Using KOS as the Connectors of Linked Datasets

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Outline

1. AGROVOC Thesaurus

   -- Backbone of linked datasets in the agricultural domain

2. Creating LOD Microthesauri

   -- using LOD Art and Architecture Thesaurus (AAT) as an example

AGROVOC

Backbone of linked datasets in the agricultural domain

What is AGROVOC?

Controlled vocabulary covering all areas of interest of the Food and Agriculture Organization (FAO) of the United Nations, including food, nutrition, agriculture, fisheries, forestry, environment etc.

Technical Aspects

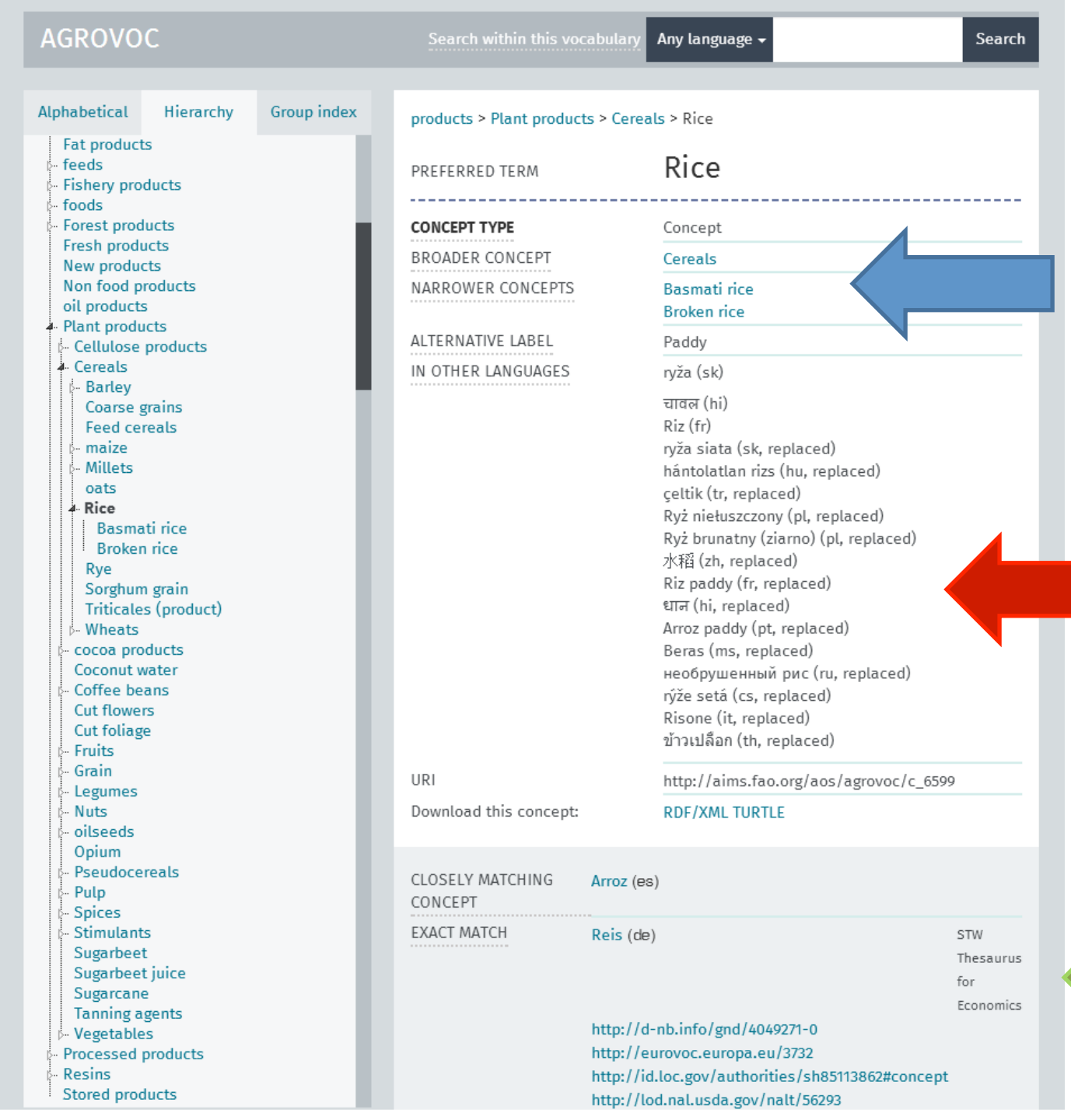
- AGROVOC RDF/SKOS (SKOS-XL)
  - for download
  - “live” through SPARQL endpoint and web services
- LOD: linked to 13 vocabularies
- Total number of concepts = ~ 32,000
  - 20 languages published
    - 4 under development
  - 25 top concepts
  - Maximum depth hierarchy: 14

Strengths of AGROVOC

- Multilinguality
- Number of (institutional) users
- Experience and work done towards use in open data environment

AGROVOC

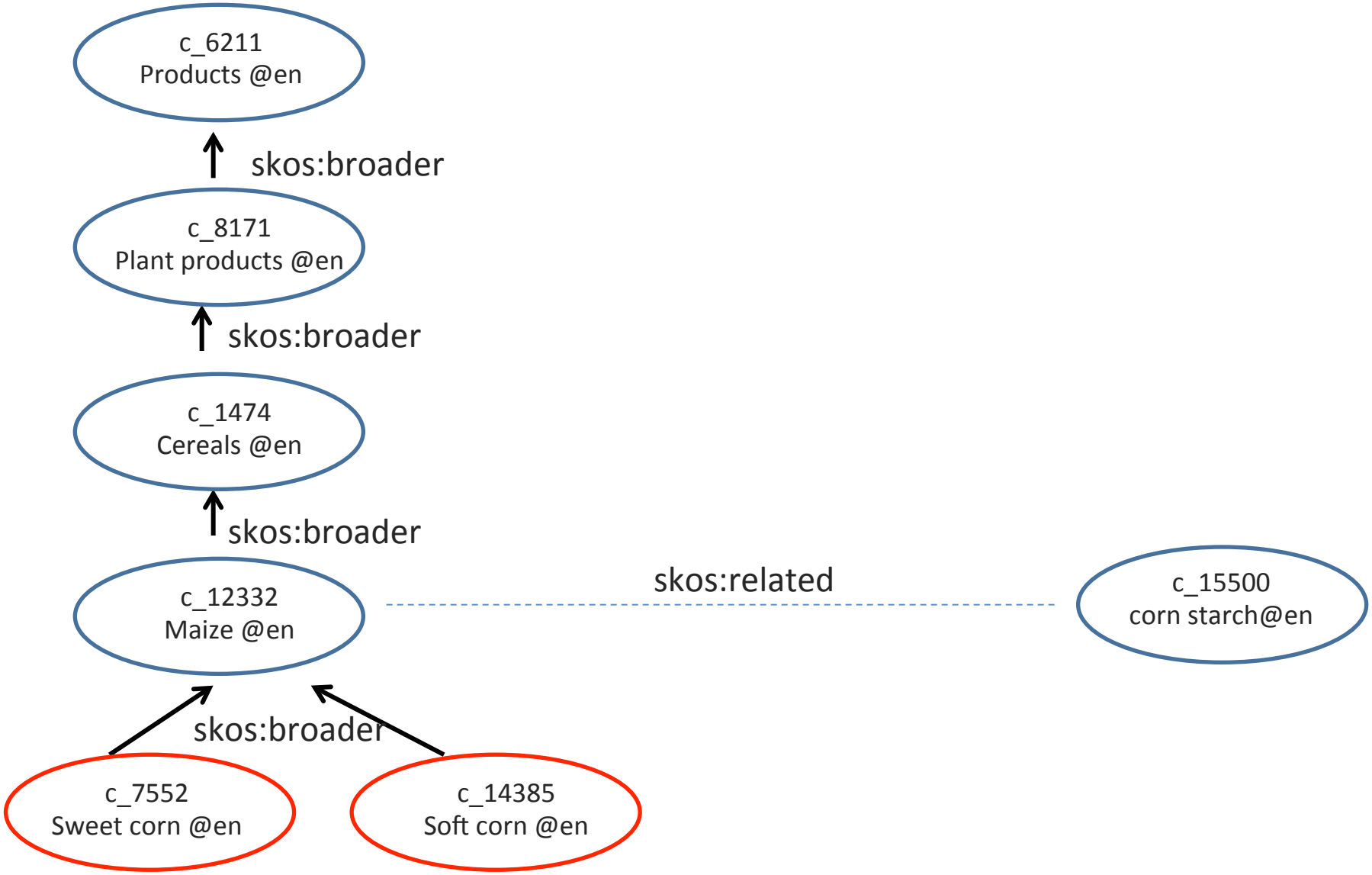
Structure



BT/NT

Labels in different languages

Interlinking


c_6211
Products @en
skos:broader
c_8171
Plant products @en
skos:broader
c_1474
Cereals @en
skos:broader
c_12332
Maize @en
skos:related
c_15500
corn starch@en
skos:broader
c_7552
Sweet corn @en
c_14385
Soft corn @en

Use case of Linked Data KOS (AGROVOC) in information services (AGRIS)

