

Building the Bridge – Mapping Different Knowledge Organization Systems in Economics

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ZBW – Leibniz Information Centre for Economics –

German National Library of Economics

*Workshop on Classification and Subject Indexing in Library and Information
Science (LIS`2015)*

2nd of September 2015

Introduction

Why do we do vocabulary mappings in general?

- Mappings enable an integrated search in a distributed search environment.

The screenshot shows the ECONBIZ search interface. The header includes the logo 'ECONBIZ Find Economic Literature' and a 'Login' button. The navigation bar contains 'Suche', 'Veranstaltungen', 'Merklisten', 'Suchhistorie', and 'Hilfe'. The breadcrumb trail reads 'Sie sind hier: Home > Erweitert'. The main search area is titled 'Erweiterte Suche' and includes a 'Suchen' button. The search criteria are set to 'Übereinstimmung: Mit ALLEN Wörtern'. There are three search fields, each with a dropdown menu set to 'Alle Felder'. Below the search fields are links for 'Suchfeld hinzufügen' and 'Suchmenge hinzufügen'. The 'Begrenze auf' section includes a checkbox for 'nur freie Volltexte'. The 'Sprache:' dropdown lists various languages. The 'Format:' dropdown lists document types. The 'Datenbank:' dropdown is circled in red and lists databases: ArchiDok, BASE, ECONIS (ZBW), EconStor, OLC WiWi, RePEc, USB Köln (BWL-Volltexte), and USB Köln (WiSo). The 'Treffer pro Seite' is set to 10. The 'Erscheinungsjahr' section has 'Von:' and 'Bis:' input fields. A 'Suchen' button is at the bottom right. The footer contains logos for ZBW, ZEW, DFG, and vufind.

Introduction

Why do we do vocabulary mappings in general?

- Mappings enable an integrated search in a distributed search environment.
- Mappings translate search terms into the vocabulary of the target KOS.

The screenshot shows the ECONBIZ search interface. The header includes the logo 'ECONBIZ Find Economic Literature' and a 'Login' button. The navigation bar contains 'Suche', 'Veranstaltungen', 'Merklisten', 'Suchhistorie', and 'Hilfe'. The breadcrumb trail reads 'Sie sind hier: Home > Erweitert'. The main search area is titled 'Erweiterte Suche' and includes a 'Suchen' button. The search criteria are set to 'Übereinstimmung: Mit ALLEN Wörtern'. There are three search fields, each with a dropdown menu set to 'Alle Felder'. A 'Suchfeld hinzufügen' link is present. Below the search fields, there is a 'Suchmenge hinzufügen' link and a checkbox for 'nur freie Volltexte'. The 'Begrenze auf' section includes a 'Sprache:' dropdown menu with options like Afrikaans, Albanisch, Arabisch, etc. The 'Format:' dropdown menu has options like Aufsatz, Buch / Working Paper, etc. The 'Datenbank:' dropdown menu is circled in red and lists options: ArchiDok, BASE, ECONIS (ZBW), EconStor, OLC WiWi, RePEc, USB Köln (BWL-Volltexte), and USB Köln (WiSo). The 'Treffer pro Seite' is set to 10. The 'Erscheinungsjahr' section has 'Von:' and 'Bis:' input fields with a range slider. A 'Suchen' button is at the bottom right. The footer contains logos for ZBW, ZEW, DFG, and vufind.

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For what reason did we at ZBW do mappings in the past?

- ... to offer an integrated search space for our search portal for economics EconBiz,
 - e. g. Integrated Authority File

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RDF/XML RDF/Turtle Concept history (RDF/Turtle) Deutsch

Home
STW Relaunch
Alphabetical descriptor list
Mappings
versions
Web Services
Downloads
About

V Economics
B Business economics
W Economic sectors
P Commodities
N Related subject areas
G Geographic names
A General descriptors

Rural development EB

Ländliche Entwicklung (german)
used for: Community development
Narrower Terms
Village development EB
Broader Terms
Regional development EB
Related Terms
Agricultural development EB
Rural area EB
Rural economy EB
Rural education EB
Subject Categories
V.08.03.01 Economic development
V.11.05 Rural development
Links to other Thesauri and Vocabularies
Ländliche Entwicklung (from GND)
Rural development (from DEpedia) W
rural development (from Thesoz)
rural development (from Agrovoc)
Persistent Identifier (for bookmarking and linking)
http://zbw.eu/stw/descriptor/10575-6

STW Thesaurus for Economics (v 9.0, 2015-06-15) · Suggestions and comments to the thesaurus team ·
Mailing lists: stw-announce, stw-user
ZBW - Leibniz Information Centre for Economics - Imprint

W3C XHTML + RDFa The STW Thesaurus for Economics is licensed under an Open Database License (ODbL) 1.0. Permissions beyond the scope of this license are available at ZBW.

Introduction

For what reason did we at ZBW do mappings in the past?

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 - e. g. Integrated Authority File
- ... to link the STW with other vocabularies for the development of semantic web applications.

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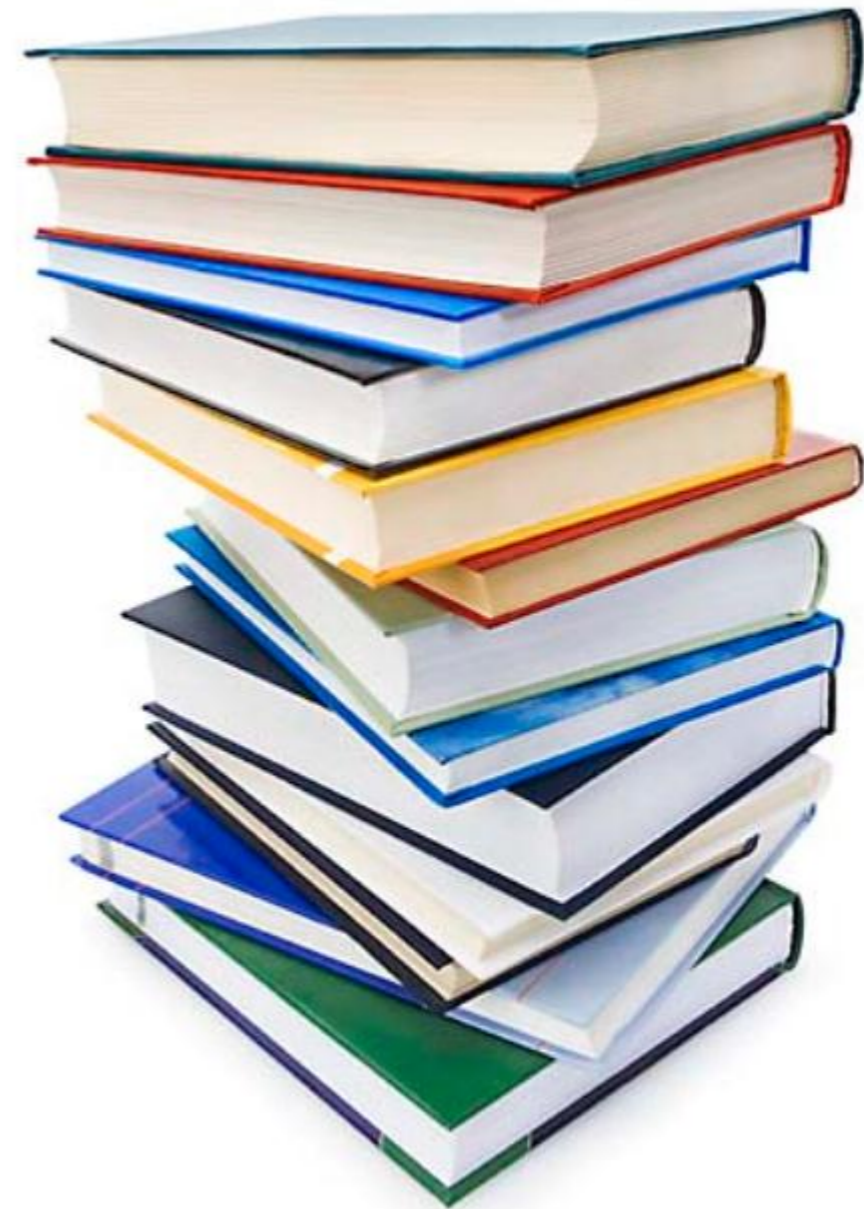
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Introduction

