Support of Metadata Mapping with coli-conc Infrastructure

DCMI Conference, 15 October 2021

Uma Balakrishnan **Jakob Voß** **Stefan Peters**

COLI CONC

VZG

What is coli-conc?

coli-conc.gbv.de

- A service of the Head Office of the GBV Common Library Network, Germany
- It offers **an integrated system for the collection, management and mapping of KOS**
- **It provides**
  - free and uniform access to KOS and their mappings
  - free software to import and export KOS and mapping data
  - a tool for creating and editing mappings with the mapping tool **Cocoda**
  - storage of metadata of the KOS, content of the KOS, and mappings between the KOS
- Funded by **the German Research Foundation**

Partners


Freie Universität Berlin


UR
Universität Regensburg


ZBW
Leibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics


Universität St.Gallen


Staatsbibliothek
zu Berlin
Preußischer Kulturbesitz


ulb.
Universitäts- und Landesbibliothek Tirol


gesis
Leibniz-Institut
für Sozialwissenschaften


DEUTSCHE
NATIONAL
BIBLIOTHEK


STAATS- UND UNIVERSITÄTS-
BIBLIOTHEK
HAMBURG
CARL VON OSSIETZKY


WIKIMEDIA
DEUTSCHLAND

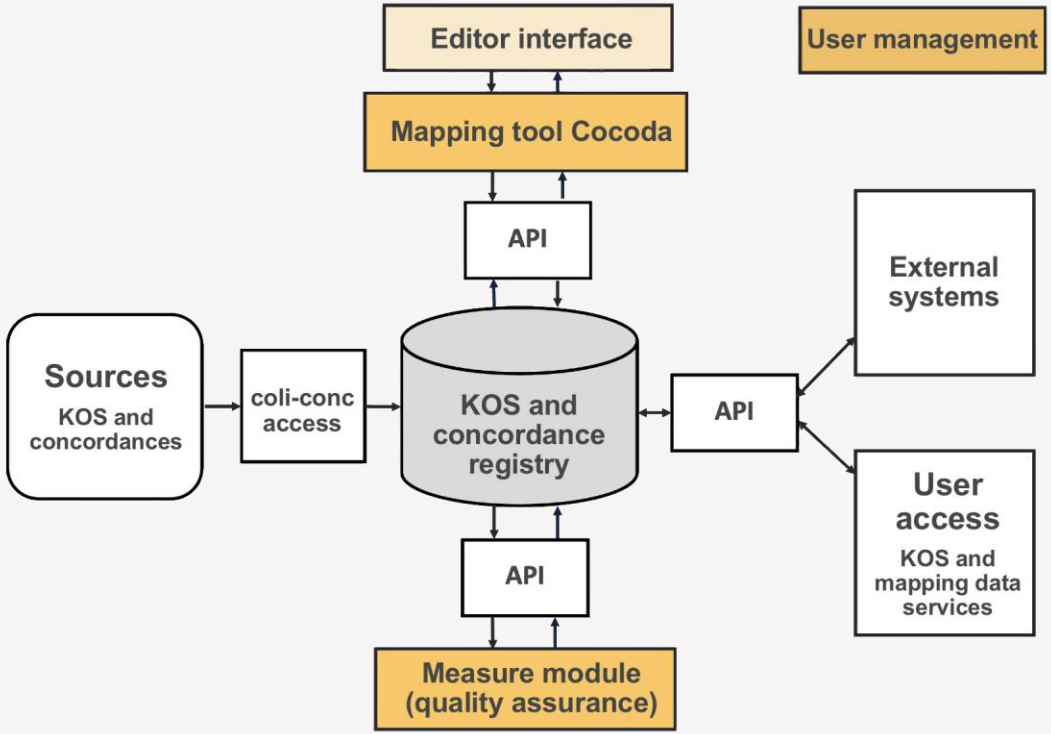
Objectives

- Manage heterogeneity and create semantic network of KOS
- Catalog enrichment (K10plus)
- Facilitate KOS sharing and catalog resources
- Serve as knowledge base
- Develop and establish format standards
- Enhance the quality of mappings

coli-conc Infrastructure

coli-conc Infrastructure Overview

- Modular system
- Components can be used individually and integrated into existing systems and software
- Founded on common data format JSKOS and JSKOS API