AGRIS

International System for Agricultural Science and Technology

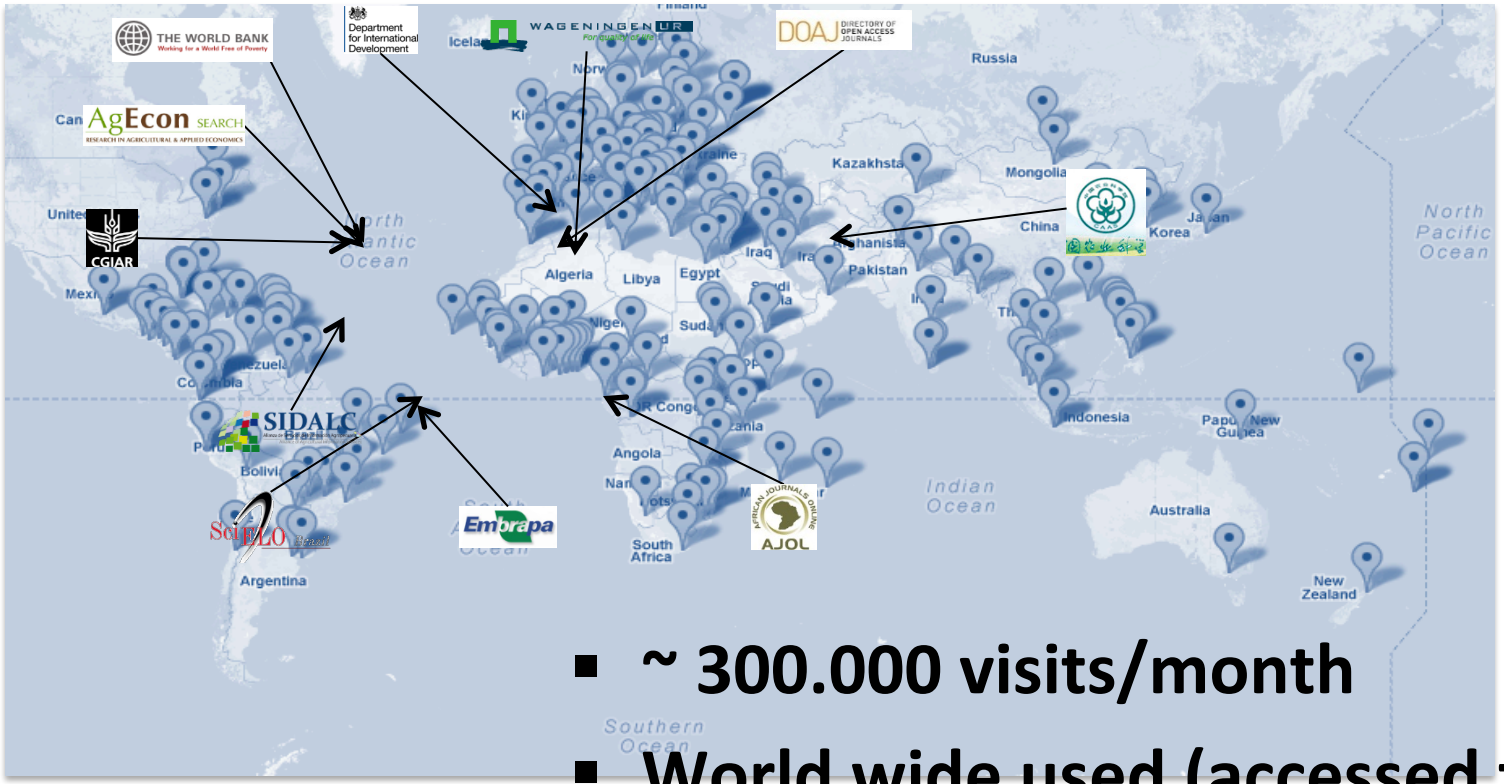
AGRIS - Background

- **A network**: AGRIS is collaborative network of more than 150 institutions from 65 countries
- **A database**: AGRIS is a multilingual bibliographic database for agricultural science
- **A Web portal**: AGRIS (http://agris.fao.org/) is a Web application that links the AGRIS knowledge to related Web resources using the Linked Open Data methodology
  - Purpose: providing as much information as possible about a topic within the agricultural domain

The setting

- Bibliographic references in the agricultural domain enhanced by the AGROVOC thesaurus
- AGRIS is an RDF-aware system, a mashup application that allows users to query the AGRIS content, interlinking all resources to external sources of information

Some statistics of AGRIS



- ~ 300.000 visits/month
- World wide used (accessed from more than 200 countries)

Interlinking

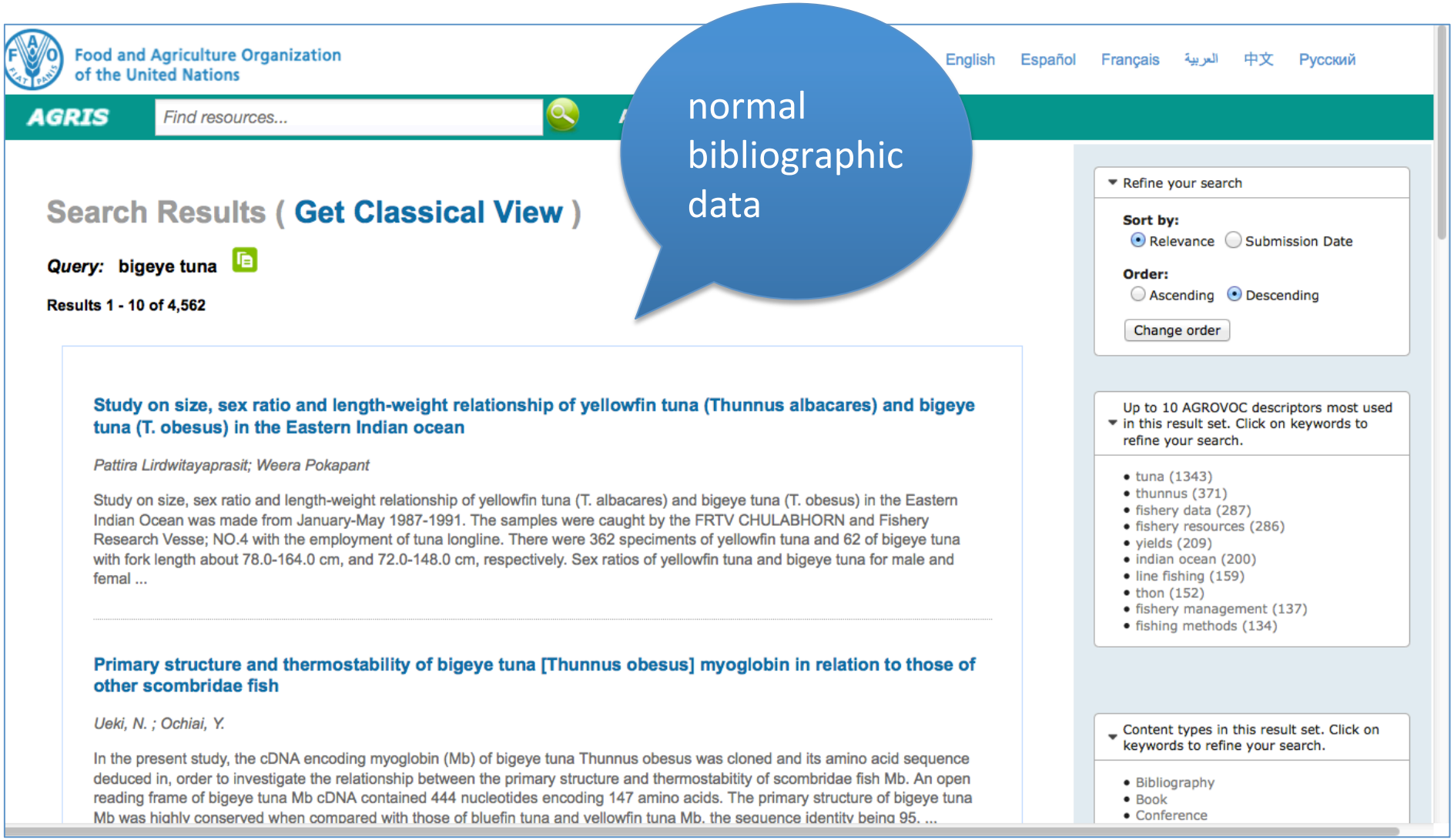
- Centralization: bibliographic references in the AGRIS domain (agriculture, forestry, animal husbandry, aquatic sciences and fisheries, and human nutrition)
- **Interlinking**: other kinds of information related to the AGRIS domain (statistics, germplasm data, maps, country profiles, etc.)

7.7 million bibliographic references become 7.7 million mashup pages!