What is new about the current mapping effort?

Context:

- ... increasing numbers of publications and decreasing personnel resources.
 - ... complementary approaches to conventional subject indexing are needed,
 - i. a. reuse of user-generated content.



Introduction

Current reuse scenario of user-generated content at ZBW:

Regarding working paper series:

- Verbal subject indexing: inclusion of **author keywords** into bibliographic records if available.

ECONBIZ
Find Economic Literature

Search for publications [All Fields] Search [Login]

Open Access material only [Advanced]

Search Events Bookmarks Search History Help

You are here: Home > Search > Escaping the Great Recession > Holdings > FAQ on loan > Access ZBW account > Leave ZBW view

#1 of 38 Next »

Escaping the Great Recession

Francesco Bianchi and Leonardo Melosi

While high uncertainty is an inherent implication of the economy entering the zero lower bound, deflation is not, because agents are likely to be uncertain about the way policymakers will deal with the large stock of debt arising from a severe recession. We draw this conclusion based on a new-Keynes... [Full description](#)

Year of Publication: 2014

Authors: Bianchi, Francesco; Melosi, Leonardo

Publisher: Chicago, Ill. : Federal Reserve Bank of Chicago

Edition: This draft: January 2014

Physical Description: Online-Ressource (44, 6 S.) graph. Darst.

Series: Working papers / Federal Reserve Bank of Chicago ; 2014-17

Language: English

Subjects: Policy uncertainty | macroeconomic uncertainty | Markov-switching models | shock-specific policy rules | zero lower bound

Classification: jel-E31; jel-E52; jel-E62; jel-E63; jel-D83

Type of Publication (narrower categories): Arbeitspapier Working Paper Graue Literatur Non-commercial literature

Type of Publication: Book / Working Paper

Notes: Systemvoraussetzungen: Acrobat Reader

Title record from database: ECONIS - Online Catalogue of the ZBW

Availability: Full text More access options

Cite Email Export to ... Bookmark share tweet +1

Holdings Description Report Error

Available at ZBW

Link: <https://www.chicagofed.org/publications/working-papers/2014/wp-17>

Similar items by topic

- Escaping the Great Recession By: Bianchi, Francesco Published: (2014-08-01)
- Escaping the Great Recession By: Bianchi, Francesco Published: (2013-09)
- Escaping the Great Recession By: Bianchi, Francesco Published: (2013)

Similar items by author

- Constrained discretion and central bank transparency By: Bianchi, Francesco Published: (2013)
- Dormant shocks and fiscal virtue By: Bianchi, Francesco Published: (2013)
- Modeling the evolution of expectations and uncertainty in general equilibrium By: Bianchi, Francesco Published: (2012)

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- Classificatory subject indexing: inclusion of **JEL classes** into bibliographic records if available.

ECONBIZ
Find Economic Literature

Search for publications [All Fields] Search [Login]

Open Access material only [Advanced]

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Introduction

Future reuse scenario for a JEL – STW (subject category system) mapping effort:

- ... building on the fact that economists are usually quite familiar with the JEL classification codes.

STW -
Thesaurus for Economics
(subject category system)



JEL –
Journal of Economic
Literature Classification
System

Introduction

Future reuse scenario for a JEL – STW (subject category system) mapping effort:

- ... building on the fact that economists are usually quite familiar with the JEL classification codes.
- ... animate economists to use STW subject headings in order to provide a more fine-grained content description with a standardized vocabulary.

STW -
Thesaurus for Economics
(subject category system)