Elements of the System Architecture

Cocoda web-based application

- User and editor interface for KOS, concordances, and mappings
- Developed in JavaScript (Vue framework)
- Open source

Backend Services

- Terminology Services (DANTE API, BARTOC, Skosmos, MarcXML...)
- Mapping Services and Database (collected concordances)
- Mapping Suggestions (co-occurrences and queries)
- Quality Services and Statistics (planned)

coli-conc Components

- The JSKOS data format
- The KOS and concordance registry and database
- Input processes
- Mapping tool Cocoda
- Web-based user interface
- coli-rich - an application for automatic enrichment of catalogues

The JSKOS data format

Facilitate representation, use, and exchange of KOS and mappings

Requires

- An easy-to-use data format (JSKOS)
- An easy-to-use access method (JSKOS-API)

JSKOS is

- based on JSON(-LD) ⇒ compatible with SKOS/RDF
- can represent concordances, mappings, KOS, and KOS data
- has extra features (confidence level of mappings, elements for concepts and co-occurrences, mappings with mulitple concepts and ordered lists)
- **Specifications:** http://gbv.github.io/jskos/


```
{
  "from": {
    "memberSet": [
      {
        "uri": "http://dewey.info/class/200/e23/"
      }
    ]
  },
  "to": {
    "memberSet": [
      {
        "uri": "http://uri.gbv.de/terminology/thema/QRA"
      }
    ]
  },
  "fromScheme": {
    "uri": "http://bartoc.org/en/node/241"
  },
  "toScheme": {
    "uri": "http://bartoc.org/en/node/1043"
  },
  "creator": [
    {
      "uri": "https://github.com/stefandesu",
      "prefLabel": {
        "en": "Stefan Peters"
      }
    }
  ],
  "type": [
    "http://www.w3.org/2004/02/skos/core#exactMatch"
  ],
  "created": "2021-10-01T08:25:51.542Z",
  "modified": "2021-10-01T08:26:07.817Z",
  "uri": "https://coli-conc.gbv.de/api/mappings/22cb5fdc-196c-4fb0-ad73
    -9c157cd4b4e9"
}
```

KOS Registry

BARTOC.org
Basic Register of Thesauri, Ontologies & Classifications

- Subset of **BARTOC.org**
- KOS currently in use in German-speaking countries
- Enriched with metadata
- Uniform access in JSKOS
- Link to mapping tool Cocoda

COLI CONC

VZG

Concordance Registry

- Contains currently 27 concordances between different KOS, such as GND-DDC, STW-GND, DDC 1000-RVK, BC-DDC, GND-RVK, RVK-BC, MSC-BC, DDC-LCSH,…
- Total of over 371.000 mappings and concordances
- Wikidata mappings
- Stored in JSKOS format