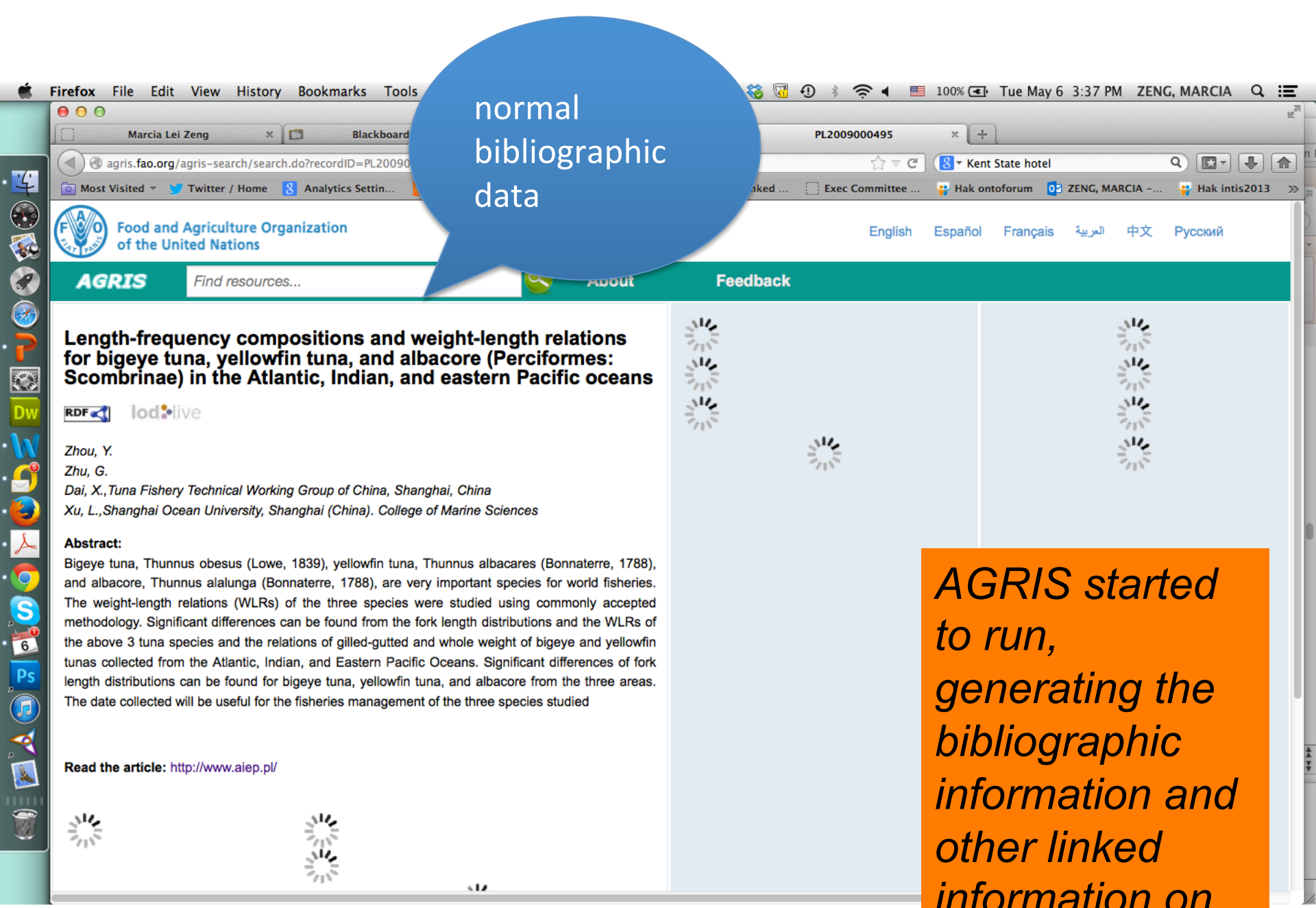
AGROVOC as the backbone

- AGROVOC is the backbone, the magic that allows the interlinking to external datasets
- Two ways to implement the interlinking:
  - Using AGROVOC formal alignments to other thesauri (skos:exactMatch, skos:closeMatch)
  - Querying external WebServices with scientific names, extracted from AGROVOC (no RDF, simply Java programming)

Agris (FAO of UN)



http://agris.fao.org/agris-search/searchIndex.do?query=bigeye+tuna&x=0&y=0
search results for "bigeye tuna"



AGRIS started to run, generating the bibliographic information and other linked information on the fly…

http://agris.fao.org/openagris/search.do?recordID=PL2009000495

Each bibliographic reference becomes a mashup pages

Using AGROVOC to Link with Resources

Length-frequency compositions and weight-length relations for bigeye tuna, yellowfin tuna, and albacore (Perciformes: Scombrinae) in the Atlantic, Indian, and eastern Pacific oceans

RDF lod live

Zhou, Y.
Zhu, G.
Dai, X.,Tuna Fishery Technical Working Group of China, Shanghai, China
Xu, L.,Shanghai Ocean University, Shanghai (China). College of Marine Sciences

Abstract:
Bigeye tuna, Thunnus obesus (Lowe, 1839), yellowfin tuna, Thunnus albacares (Bonnaterre, 1788), and albacore, Thunnus alalunga (Bonnaterre, 1788), are very important species for world fisheries. The weight-length relations (WLRs) of the three species were studied using commonly accepted methodology. Significant differences can be found from the fork length distributions and the WLRs of the above 3 tuna species and the relations of gilled-gutted and whole weight of bigeye and yellowfin tunas collected from the Atlantic, Indian, and Eastern Pacific Oceans. Significant differences of fork length distributions can be found for bigeye tuna, yellowfin tuna, and albacore from the three areas. The date collected will be useful for the fisheries management of the three species studied

Read the article: http://www.aiep.pl/

Agrovoc Keywords
- Thunnus obesus
- fishery data
- Tuna
- Animal developmental stages
- body weight
- statistical data
- Animal physiology
- Fishery production
- Thunnus
- Thunnus alalunga
- Fishery management
- Pacific Ocean
- Animal growth forms

Acta Ichthyologica et Piscatoria (Journal)

FREQUENCY: Semiannual (2 numbers a year)

START DATE: 1972

Source:

Centralna Biblioteka Rolnicza/Central Agricultural Library

CBR is a scientific library subordinated to the Ministry of Agriculture and Rural Development. It has branch in

Powered by Google™
Read the article and/or related articles:

Length-frequency compositions and weight-length relations for ...

Dec 1, 2008 ... ... **yellowfin tuna**, and **albacore** (**Perciformes**: **Scombrinae**) in the **Atlantic**, **Indian**, ... The **weight-length relations** (WLRs) for **bigeye tuna**, **yellowfin tuna**, and **albacore**, collected in the **Atlantic**, **Indian**, and **eastern Pacific oceans** were studied ... tuna, and **albacore** collected from the **Atlantic**, **Indian**, and **eastern** ...

Go to the page

[PDF] Guoping ZHU 1, 2, 3, Liuxiong XU 1, 2 *, Yingqi ZHOU 1, 2, and ...

Table S1.

Regional patterns in mercury and selenium concentrations of ...

Data from **www.nature.com**

Climatology: Extremes in the Indian Ocean

Marine biogeochemistry: The ups and downs of ocean oxygen

Earth science: Subtle minds and mid-ocean ridges

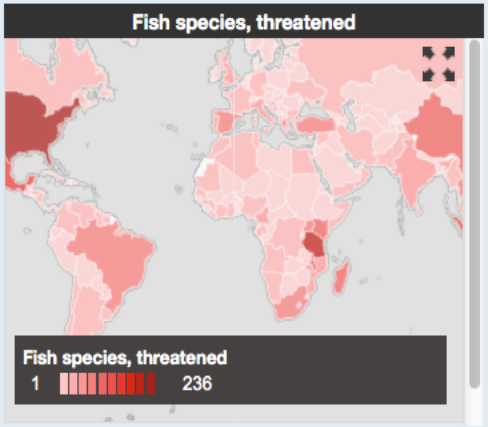
Ocean–atmosphere coupling: Mesoscale eddy effects

Data from **DBPedia**:

Body weight

Atlantic ocean

Data from **World Bank** (double-click an area to zoom)



Thunnus obesus distribution map. Data from Global Biodiversity Information Facility (GBIF)

View a larger map

http://agris.fao.org/openagris/search.do?recordID=PL2009000495

The RDF presentation of the bibliographic reference

Length-frequency compositions and weight-length relations for bigeye tuna, yellowfin tuna, and albacore (Perciformes: Scombrinae) in the Atlantic, Indian, and eastern Pacific oceans

at **AGRIS RECORDS**

http://agris.fao.org/aos/records/PL2009000495

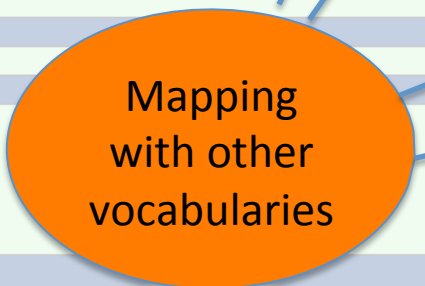
RDF triples for the same bibliographic reference *(machine-generated, human-readable).*