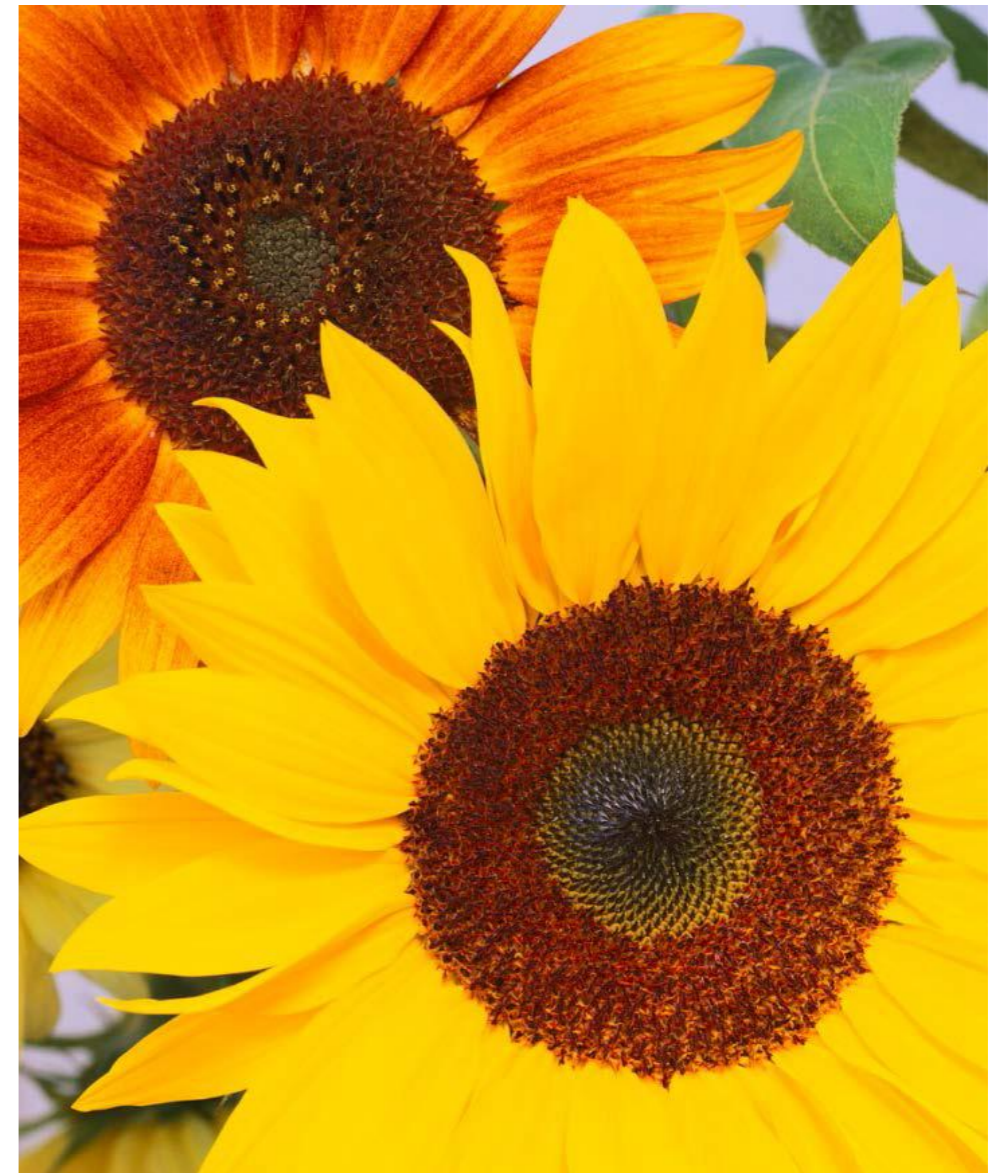


JEL –
Journal of Economic
Literature Classification
System

Research question

Regarding the use case we have in mind, to what extent is a useful mapping between both KOS possible?

Dealing with this question on the one hand includes a **theoretical reflection** on the structure of both KOS. On the other hand it includes the presentation of a specific **iterative semi-automatic mapping approach**.



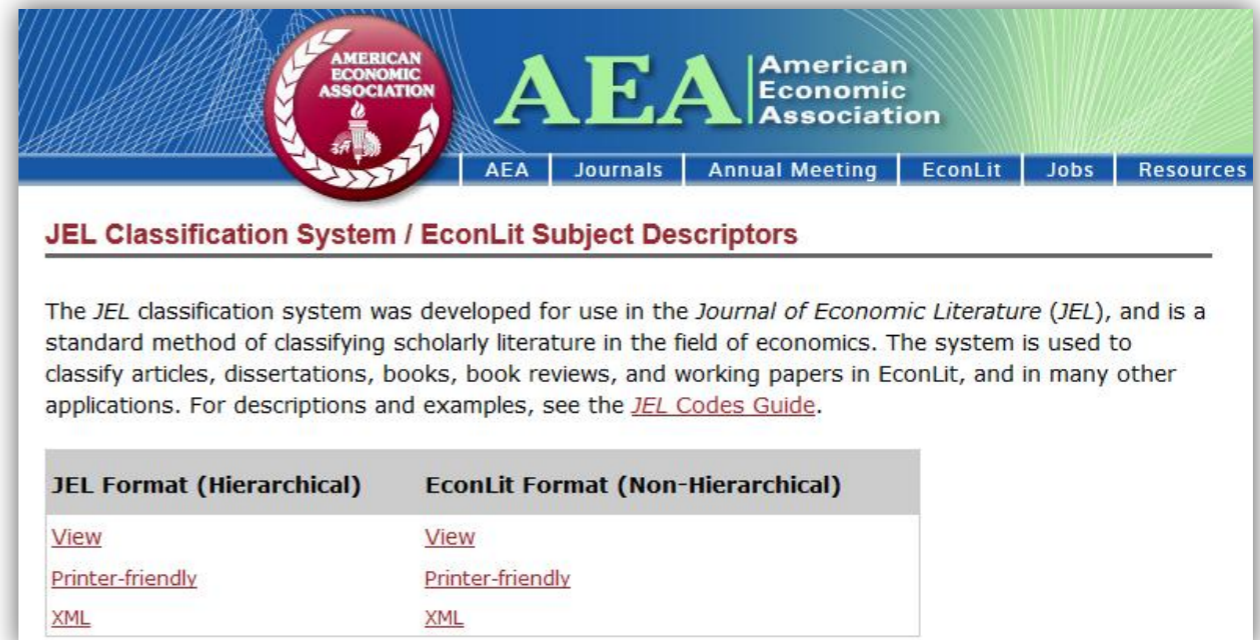
Outline

- Introduction
- Knowledge organization systems in economics
- Definition of interoperability and structural models for mapping
- Mapping process
- Empirical examples
- Results
- Conclusion and future outlook

JEL Classification System

Institutional background:

- It is published by the American Economic Association (AEA), which publishes the American Economic Review and maintains the searchable database EconLit.
- The AEA Executive Committee regularly reports on changes of JEL classes in the American Economic Review.



The screenshot shows the AEA website header with the logo and navigation menu. The main content area is titled "JEL Classification System / EconLit Subject Descriptors". Below the title, there is a paragraph explaining the JEL classification system. At the bottom, there is a table with two columns: "JEL Format (Hierarchical)" and "EconLit Format (Non-Hierarchical)".

JEL Format (Hierarchical)	EconLit Format (Non-Hierarchical)
View	View
Printer-friendly	Printer-friendly
XML	XML