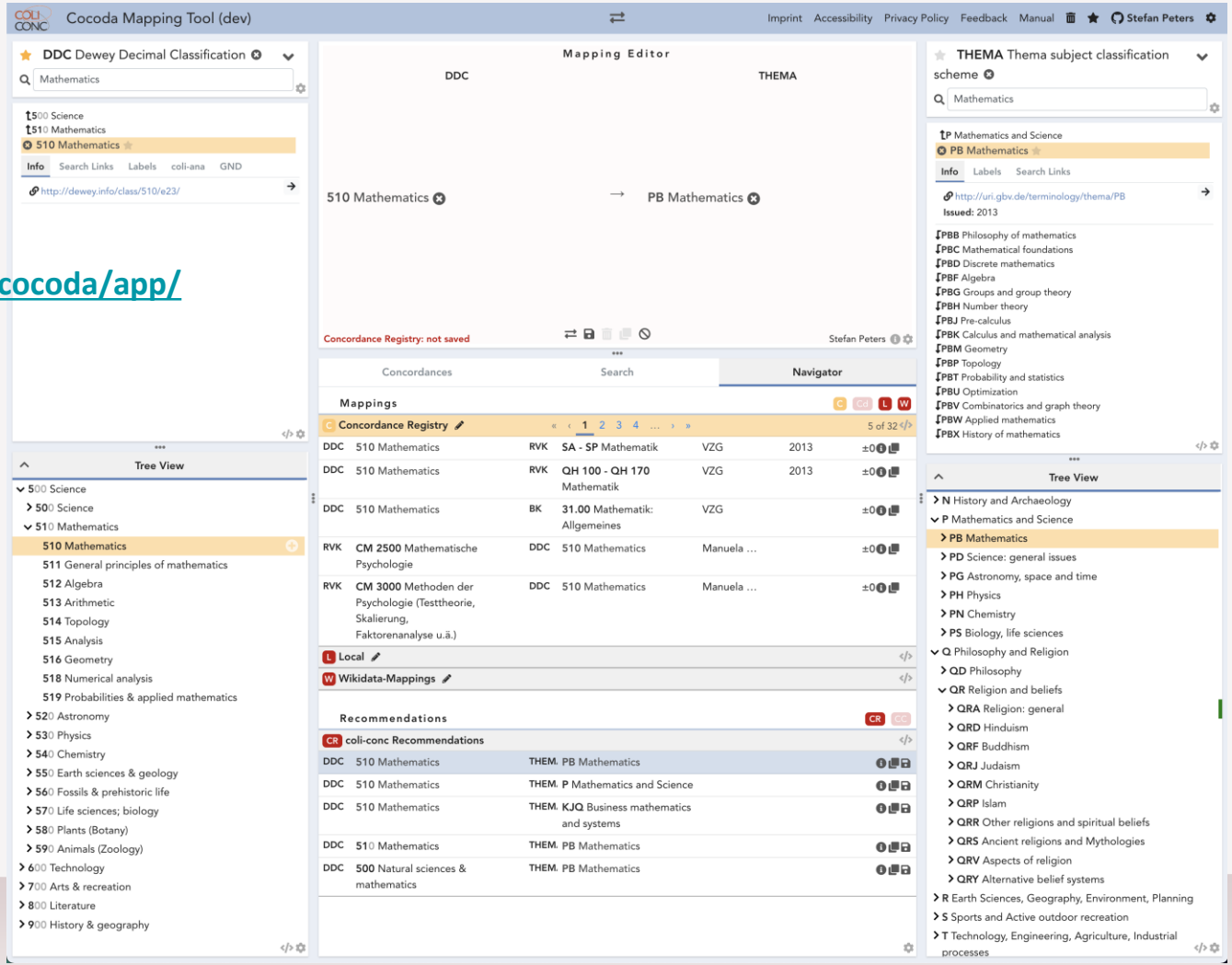
  http://coli-conc.gbv.de/terminologies/

  http://coli-conc.gbv.de/concordances/

Mapping Tool Cocoda

Freely accessible at:

https://coli-conc.gbv.de/cocoda/app/



Mapping tool Cocoda Components

A single-page Web application. **Four main components:**

- KOS representation: Concept browser
- Mapping editor: Create and modify mapping candidates and assign mapping type
- Mapping browser: Browse existing mappings and mapping suggestions
- Quality measures: Generator for confidence level and and user statistics (planned)

KOS Representation – Concept Browser

- Dropdown menu for KOS selection
- Display of top concept hierarchy
- Hierarchical navigation and detailed display of the concepts
- Display of intra-KOS structural content
  (scope notes and linked relative index terms, etc.)
- Display of mapping candidates from different sources
- Deep links into catalogues and other sources

Mapping Browser: Mapping Suggestion Module

Task: For a caption in the source KOS (e.g. DDC)

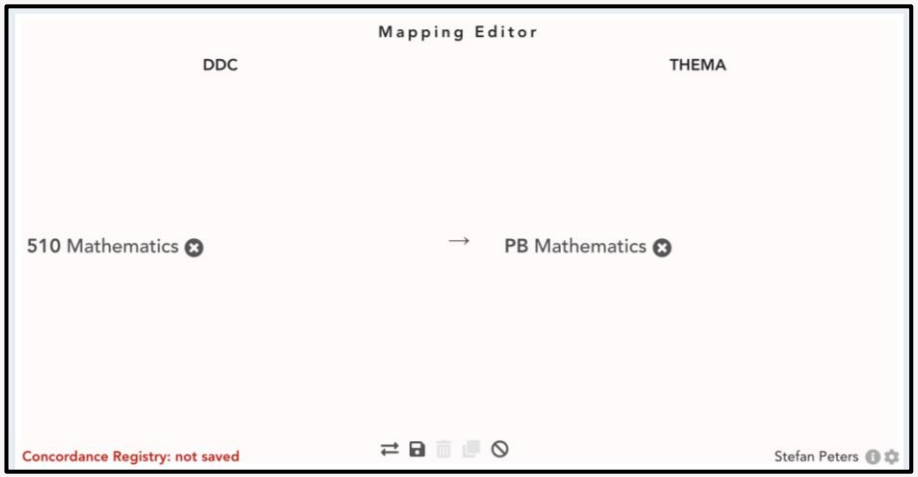
find the best mapping in the target KOS (e.g. THEMA or LCSH)