Property	Value
abstract	■ Bigeye tuna, Thunnus obesus (Lowe, 1839), yellowfin tuna, Thunnus albacares (Bonnaterre, 1788), and albacore, Thunnus alalunga (Bonnaterre, 1788), are ... »more» (eng)
creator	■ [8 anonymous resources]
dateSubmitted	■ 2009
description	■ 2 fig., 2 tables ■ 22 ref. ■ Summary (En)
identifier	■ PL2009000495
isPartOf	■ <file:///home/fao/transfer/agris/RDF_Output/2009/http%3A%2F%2Faims.fa 133547> ■ <file:///home/fao/transfer/agris/http%3A%2F%2Faims.fao.org%2Fserials%2
issued	■ 2008
language	■ eng
source	■ <http://ring.ciard.net/node/10592>
subject	■ <http://aims.fao.org/aos/agrovoc/c_15846> ■ <http://aims.fao.org/aos/agrovoc/c_24026> ■ <http://aims.fao.org/aos/agrovoc/c_25187> ■ <http://aims.fao.org/aos/agrovoc/c_2940>

subjects are represented by the concept IDs (URIs)

http://aims.fao.org/aos/agrovoc/c_2593

Property	Value
void:inDataset	http://aims.fao.org/aos/agrovoc/void.ttl#Agrovoc
http://art.uniroma2.it/ontologies/vocbench#hasStatus	Published
dcterms:modified	2014-07-03T19:17:01Z
http://aims.fao.org/aos/agrontology#influences	http://aims.fao.org/aos/agrovoc/c_23988 http://aims.fao.org/aos/agrovoc/c_36263 http://aims.fao.org/aos/agrovoc/c_4802 http://aims.fao.org/aos/agrovoc/c_23990 http://aims.fao.org/aos/agrovoc/c_33483
http://www.w3.org/2004/02/skos/mapping#exactMatch	http://aims.fao.org/aos/asfa/c_5599
skos:inScheme	http://aims.fao.org/aos/agrovoc
skos:broadMatch	http://www.caas.net.cn/caas/cat/c_40002 http://www.caas.net.cn/caas/cat/c_19629 http://www.caas.net.cn/caas/cat/c_19623 http://www.caas.net.cn/caas/cat/c_19627 http://www.caas.net.cn/caas/cat/c_40490 http://www.caas.net.cn/caas/cat/c_19577 http://www.caas.net.cn/caas/cat/c_19573 http://www.caas.net.cn/caas/cat/c_19576 http://www.caas.net.cn/caas/cat/c_19567 http://www.caas.net.cn/caas/cat/c_19560 http://www.caas.net.cn/caas/cat/c_19619 http://www.caas.net.cn/caas/cat/c_9096 http://www.caas.net.cn/caas/cat/c_19557 http://www.caas.net.cn/caas/cat/c_55260 http://www.caas.net.cn/caas/cat/c_19587 http://www.caas.net.cn/caas/cat/c_19581 http://www.caas.net.cn/caas/cat/c_19586 http://www.caas.net.cn/caas/cat/c_19608
skos:narrower	http://aims.fao.org/aos/agrovoc/c_331336 http://aims.fao.org/aos/agrovoc/c_26824 http://aims.fao.org/aos/agrovoc/c_35294 http://aims.fao.org/aos/agrovoc/c_554 http://aims.fao.org/aos/agrovoc/c_24949 http://aims.fao.org/aos/agrovoc/c_24950
skos:broader	http://aims.fao.org/aos/agrovoc/c_330892
rdf:type	skos:Concept
skos:closeMatch	http://dbpedia.org/resource/Environment
dcterms:created	2012-02-03T16:31:26Z
skos:exactMatch	http://lod.nal.usda.gov/nalt/26877 http://zbw.eu/stw/descriptor/15759-6 http://d-nb.info/gnd/4061616-2 http://www.eionet.europa.eu/gemet/concept/2944 http://linkeddata.ge.imati.cnr.it:2020/resource/EARTh/20200 http://www.caas.net.cn/caas/cat/c_19548



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skosxl:prefLabel	محیط زیست	fa
skosxl:prefLabel	بيئة	ar
skosxl:prefLabel	Środowisko	pl
skosxl:prefLabel	Medio ambiente	es
skosxl:prefLabel	ສະພາບແວດລ້ອມ	lo
skosxl:prefLabel	환경	ko
skosxl:prefLabel	పర్యావరణం	te
skosxl:prefLabel	สภาพแวดล้อม	th
skosxl:prefLabel	Ambiente	it
skosxl:prefLabel	environment	en
skosxl:prefLabel	UMWELT	de
skosxl:prefLabel	環境	ja
skosxl:prefLabel	навколишнє середовище	uk
skosxl:prefLabel	Environnement	fr
skosxl:prefLabel	окружающая среда	ru
skosxl:prefLabel	पर्यावरण	hi
skosxl:prefLabel	životné prostredie	sk
skosxl:prefLabel	životní prostředí	cs
skosxl:prefLabel	Ambiente	pt
skosxl:prefLabel	ortam	tr
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skosxl:altLabel	Zonazione ecologica	it
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skosxl:altLabel	पारिस्थितिक मण्डल	hi
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skosxl:altLabel	జీవావరణ మండలాలు	te
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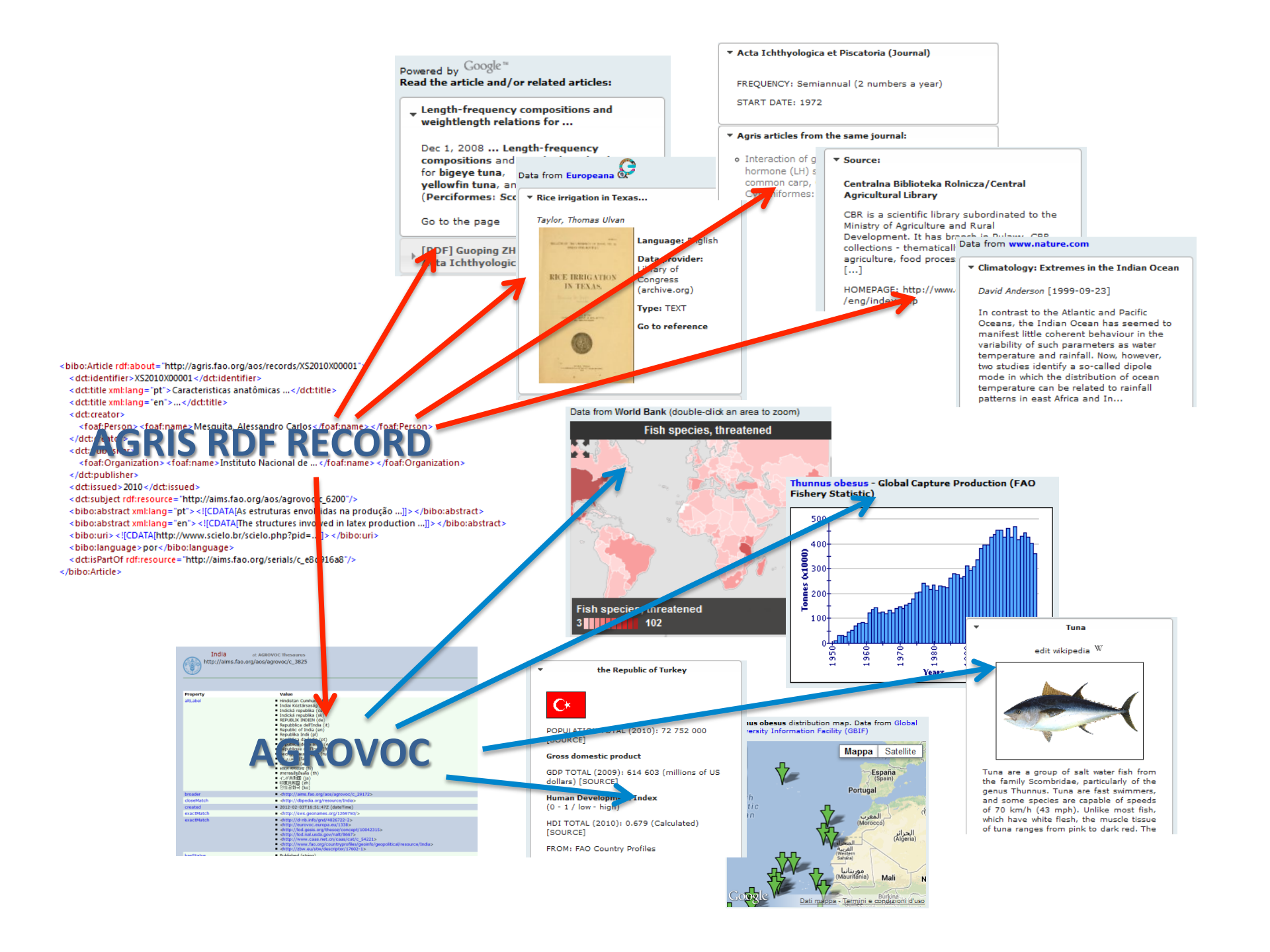
skosxl:altLabel	Milieu naturel	fr