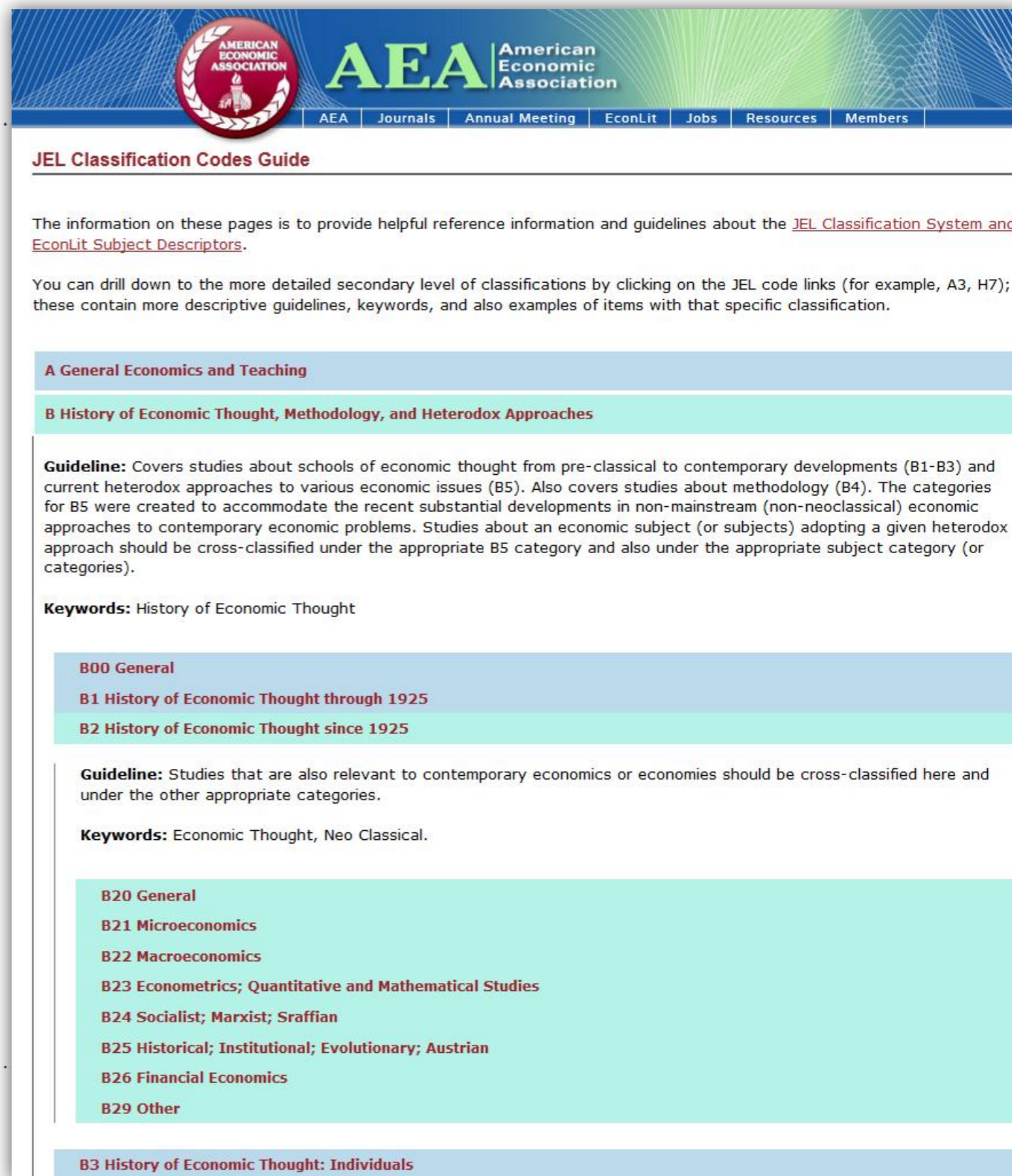
JEL Classification

Scope:

- It represents an **Anglo-American understanding of economics** mainly focusing on (national) economics [ger.: VWL].

Structural characteristics:

- It is a **precombined classification system** with a monohierarchical structure and polydimensional ordering principles.



The screenshot shows the top navigation bar of the American Economic Association website, including the AEA logo and links for Journals, Annual Meeting, EconLit, Jobs, Resources, and Members. The main heading is "JEL Classification Codes Guide". The introductory text explains that the page provides reference information and guidelines about the JEL Classification System and EconLit Subject Descriptors. It notes that users can drill down to more detailed secondary level classifications by clicking on JEL code links (e.g., A3, H7), which contain more descriptive guidelines, keywords, and examples. The page is structured into hierarchical sections: "A General Economics and Teaching", "B History of Economic Thought, Methodology, and Heterodox Approaches", and "B3 History of Economic Thought: Individuals". The "B" section includes a guideline covering studies about schools of economic thought from pre-classical to contemporary developments (B1-B3) and current heterodox approaches (B5). It also covers methodology (B4). The categories for B5 were created to accommodate recent substantial developments in non-mainstream (non-neoclassical) economic approaches to contemporary economic problems. Studies about an economic subject (or subjects) adopting a given heterodox approach should be cross-classified under the appropriate B5 category and also under the appropriate subject category (or categories). The keywords for this section are "History of Economic Thought". The "B2 History of Economic Thought since 1925" section includes a guideline for studies relevant to contemporary economics or economies, which should be cross-classified here and under other appropriate categories. Its keywords are "Economic Thought, Neo Classical". The "B20 General" section lists sub-categories: B21 Microeconomics, B22 Macroeconomics, B23 Econometrics; Quantitative and Mathematical Studies, B24 Socialist; Marxist; Sraffian, B25 Historical; Institutional; Evolutionary; Austrian, B26 Financial Economics, and B29 Other.

JEL Classification Codes Guide

The information on these pages is to provide helpful reference information and guidelines about the [JEL Classification System and EconLit Subject Descriptors](#).

You can drill down to the more detailed secondary level of classifications by clicking on the JEL code links (for example, A3, H7); these contain more descriptive guidelines, keywords, and also examples of items with that specific classification.

A General Economics and Teaching

B History of Economic Thought, Methodology, and Heterodox Approaches

Guideline: Covers studies about schools of economic thought from pre-classical to contemporary developments (B1-B3) and current heterodox approaches to various economic issues (B5). Also covers studies about methodology (B4). The categories for B5 were created to accommodate the recent substantial developments in non-mainstream (non-neoclassical) economic approaches to contemporary economic problems. Studies about an economic subject (or subjects) adopting a given heterodox approach should be cross-classified under the appropriate B5 category and also under the appropriate subject category (or categories).

Keywords: History of Economic Thought

B00 General

B1 History of Economic Thought through 1925

B2 History of Economic Thought since 1925

Guideline: Studies that are also relevant to contemporary economics or economies should be cross-classified here and under the other appropriate categories.

Keywords: Economic Thought, Neo Classical.

B20 General

B21 Microeconomics

B22 Macroeconomics

B23 Econometrics; Quantitative and Mathematical Studies

B24 Socialist; Marxist; Sraffian

B25 Historical; Institutional; Evolutionary; Austrian

B26 Financial Economics

B29 Other

B3 History of Economic Thought: Individuals

STW Thesaurus for Economics


Institutional background:

- Developed in cooperation thanks to a project funded by the German Ministry for Economy in the 1990s.

Scope:

- It covers all economics-related subject areas and, on a broader level, the most important related subjects (e.g. social sciences).





Leibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics

STW Thesaurus for Economics

Version 9.0 (Changes)

Subthesauri

- V Economics
- B Business economics
- W Economic sectors
- P Commodities
- N Related subject areas
- G Geographic names
- A General descriptors

STW Thesaurus for Economics

Structural characteristics:

- STW is a **polyhierarchical** bilingual thesaurus.

Types of relations:

- **equivalent relations**, including synonyms and quasi-synonyms (UF),
- **hierarchical relations**, including broader (BT) and narrower terms (NT)
- **associate relations**, including related terms (RT)

Links to other vocabularies:



- Mappings to GND, TheSoz, AGROVOC, (DBpedia)

Financial statement


Jahresabschluss (german)

used for: Annual accounts






Narrower Terms

- [Balance sheet](#) 
- [Consolidated financial statements](#) 
- [Income statement](#) 

Broader Terms

- [Accounting](#) 
- [Reporting](#) 


Related Terms

- [Cash flow statement](#) 
- [Corporate annual report](#) 
- [Financial statement analysis](#) 
- [Financial statement audit](#) 
- [Management commentary](#) 

Subject Categories

- [B.03.01.02 Financial statement](#) ▾

Links to other Thesauri and Vocabularies

- = [Jahresabschluss](#) (from GND)
- > [Versicherungsbilanz](#) (from GND)
- > [Kurzfristige Rechnungslegung](#) (from GND)
- < [Rechnungslegung](#) (from GND)
- ≡ [Jahresabschluss](#) (from DBpedia) 
- = [year-end financial statement](#) (from Thesoz)
- = [rendering of accounts](#) (from Thesoz)

Persistent Identifier (for bookmarking and linking)

- <http://zbw.eu/stw/descriptor/12381-2>

STW subject categories

Structural characteristics:

- The STW subject categories (in total 497) constitute a monohierarchical structure with polydimensional
 - for subthesaurus V + B –
 - consistently subject-specific ordering principles for vertical and horizontal subdivision.