Automated recommendation services:

- **Mapping database** with the Dewey notation
- **Implicit mappings in the Union catalog** for records with the Dewey notation that also have THEMA or LCSH notation (co-occurrences)
- **Search the target system** with the Dewey captions/relative index and additional terms using query term expansion using other KOS and knowledge bases (such as Wikipedia or mapped GND terms (German Subject Headings)

Mapping Editor Module

- **Create, edit, save, delete mappings and assign** mapping type
- **Export** mappings JSKOS and CSV



coli-rich: Automatic Encrichment of the K10plus

- **Existing KOS → Mappings → Enrichment of further indexing systems/KOS**
- **Example**

045F=5010 $a549 DDC 549 Mineralogy

DDC 549 → BC 38.30 Available Mapping in the database

045Q/01=5301 Additional PICA-Field with the Source Information

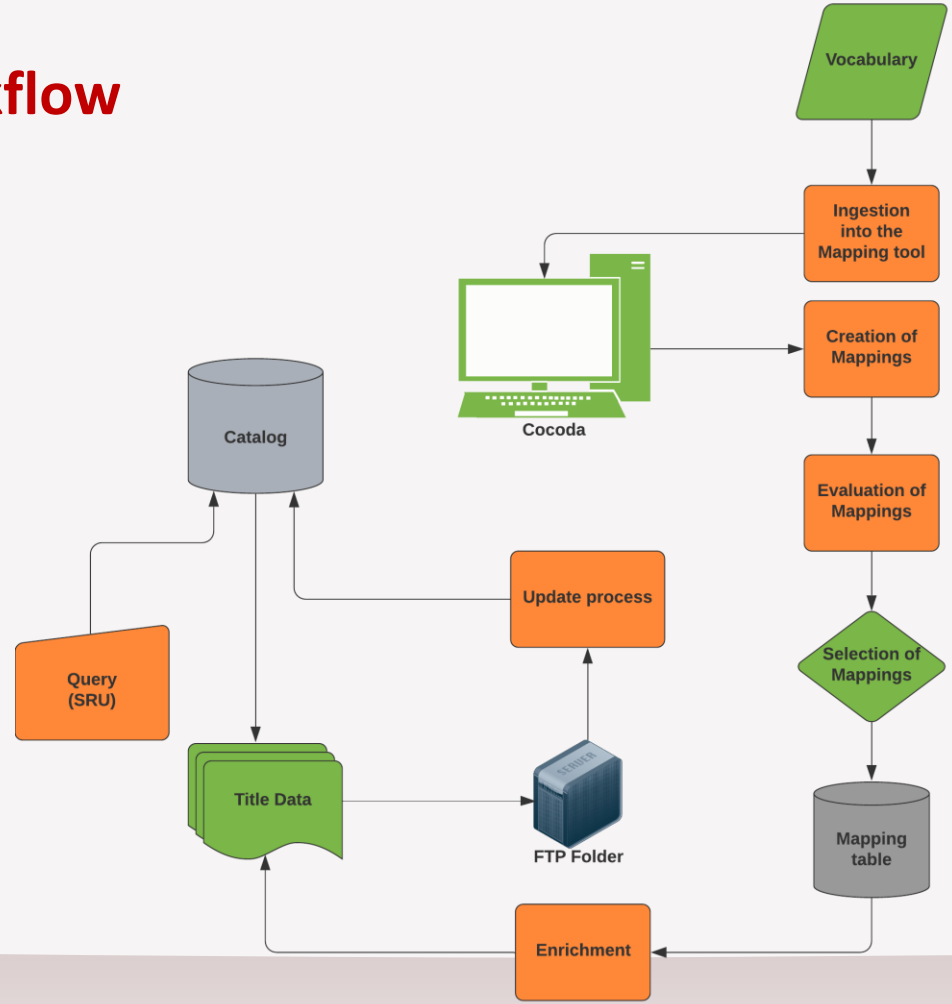
$a38.30

$Acoli-conc DDC-BC

$Ahttps://coli-conc.gbv.de/api/mappings/af8ac88b-f7ab-427a-8e06-9e091d281bdc

More Information : https://github.com/gbv/coli-rich

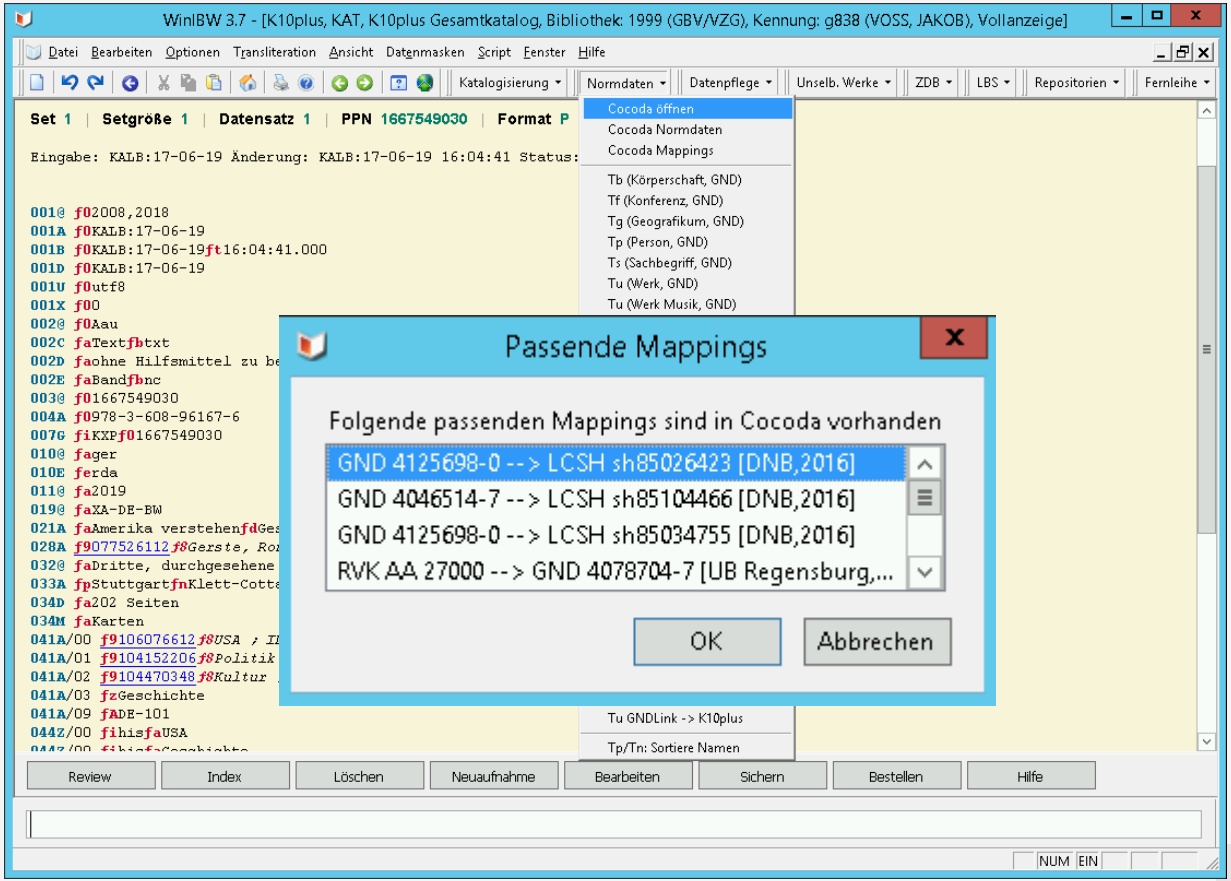
coli-rich Workflow



Connection to the external cataloguing and subject indexing systems

WinIBW: Proof of Concept
https://github.com/gbv/cocoda-winibw

Digitaler Assistent: planned



Cocoda live Demo and Tutorial

Thank You!

Webseite: https://coli-conc.gbv.de

Uma Balakrishnan (project lead): balakrishnan@gbv.de

Jakob Voß (technical coordinator): voss@gbv.de

Stefan Peters (software developer): peters@gbv.de

Twitter: @coli_conc

You like to collaborate or become a partner?

Just e-mail us :-)