AGROVOC is mapped to 10+ important KOS

Resource	Topics	Linked concepts	Languages	Linked Data	Type of link
FAO Biotechnology Glossary	Biotechnologies	810	EN, ES, FR, +3 more	Yes	skos:closeMatch
EUROVOC	General EU	1 297	EN, ES, FR + 21 more	Yes	skos:exactMatch
GEMET	Environment	1 191	EN, ES, FR + 30 more	Yes	skos:exactMatch
Library of Congress Subject Headings (LCSH)	General	1 093	EN	Yes	skos:exactMatch
NAL Thesaurus	Agriculture	13 390	EN, ES	Yes	skos:exactMatch
RAMEAU Répertoire d'autorité-matière encyclopedique et alphabetique unifie	General	686	FR	Yes	skos:exactMatch
STW - Thesaurus for Economics	Economy	1 136	EN, DE	Yes	skos:exactMatch
TheSoz - Thesaurus for the Social Sciences	Social sciences	846	EN, DE	Yes	skos:exactMatch
Geopolical Ontology	Geopolitical entities	253	AR, CH, EN, ES, FR, RU	Yes	skos:exactMatch
Dewey Decimal Classification (DDC)	General	409	EN, ES, FR + 8 more	Yes	skos:exactMatch
DBpedia	General	10 989	EN, ES, FR + 8 more	Yes	skos:exactMatch skos:closeMatch
SWD (Schlagwortnormdatei)	General	6 245	DE	Yes	skos:exactMatch skos:closeMatch skos:broadMatch skos:narrowMatch
GeoNames	Geographical entities	212	EN, ES, FR + 63 more	Yes	skos:exactMatch

http://aims.fao.org/standards/agrovoc/linked-open-data, accessed 2014-10-24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Read the article and/or related articles:
Length-frequency compositions and weightlength relations for ...
Dec 1, 2008 ... Length-frequency compositions and ... for bigeye tuna, ... yellowfin tuna, ... (Perciformes: Sc...
Go to the page
[PDF] Guoping ZH ... ta Ichthyologic...
Acta Ichthyologica et Piscatoria (Journal)
FREQUENCY: Semiannual (2 numbers a year)
START DATE: 1972
Agris articles from the same journal:
Interaction of g... hormone (LH) s... common carp, ... Cy...iformes:
Source:
Centralna Biblioteka Rolnicza/Central Agricultural Library
CBR is a scientific library subordinated to the Ministry of Agriculture and Rural Development. It has br... collections - thematicall... agriculture, food proces... [...]
HOMEPAGE: http://www... /eng/index...
Data from Europeana
Rice irrigation in Texas...
Taylor, Thomas Ulvan
RICE IRRIGATION IN TEXAS
Language: English
Data provider: Library of Congress (archive.org)
Type: TEXT
Go to reference
Data from www.nature.com
Climatology: Extremes in the Indian Ocean
David Anderson [1999-09-23]
In contrast to the Atlantic and Pacific Oceans, the Indian Ocean has seemed to manifest little coherent behaviour in the variability of such parameters as water temperature and rainfall. Now, however, two studies identify a so-called dipole mode in which the distribution of ocean temperature can be related to rainfall patterns in east Africa and In...
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<bibo:language>por</bibo:language>
<dct:isPartOf rdf:resource="http://aims.fao.org/serials/c_e8...916a8"/>
</bibo:Article>
AGRIS RDF RECORD
Data from World Bank (double-click an area to zoom)
Fish species, threatened
Fish species, threatened
3
102
Thunnus obesus - Global Capture Production (FAO Fishery Statistic)
Tonnes (x1000)
Years
Tuna
edit wikipedia
Tuna are a group of salt water fish from the family Scombridae, particularly of the genus Thunnus. Tuna are fast swimmers, and some species are capable of speeds of 70 km/h (43 mph). Unlike most fish, which have white flesh, the muscle tissue of tuna ranges from pink to dark red. The
India
http://aims.fao.org/aos/agrovoc/c_3825
Property
Value
AGROVOC
the Republic of Turkey
POPULATION TOTAL (2010): 72 752 000 [SOURCE]
Gross domestic product
GDP TOTAL (2009): 614 603 (millions of US dollars) [SOURCE]
Human Development Index
(0 - 1 / low - high)
HDI TOTAL (2010): 0.679 (Calculated) [SOURCE]
FROM: FAO Country Profiles
...us obesus distribution map. Data from Global ...ersity Information Facility (GBIF)
Mappa
Satellite
España (Spain)
Portugal
المغرب (Morocco)
الجزائر (Algeria)
موريتانيا (Mauritania)
Mali
Google
Dati mappa - Termini e condizioni d'uso

Create Linked Open Data (LOD) Microthesauri using *Art & Architecture Thesaurus* (AAT) LOD

www.slideshare.net/mzeng/aat-microthesauri

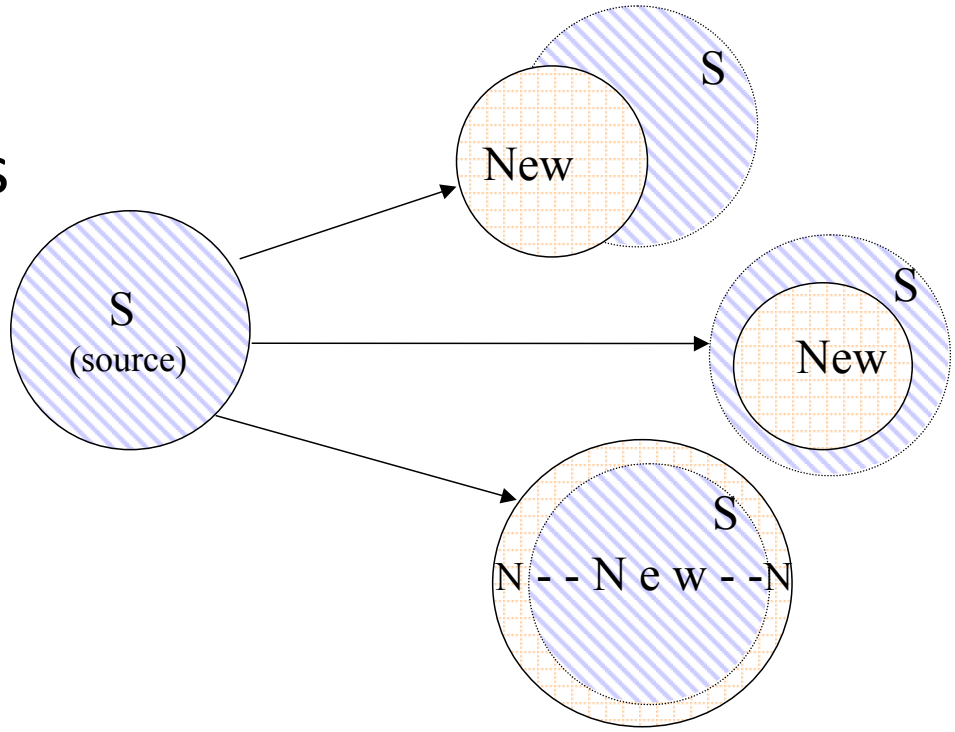
1. Definition

Microthesaurus: designated subset of a thesaurus that is capable of functioning as a complete thesaurus.

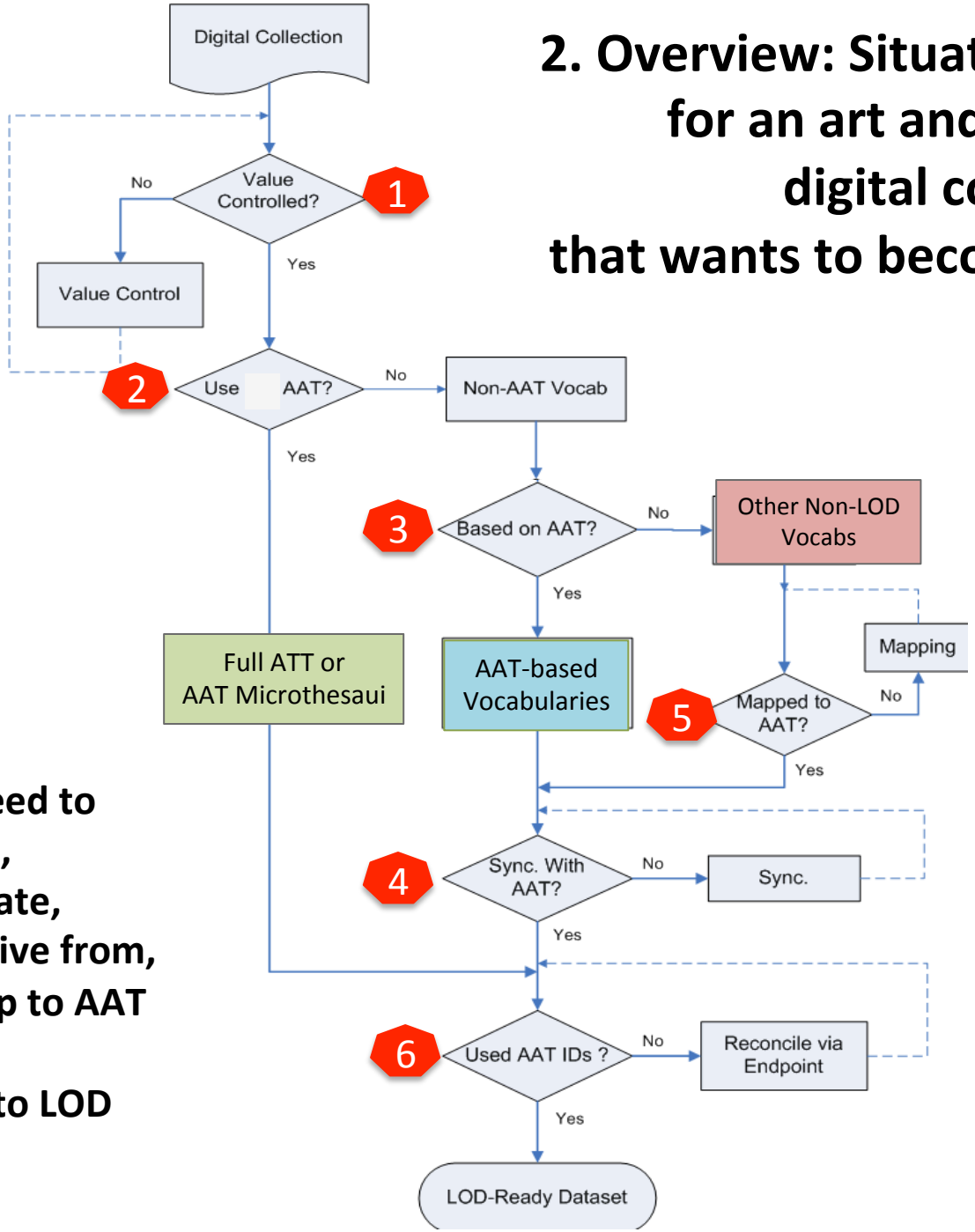
-- ISO25964-2:2013

Microthesauri are different from:

- Derived vocabularies
  - adaptation
  - modification
  - expansion
  - partial adaptation
  - translation



2. Overview: Situations and decisions for an art and architecture digital collection that wants to become a LOD dataset



The need to

- **use,**
- **create,**
- **derive from,**
- **map to AAT**

&

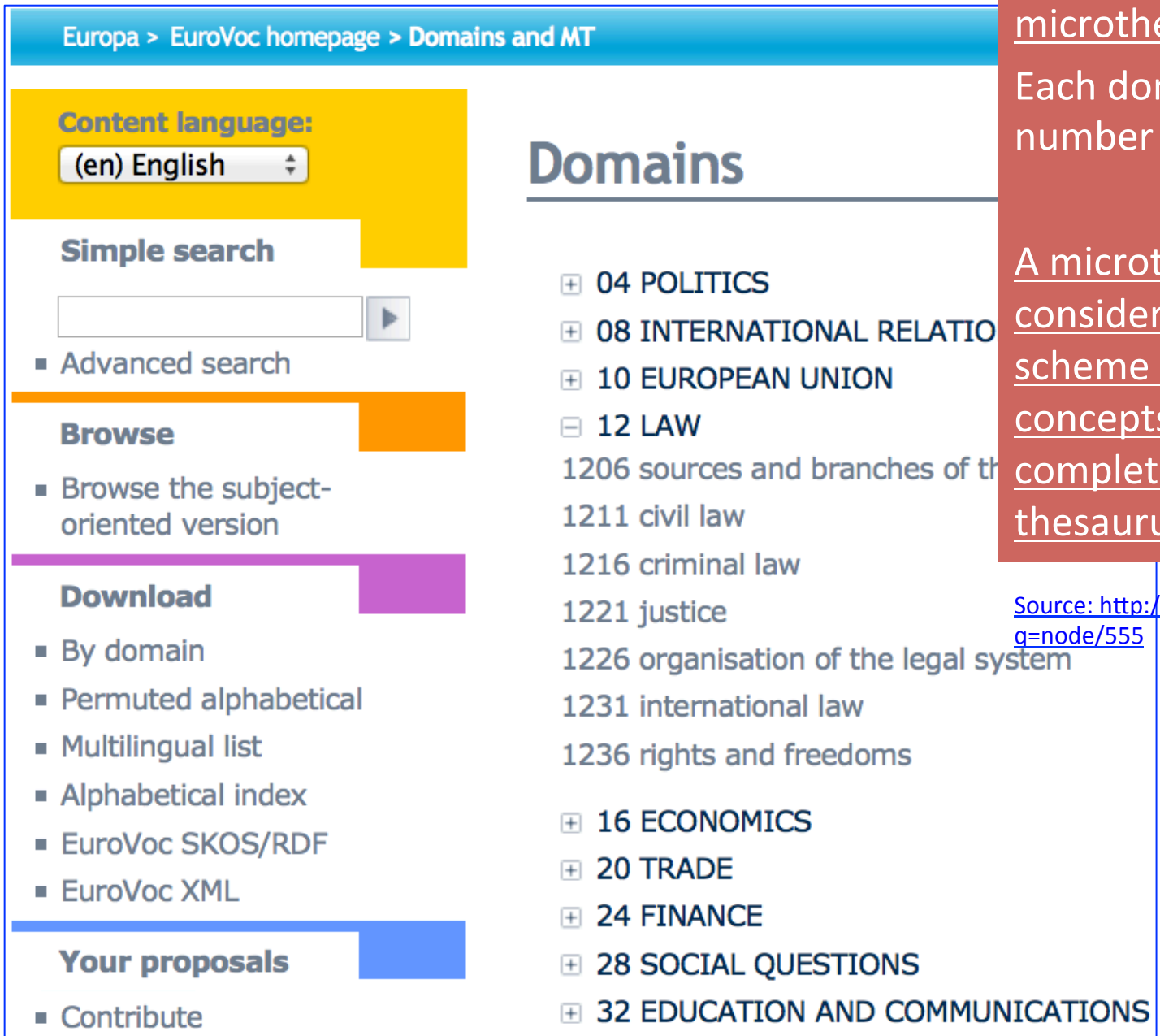
- **go to LOD**

3. Can a microthesaurus be made from an existing thesaurus?

	Structure	Example
YES	Classificatory structure	• *EUROVOC* • *Chinese Classified Thesaurus* • [*English Heritage Thesauri*]
YES	Faceted structure	• Art & Architecture Thesaurus (AAT) • FAST (Faceted Application of Subject Terminology)
YES/ Maybe	Deep hierarchies (family trees)	• Art & Architecture Thesaurus (AAT) • NASA Thesaurus • INSPEC Thesaurus • ASIS&T Thesaurus
NO/ Not-directly	flat structure [alphabetically organized]	• Subject headings lists • many thesauri

Microthesaurus: designated subset of a thesaurus that is capable of functioning as a complete thesaurus. -- *ISO25964-2:2013*