	Subthesaurus V	Subthesaurus B
1st level	1	1
2nd level	15	10
3rd level	62	38
4th level	43	21
Total	121	70

The screenshot shows the ZBW website interface. At the top left is the ZBW logo and name: Leibniz-Informationszentrum Wirtschaft, Leibniz Information Centre for Economics. On the right, there are links for RDF/XML, RDF/Turtle, Concept history (RDF/Turtle), and Deutsch. A search bar is present below these links.

The main content area displays a navigation menu on the left with categories like Home, STW Relaunch, and V Economics. The 'V Economics' category is expanded, showing a list of subcategories from V.00 to V.15. The 'V.11 Regional science' category is selected and expanded, showing subcategories V.11.01 to V.11.08. The 'V.11 Regional science' category is further expanded to show a list of descriptors: Deprived region, Economic area, Industrial region, Old industrial region, Region, Regional science, Settlement structure, Spatial structure, and Tourism destination. Each descriptor has a small icon next to it.

At the bottom of the page, there is a section for 'Persistent Identifier (for bookmarking and linking)' with the URL <http://zbw.eu/stw/thsys/70058>.

JEL Classification vs. STW Subject Categories

	JEL Classification	STW Subject Categories
Definition	Class (ISO 25964-2: 3.10, „concept (3.17) or group of similar or related concepts (3.17) (sic!) used as a division or subdivision in a classification scheme (3.12).“)	Concept group (ISO 25964-2: 3.18, „group of concepts selected by some specified criterion...“)
Scope	Domain-specific (USA, UK)	Domain-specific (GER > international) Here: Restriction to the subthesauri: V: Economics and B: Business economics.
Purpose	All-embracing systematization of a discipline.	Systematization of the thesaurus vocabulary.
Structural characteristics	<ul style="list-style-type: none"> - Precombined classification - Monohierarchical - Polydimensional ordering principles 	<ul style="list-style-type: none"> - Monohierarchical - Polydimensional ordering principles

- Because of the **structural heterogeneity** between the two vocabularies mapping relations for the most part are not expected to be relations of full equivalence. Rather they are presumed to oftentimes consist of inexact equivalent relations.

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Definition of interoperability

ISO 25964: Thesauri and interoperability with other vocabularies

Developed by an international working group (2008-2013)

- Part 1: Thesauri for information retrieval (published 2011)
Contains guidelines for establishing monolingual and multilingual thesauri.
- Part 2: Interoperability with other vocabularies (published 2013)
Deals with mappings between thesauri and other types of vocabularies for information retrieval.

Definition of interoperability

ISO 25964-2:2013(E)

3.38

interoperability

ability of two or more systems or components to exchange information and to use the information that has been exchanged.

NOTE Vocabularies can support interoperability by including mappings to other vocabularies, by presenting data in standard formats and by using systems that support common computer protocols.

3.40

mapping, gerund (verbal noun)

process of establishing relationships between the concepts (3.17) in one vocabulary and those of another

3.41

mapping, noun

(product of mapping process) relationships between a concept (3.17) in one vocabulary and one or more concepts (3.17) in another

Two different types of vocabularies

Structural unity:

The mapped vocabularies have the same structure.

The equivalence of the concepts of such vocabularies is expressed by their identical structural position in the vocabulary. All the relationships of the concepts correspond to each other (e.g. multilingual thesauri of public institutions)

Structural disunity:

The mapped vocabularies do not have the same structure.

Equivalence of concepts has nothing to do with their position in the vocabularies. The mapping process produces either exact equivalence pairs or inexact equivalent pairs.

Different types of equivalences:

(Real) exact equivalence: =EQ

Inexact equivalence: ~EQ (e.g. voc.have emerged from different cultural communities)

Partial equivalence: The concept is broader: BM („Broader Mapping“)

The concept is narrower: NM („Narrower Mapping“)

The concepts are somehow related: RM („Related Mapping“).

Structural models for mapping

ISO 25964-2:2013(E)

Three different structural models for mapping across vocabularies

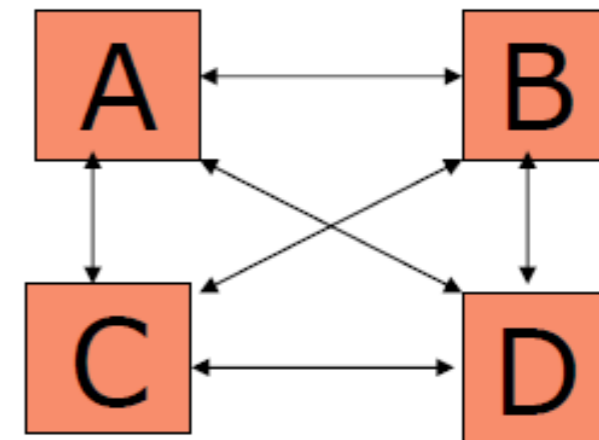
Model 1: Structural unity (6.2)

„All the participating vocabularies share exactly the same structure of hierarchical and associate relationships between concepts...“

(e.g. multilingual thesauri)

Model 2: Direct-linked (6.3)

The direct-linked model addresses linkages between two or more vocabularies that do not share the same structure. As well as differing in scope, language and structure, the vocabularies may include other types of vocabulary (classification scheme, name authority list, etc.) .



Structural models for mapping

Model 3: Hub structure (6.4)

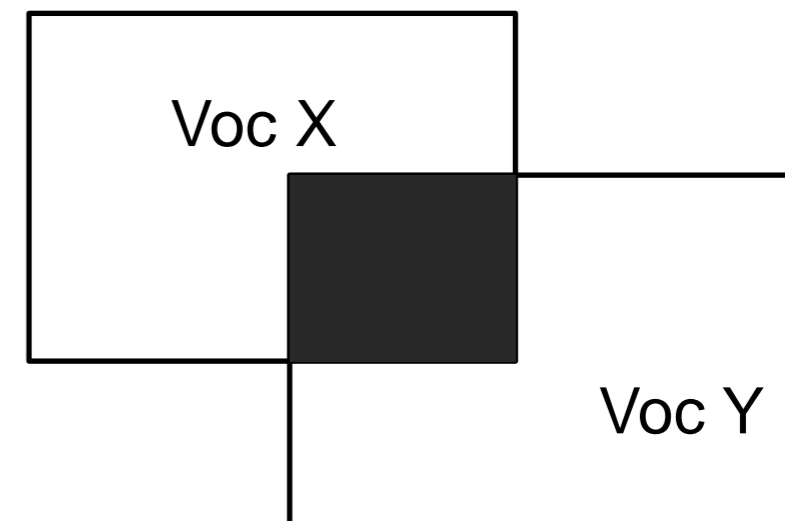
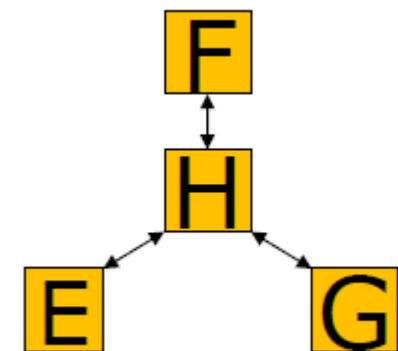
One vocabulary is designated as „hub“, or comprehensive structure to which each of the other vocabularies is mapped as „satellite“. The concepts of the different vocabularies are only mapped to the concepts of the one vocabulary which has the role of a hub. This model is appropriate if there is one vocabulary with a dominating position.

