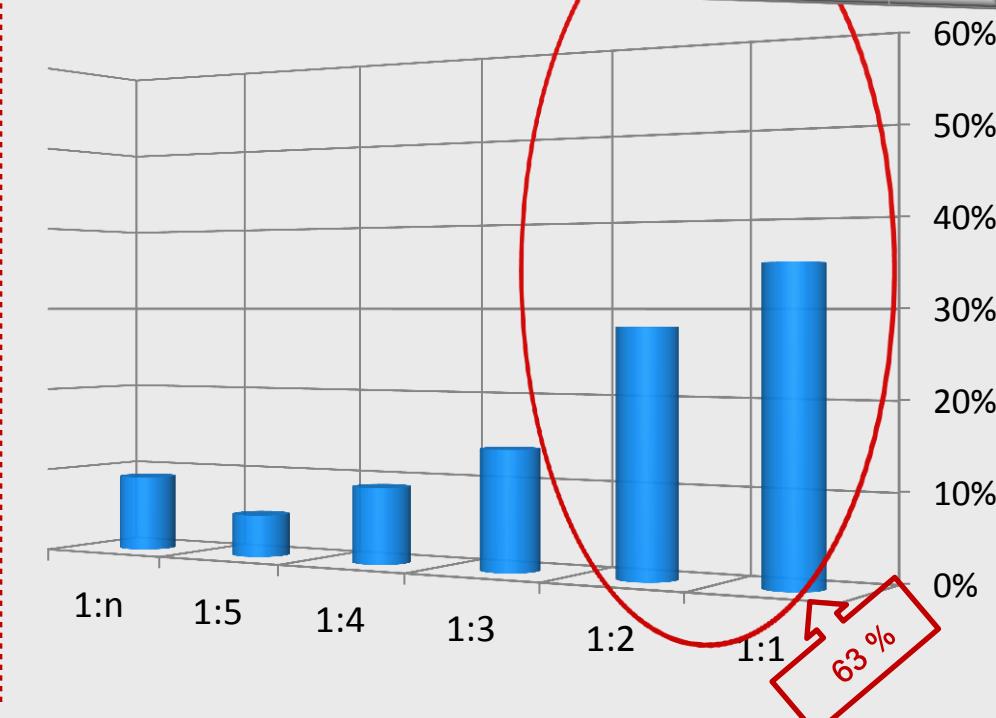
ONLY FOR THE DDC CLASS “614” (126 Classes)

No.	No. of DDC classes (Total 126)	1:n (DDC:RVK) Mapping relationship	Relative Frequency
1	70	1:1	56%
2	24	1:2	19%
3	13	1:3	10%
4	4	1:4	3%
5	6	1:5	5%
6	9	1:n (n>5)	7%



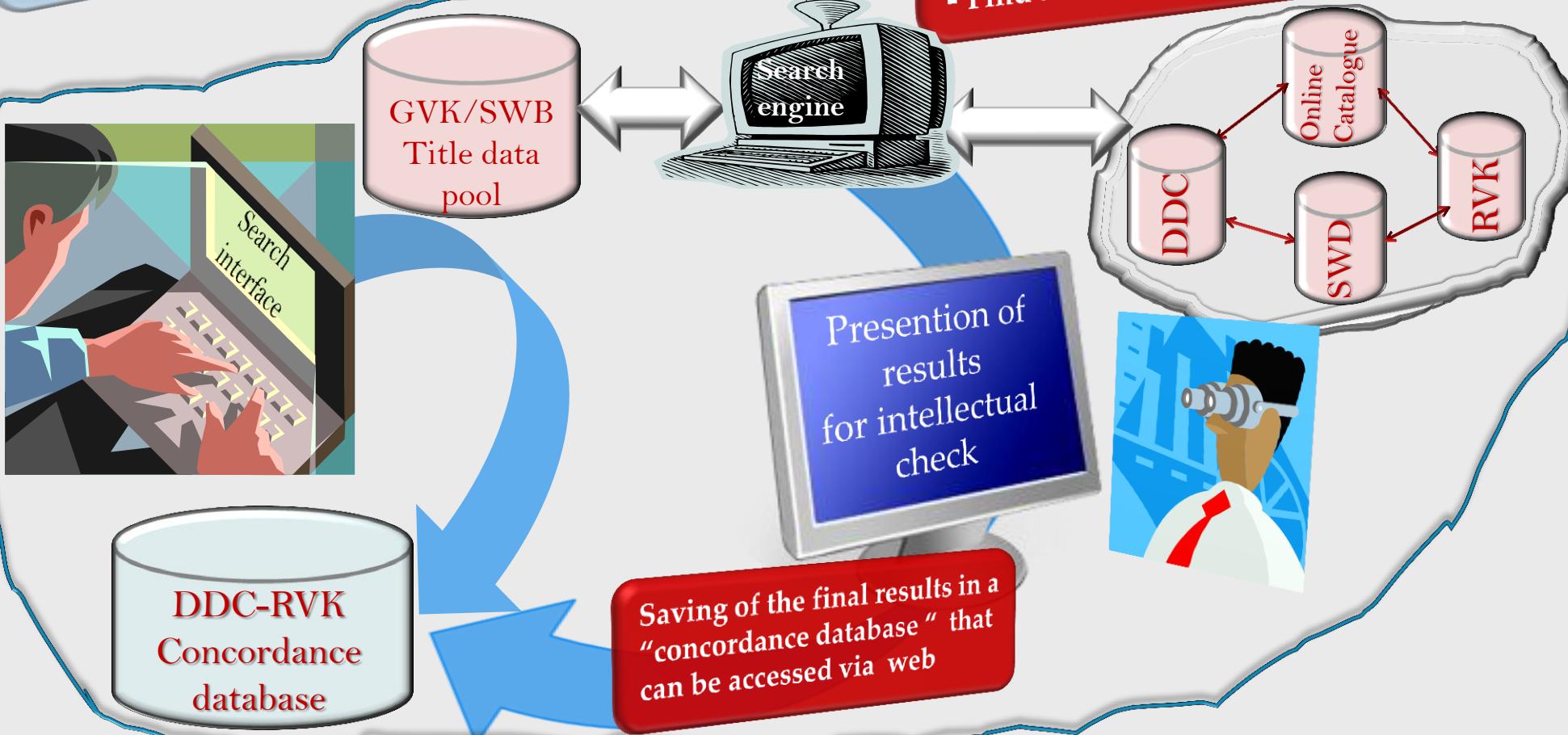
ENTIRE SUBJECT AREA “ MEDICINE & HEALTH - DDC  
CLASS 610” (1067 Classes)

Relative Frequency	1:n (DDC:RVK) Mapping relationship	No. of DDC classes (Total 1067)	No.
35%	1:1	375	1
28%	1:2	297	2
14%	1:3	149	3
9%	1:4	101	4
5%	1:5	51	5
9%	1:n (n>5)	94	6



# Perspective

- Ascertain character or degree of equivalence between the mapped classes
- Development of an automatic procedure



# References

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