Example: Eurovoc

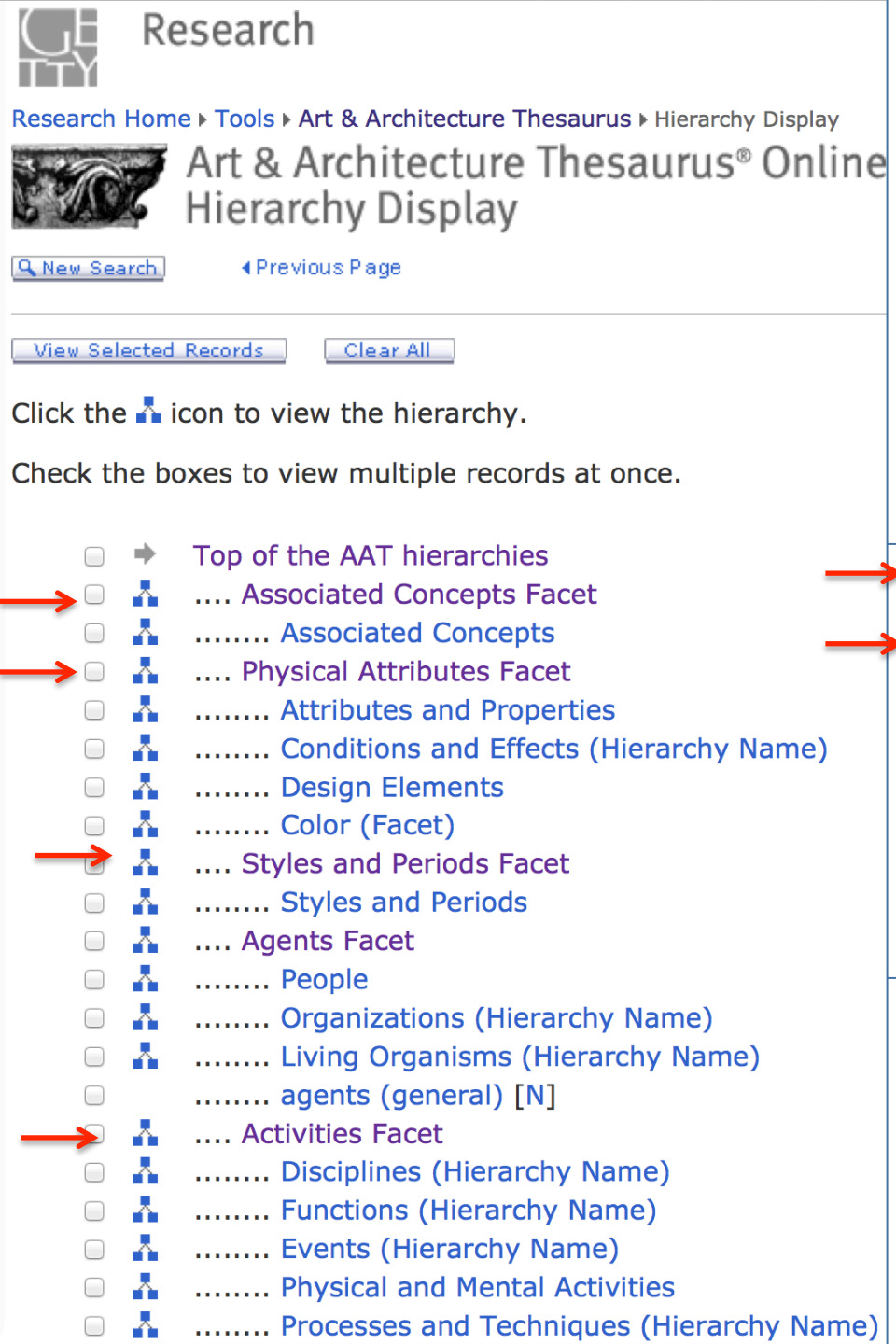


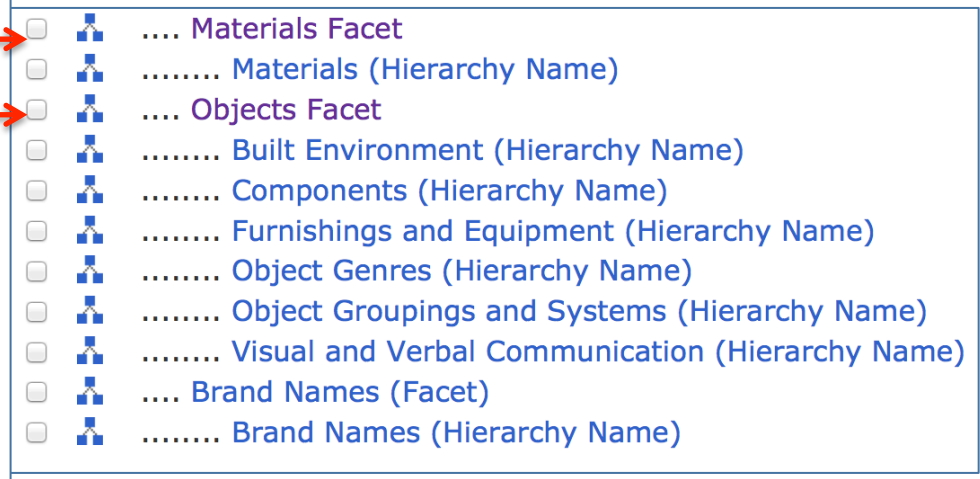
"EuroVoc is split into 21 domains and 127 microthesauri.

Each domain is divided into a number of microthesauri.

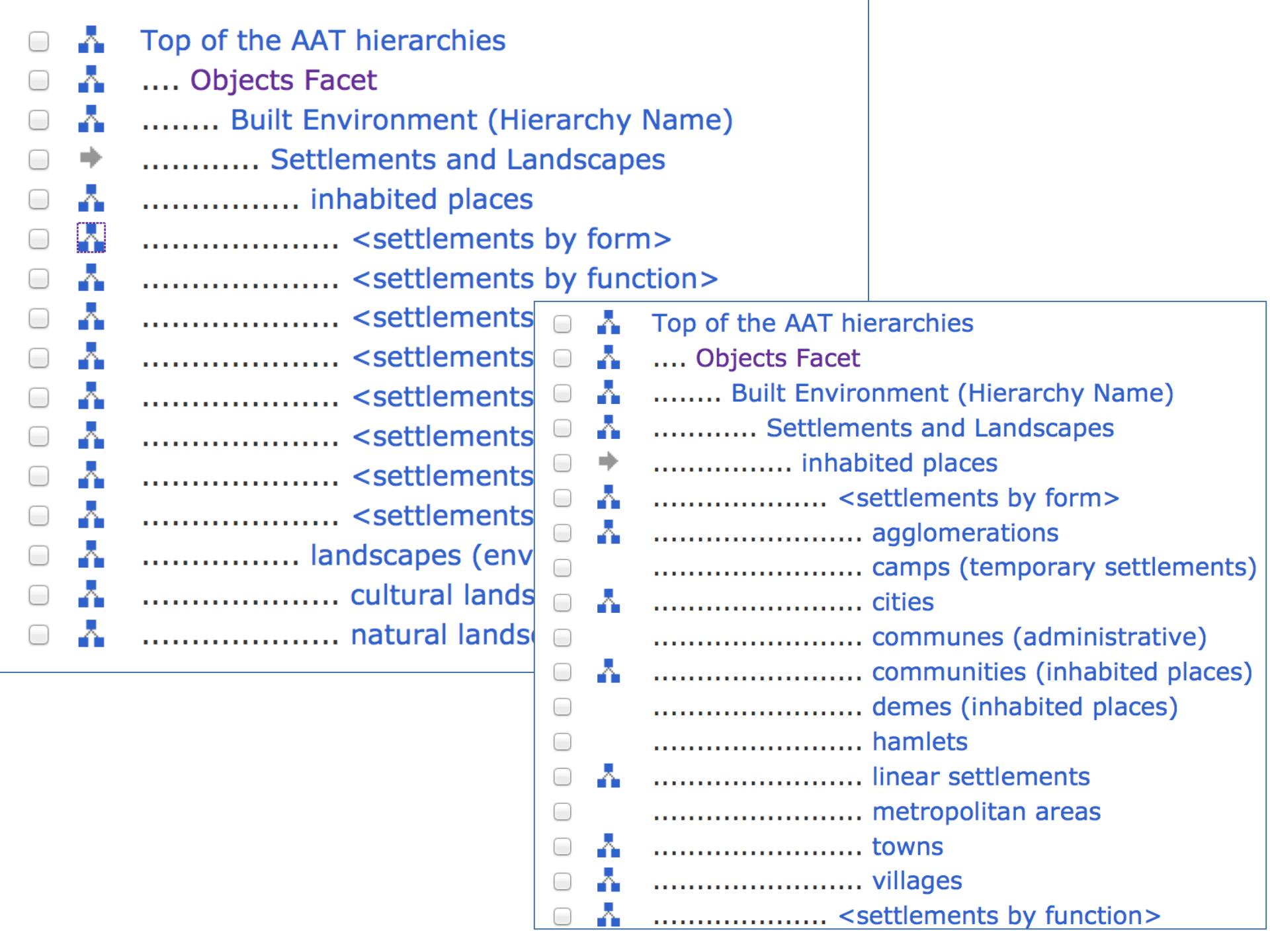
A microthesaurus is considered as a concept scheme with a subset of the concepts that are part of the complete EuroVoc thesaurus."

Source: http://eurovoc.europa.eu/drupal/?q=node/555





AAT has 7 facets


Top of the AAT hierarchies
.... Objects Facet
..... Built Environment (Hierarchy Name)
..... Settlements and Landscapes
..... inhabited places
..... <settlements by form>
..... <settlements by function>
..... <settlements
..... <settlements
..... <settlements
..... <settlements
..... <settlements
..... <settlements
..... landscapes (env
..... cultural lands
..... natural lands
Top of the AAT hierarchies
.... Objects Facet
..... Built Environment (Hierarchy Name)
..... Settlements and Landscapes
..... inhabited places
..... <settlements by form>
..... agglomerations
..... camps (temporary settlements)
..... cities
..... communes (administrative)
..... communities (inhabited places)
..... demes (inhabited places)
..... hamlets
..... linear settlements
..... metropolitan areas
..... towns
..... villages
..... <settlements by function>

Canadian Heritage Information Network (CHIN)

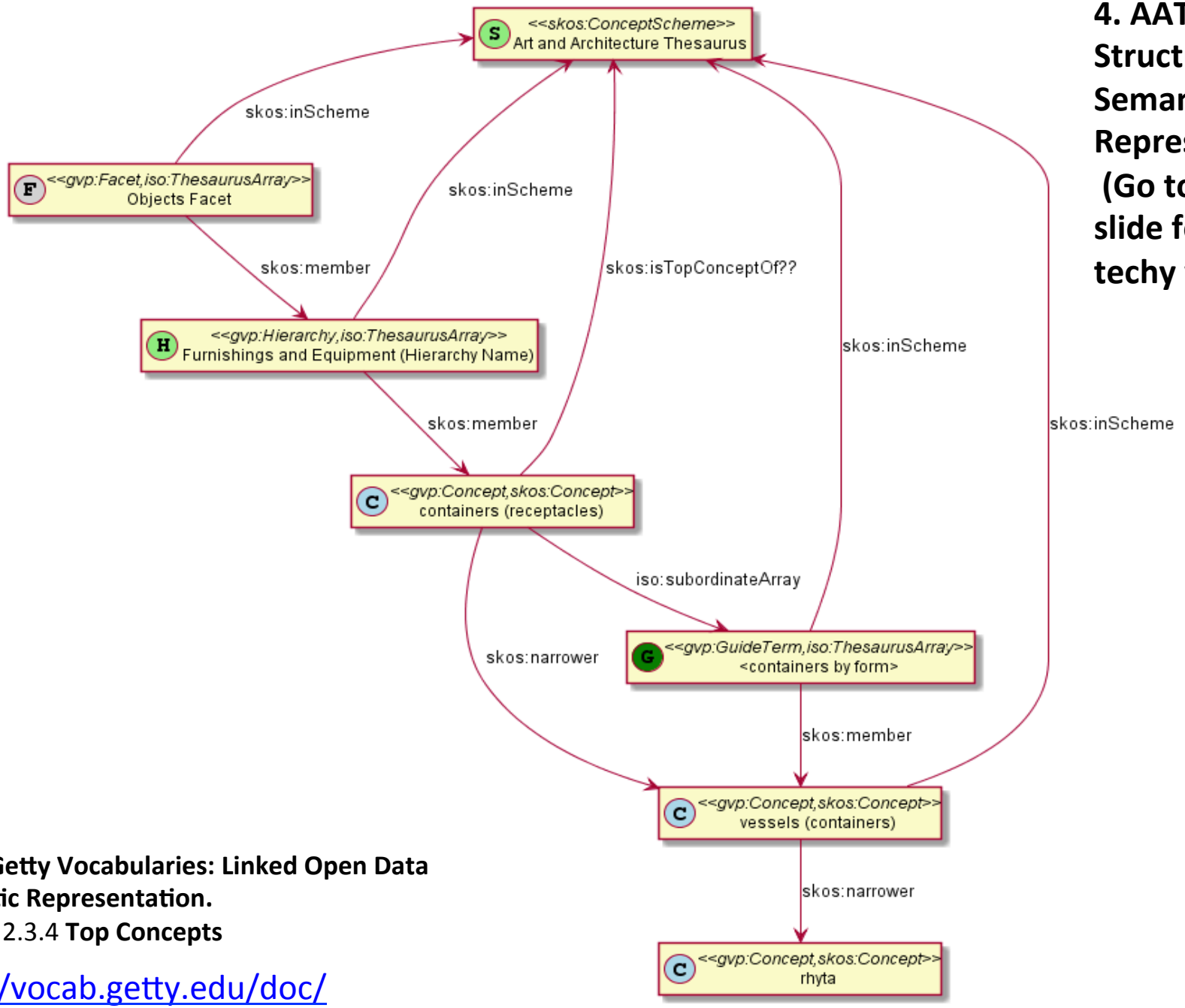
CHIN listed 890+ recommended resources.