Model 4: Selective Mapping (6.5)

In cases where there is only small overlap expected, it could be unnecessary to map the vocabularies comprehensively.

- In real applications combinations of these types often occur and the boundaries might be blurred (see ibd. p.20):

ISO 25964-2:2013(E)



Selected mapping in area of overlap.

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Mapping process

Previous work:

(Note: Not available in a machine-readable format.)

- Outdated mapping

JEL > STW (descriptor level)

KoMoHe project context (2004-2007)

Mapping relations:

- equivalent relations (=)
- broader/narrower relations (>/<)
- associate relations (^)
- compound mappings (+)
- including a relevance rating (high, medium, low)

- Outdated concordance

STW (classification system) > JEL

- On the third level of JEL classes,
- No specified mapping relations.

22	8	A10	>o	g	Zeitkonsistenz
22	8	A10	>o	g	Ökonomisches Prinzip
22	8	A10	>o	m	Wirtschaftsmodell
22	8	A10	>o	m	Wirtschaftswissenschaft
22	8	A11	<o	g	Wirtschaftsforschung
22	8	A11	>o	g	Wirtschaftswissenschaftler
22	8	A12	<	g	Wirtschaftswissenschaft
22	8	A13	^	m	Wirtschaftsethik
22	8	A14	=	h	Wirtschaftssoziologie
22	8	A19	<	g	Wirtschaftswissenschaft
22	8	A1	=	m	Wirtschaftstheorie
22	8	A20	<o	m	Pädagogik
22	8	A20	o	h	Wirtschaftspädagogik
22	8	A20	^o	m	Arbeitswissenschaft
22	8	A20	^o	m	Berufsbildung
22	8	A20	^o	m	Wirtschaftsstudium
22	8	A20	^o	m	Wirtschaftswissenschaft
22	8	A21	<	g	Wirtschaftsstudium
22	8	A22	<	g	Wirtschaftsstudium
22	8	A23	<	g	Wirtschaftsstudium
22	8	A29	<	g	Wirtschaftsstudium

STW classification system	STW subject categories	JEL classes
V02-000 Microeconomics	V.02 V.02.05	B21 D00 ...
V02-010 Household economics	V.02.01	D10 D11 ...

Mapping process

What is new?

- ...mapping on the level of the STW subject category system (instead of the STW classification level),
- ...referring to a web-based interactive mapping platform,
- ...using the SKOS vocabulary to build and to manage the mapping
Note: this goes along with the assumption that both vocabularies could be mapped bilaterally.
- ...referring to an iterative mapping process of a first and a second iteration and an approach of vocabulary enrichment of the mapping with additional keywords (JEL) and subject headings from STW together with equivalent concept relations from past vocabulary mappings.

Outline

- Introduction
- Knowledge organization systems in economics
- Definition of interoperability and structural models for mapping
- Mapping process
- **Empirical examples**
- **Results**
- **Conclusion and future outlook**

Empirical examples

Selection of STW subject categories:

– STW subthesaurus V – Economics:

- V.02 – Microeconomics (1 subject category)
V.02.01 – V.02.05 (5 s.c.)
- V.15 – Economic history (1 s.c.)
V.15 – (-)

– STW subthesaurus B – Business economics

- B.07 – Marketing (1 s.c.)
B.07.01 – B.07.06 (6 s.c.)
- B.09 – Business information systems (1 s.c.)
B.09.01 – B.09.03 (3 s.c.)

ZBW Leibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics

Home
STW Relaunch
Alphabetical descriptor list
Mappings
Versions
Web Services
Downloads
About

V.02 Microeconomics

V.02 Mikroökonomik (german)

broader

- V Economics ▾

narrower

- V.02.01 Household economics ▾
- V.02.02 Theory of the firm ▾
- V.02.03 Welfare economics ▾
- V.02.04 Economics of information ▾
- V.02.05 Economy of time ▾

Descriptors

- Allocative efficiency EB
- Behavioral economics EB
- Bounded rationality EB
- Comparative statics EB
- Elasticity EB
- Marginal analysis EB
- Microeconometrics EB
- Microeconomics EB
- Opportunity cost EB
- Price elasticity EB
- Prospect theory EB
- Rationality EB
- Self-interest EB
- Theory of value EB

Persistent Identifier (for bookmarking and linking)

- <http://zbw.eu/stw/thsys/70180>

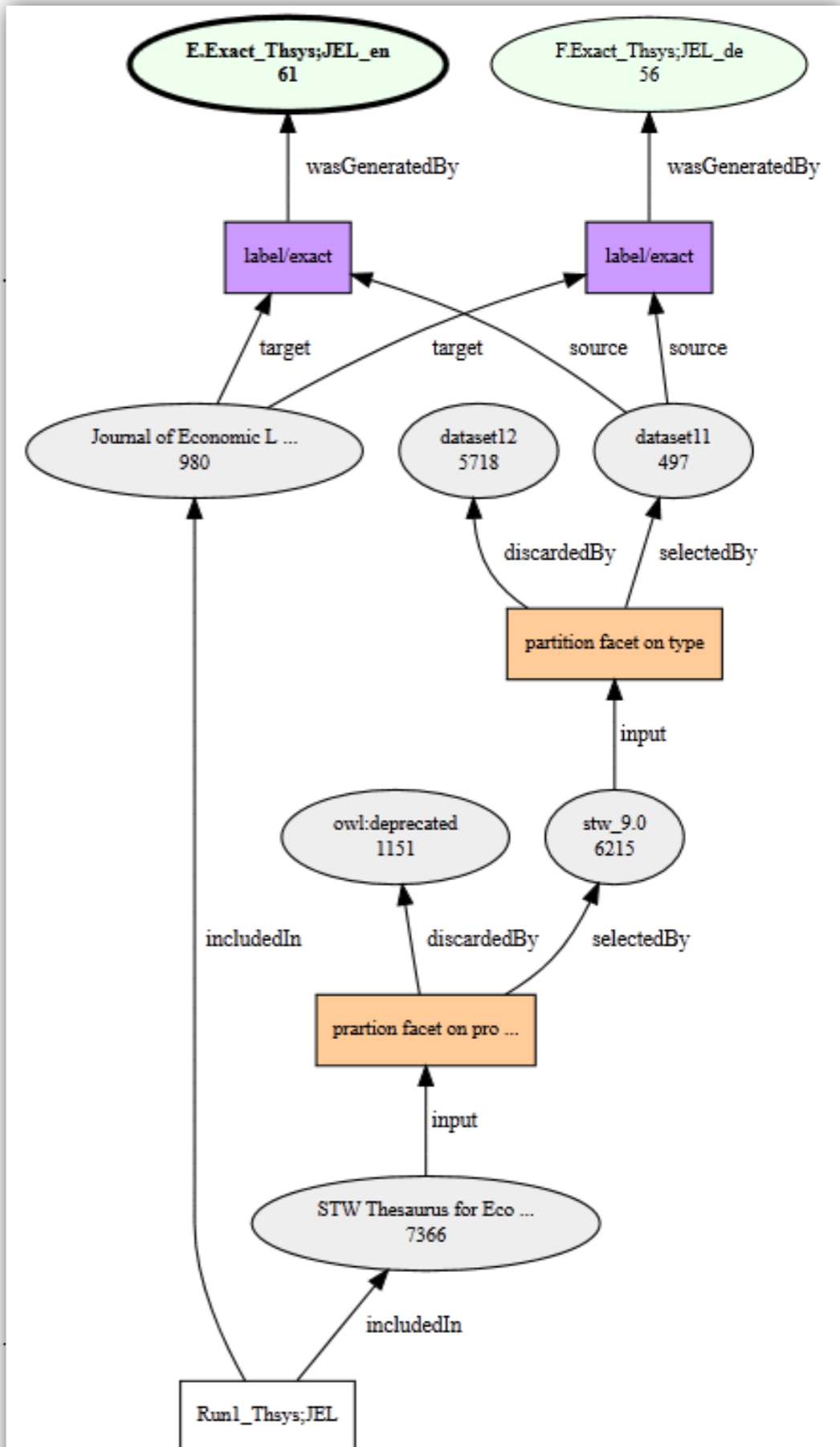
V Economics

- ▾ V.00 Economics
- V.01 Economic theory and methodology
- ▾ V.02 Microeconomics
 - V.02.01 Household economics
 - V.02.02 Theory of the firm
 - V.02.03 Welfare economics
 - V.02.04 Economics of information
 - V.02.05 Economy of time
- V.03 Macroeconomics
- V.04 Business cycles and growth, economic structure
- V.05 Money and financial markets
- V.06 Economic systems
- V.07 International economics
- V.08 Development economics
- V.09 Public finance
- V.10 Industrial organization
- V.11 Regional science
- V.12 Environmental and resource economics
- V.13 Labour
- V.14 Social economics, education and health economics
- V.15 Economic history

Empirical examples

Mapping procedure:

- Use of the interactive alignment server **AMALGAME** (AMsterdam ALignment GenerAtion MEtatool)
 - Upload of the STW (v 9.0) in SKOS <http://zbw.eu/stw/versions/latest/download/about.de.html>
 - Upload of the JEL classification in SKOS http://zbw.eu/beta/external_identifiers/jel/about.en.html
- Exact language dependent string match of STW subject categories and JEL classes.



AMALGAME Mapping graph of the first run

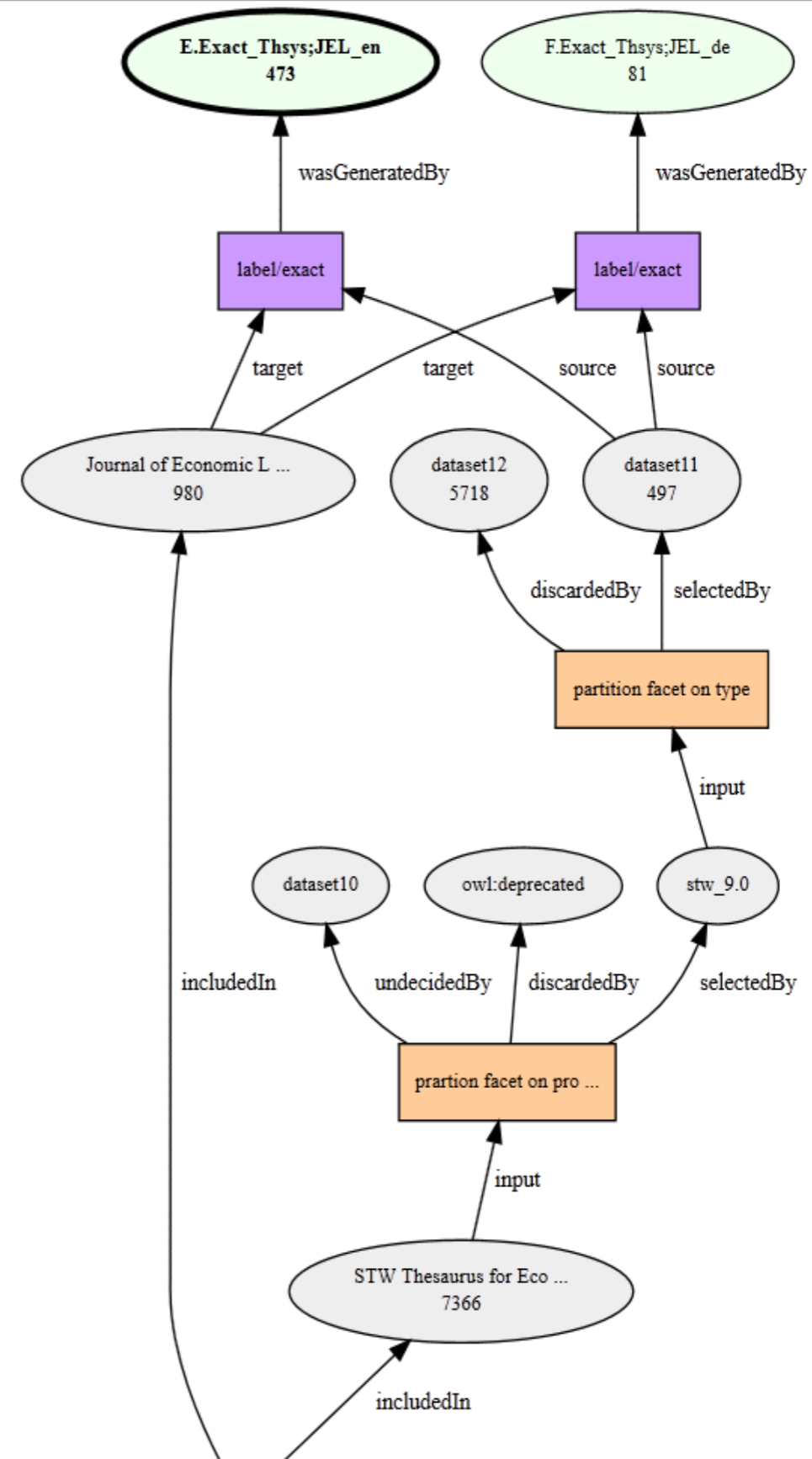
Empirical examples

Second run:

(Same selection of subject categories.)

Enrichment of STW subject categories and JEL classes:

- STW subject categories enriched by:
 - STW descriptors + synonyms
 - Mapped (exactMatch) concepts from other vocabularies – descriptors + synonyms (GND, TheSoz, DBpedia, AGROVOC)
- JEL classes enriched by:
 - JEL keywords scraped from JEL guide
- German + English (if available)



source: STW Thesaurus for Economics	target: Journal of Economic Literature (JEL) Classification System
B Business economics (B)	M21 - Business Administration and Business Economics; Marketing; Accounting: Business Economics (M21)

AMALGAME mapping graph 2nd run.

Empirical examples

STW subject categories enriched by:

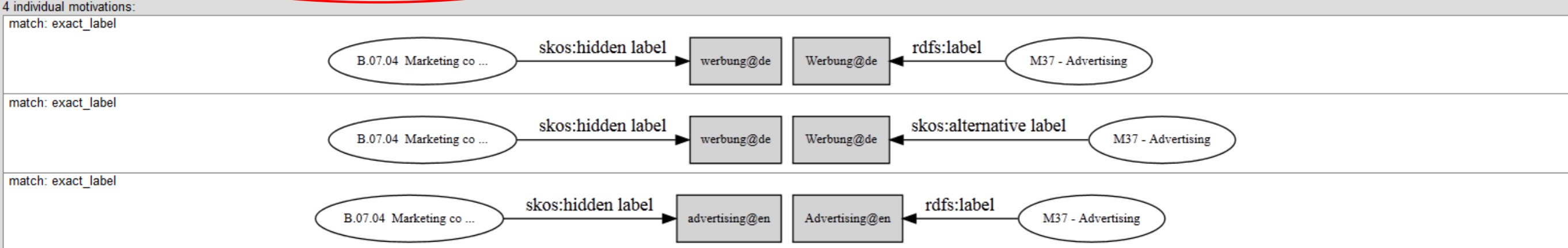
- STW descriptors + synonyms
- Mapped (exactMatch) concepts from other vocabularies – descriptors + synonyms (GND, TheSoz, DBpedia, AGROVOC)

JEL classes enriched by:

- JEL keywords scraped from JEL guide <https://www.aeaweb.org/jel/guide/jel.php>

B.07.04 Marketing communications
 B.07.04 Marketingkommunikation, Marketing communications, Marketingkommunikation, absatzförderung, acoustic branding, ad journal, advertisement, advertising, advertising ban, advertising effects, advertising material, advertising media, advertising medium, advertising music, advertising planning, advertising regulation, advertising response, advertising restriction, advertising strategy, after-sales service, after-sales-management, akustische markenführung, ambush marketing, anzeigenblatt, anzeigenwerbung, audio branding, außenwerbung, bandenwerbung, banner advertising, bannerwerbung, beschwerdemanagement, betriebliche informationspolitik, brand placement, cause marketing, cause related marketing, cause-related marketing, celebrity endorsement, celebrity-werbung, clearance sales, comparative advertising, complaint, complaint management, consumer complaints, consumer promotion, corporate communication, corporate communications, crossmedia marketing, customer complaints, customer segmentation, customer service, deceptive advertising, dialogmarketing, direct advertising, direct mail, direct mailing, direct marketing, direct-to-consumer advertising, direktmarketing, direktvermarktung, direktwerbung, duftmarketing, emotional branding, emotional marketing, emotionale werbung, emotionales marketing, empfehlungsmarketing, erlebnismarketing, erlebnisorientierung, erlebnisweiten-inszenierung, event management, event marketing, event-marketing, experience marketing, experiential marketing, fernsehwerbung, guerilla marketing, guerilla-marketing, handzettel, hörfunkwerbung, imagepflege, impact of advertising, in-store marketing, in-store music, inserat, internet advertising, internet marketing, internet-marketing, internet-werbung, irreführende werbung, ipole, konsumententvologie, konsumantenwerbung, kunden-hotline, kundenbetreuung, kundendienst, kundensegmentierung

M37 - Advertising
 Advertising, Brand, Brand Preference, Differentiation, M37 - Publicidad, M37 - Publicité, M37 - Werbung, Publicidad, Publicité, Werbung
 definition: Covers studies about issues related to advertising, including brands. Advertising studies about consumer behavior that are not based on economic models or analysis are classified only here., notation:M37
 definition
 Covers studies about issues related to advertising, including brands. Advertising studies about consumer behavior that are not based on economic models or analysis are classified only here.
 hierarchy
 M - Business Administration and Business Economics; Marketing; Accounting
 M3 - Marketing and Advertising
 M37 - Advertising



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Notation	Subject category	Intell. eval.	1 st run = (total)	(+)	Certain overlap (~)	Wrong (-)	2 nd run = (total)	(+)	Certain overlap (~)	Wrong (-)
V.02	Microeconomics	5					1 (13)	1	3	7
V.02.01	Household economics	5					3 (21)		6	11
V.02.02	Theory of the firm	4					2 (10)	1		7
V.02.03	Welfare economics	6					3 (10)		2	5
V.02.04	Economics of information	4					2 (4)			2
V.02.05	Economy of time	7					1 (9)			8
V.15	Economic history	74					9 (15)		4	2
B.07	Marketing	3	1 (5*)		4		2 (20)	1	1	
B.07.01	Marketing management	6					(-)			
B.07.02	Product Management	2					1 (15)		5	9
B.07.03	Pricing strategy	1					- (11)		2	9
B.07.04	Marketing communications	2					1 (2)			1
B.07.05	Distribution	1					- (12)		2	9
B.07.06	Market research	3					- (2)		1	1
B.09	Business information systems	1					- (5)			5
B.09.01	Information system components	1					- (4)		1	3
B.09.02	IS development and management	1					1 (6)			5
B.09.03	Corporate information systems	1					- (4)			4

*The number in brackets stands for the total number of automatically generated mapping candidates.

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Conclusion and future outlook

- String match can only generate mapping candidates; it is blind to structural differences.
- The approach of vocabulary enrichment including JEL keywords, STW descriptors, synonyms, translations and equivalent terms and their synonyms from past vocabulary mappings led to a substantial increase of mapping candidates also included in the intellectual mapping.
Note: A new use case for already established vocabulary alignments.
- Vocabulary enrichment has also led to new mapping candidates worth revisiting the current intellectual mapping.
- Optional mapping procedure in the future:
The STW as access vocabulary to JEL classes.

Thank you for your attention!

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<http://zbw.eu/stw>

<https://www.aeaweb.org/econlit/jelCodes.php>

Inofficial multilingual/LOD version:

http://zbw.eu/beta/external_identifiers/jel

<http://semanticweb.cs.vu.nl/amalgame/>

References

- BERTRAM, J. (2005) Einführung in die inhaltliche Erschließung. Ergon Verlag.
- GÖDERT, W. (2010) Semantische Wissensrepräsentation und Interoperabilität.
In: Information – Wissenschaft & Praxis, p.5-28.
- HUBRICH, J. (2008) CRISSCROSS: SWD-DDC-Mapping. In: Mitteilungen der
VÖB 61, Nr. 3, p.50-58.
- ISO 25964 Thesauri and interoperability with other vocabularies. Part 1 (2011)
+2 (2013).
- MAYR, P./PETRAS, V. (2007) Building a terminology network for search: the
KoMoHe project. Proceedings of the International Conference on Dublin Core
and Metadata Applications.
- SCHEVEN, E. (2013) ISO 25964 and GND, LIS`workshop 2013, Luxemburg
<http://digbib.ubka.uni-karlsruhe.de/volltexte/documents/2683976>
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