AAT's facets and hierarchies that are listed individually.

- Art & Architecture Thesaurus (AAT) Processes and Techniques Hierarchy
- Canadian Centre for Architecture Bilingual Term Lists
- Art & Architecture Thesaurus (AAT) Agents Facet
- Cultural Objects Name Authority (CONA)
- Art & Architecture Thesaurus (AAT) Materials Facet
- Art & Architecture Thesaurus (AAT) Physical Attributes Facet
- Art & Architecture Thesaurus (AAT)
- Art & Architecture Thesaurus (AAT) Disciplines Hierarchy
- Art & Architecture Thesaurus (AAT) Objects Facet
- Art & Architecture Thesaurus (AAT) Styles and Periods Facet
- The Info-Muse classification system for fine arts and decorative arts museums
- Testing a Vocabulary Standard Against Cataloguing Practice in Canadian Museums
- Guidelines for Forming Language Equivalents: A Model Based on the Art & Architecture Thesaurus

Source: Search "AAT" from http://www.pro.rcip-chin.gc.ca/ressources-resources/index-eng.jsp

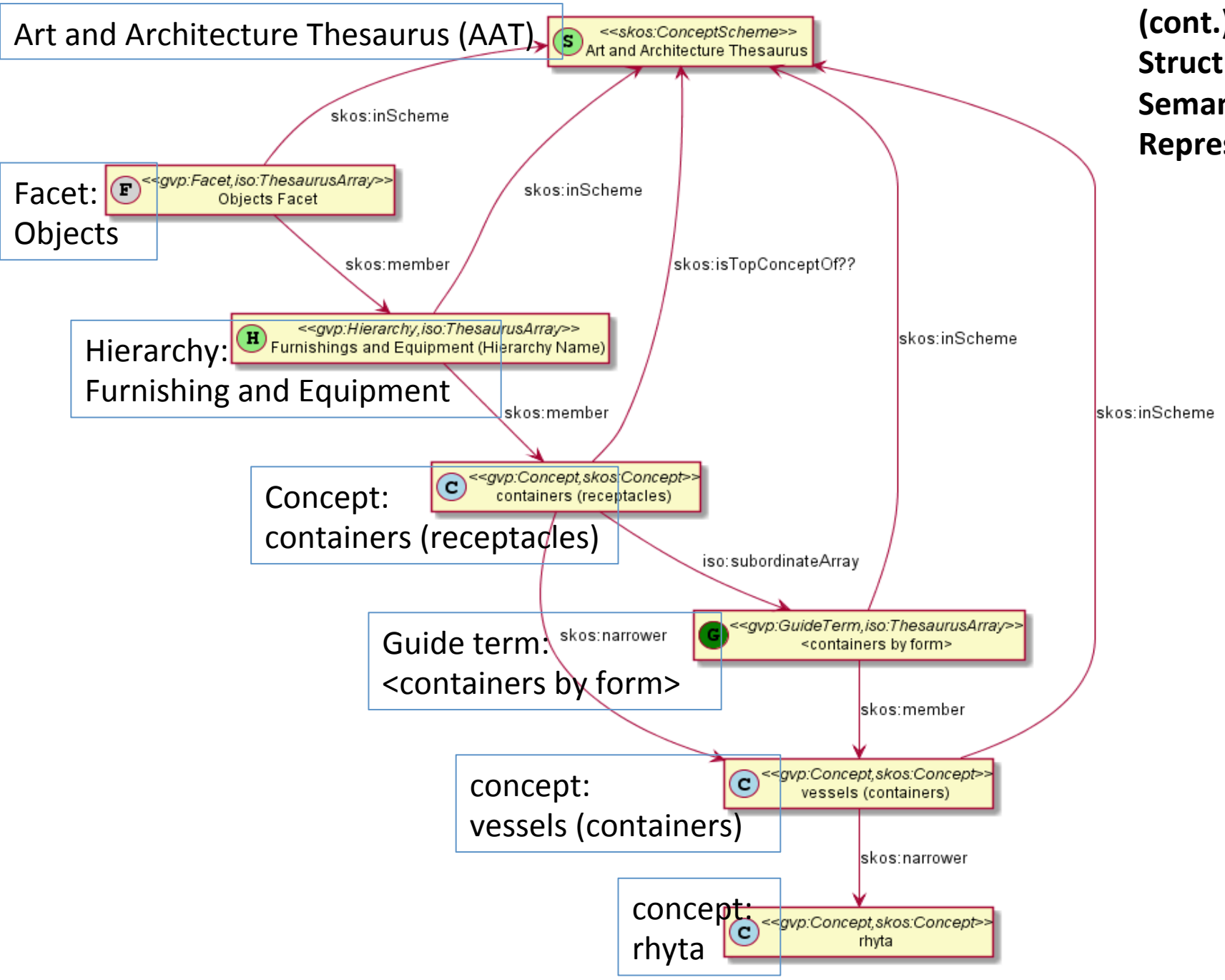
4. AAT Structure's Semantic Representation (Go to next slide for non-techy view.)



From: Getty Vocabularies: Linked Open Data Semantic Representation.
Section 2.3.4 **Top Concepts**

http://vocab.getty.edu/doc/#The_Getty_Vocabularies_and_LOD

(cont.) AAT Structure's Semantic Representation



Art and Architecture Thesaurus (AAT)

The units were recommended to use by projects like CHIN

Facet:
Objects

Facets

Hierarchy:
Furnishing and Equipment

[large] Hierarchies
(full coverage, deep layer)

Concept:
containers (receptacles)

Guide term:
<containers by form>

Sub-facets
(Indicated by node labels)

concept:
vessels (containers)

concept:
rhyta

Vases

URI(s)
- http://id.loc.gov/authorities/subjects/sh85142374
- info:lc/authorities/sh85142374
- http://id.loc.gov/authorities/sh85142374#concept

Instance Of
- MADS/RDF Topic
- MADS/RDF Authority
- SKOS Concept

Scheme Membership(
- Library of Congress

Collection Membership
- LCSH Collection - A
- LCSH Collection - G
- LCSH Collection - M

Broader Terms
- Containers

Narrower Terms
- Flower vases
- Presentation vas
- Stone vases
- Vase-painting

Related Terms
- Urns

Closely Matching Concepts from Other Schemes
- Vase
- Vases

What are usually available in a flat structured LOD thesaurus

```
<rdf:RDF>
– <rdf:Description rdf:about="http://id.loc.gov/authorities/subjects/sh85142374">
    <rdf:type rdf:resource="http://www.w3.org/2004/02/skos/core#Concept"/>
    <skos:prefLabel xml:lang="en">Vases</skos:prefLabel>
    <skos:broader rdf:resource="http://id.loc.gov/authorities/subjects/sh85031520"/>
    <skos:narrower rdf:resource="http://id.loc.go                    s/sh85142364"/>
    <skos:narrower rdf:resource="http://id.loc.go                    s/sh2012001607"/>
    <skos:narrower rdf:resource="http://id.loc.go                    s/sh2007001063"/>
    <skos:narrower rdf:resource="http://id.loc.gov/authorities/subjects/sh2004005300"/>
    <skos:related rdf:resource="http://id.loc.gov/authorities/sub                h85141432"/>
  – <skos:closeMatch>
    – <rdf:Description rdf:about="http://d-nb.info/gnd/4126533-6">
        <rdf:type rdf:resource="http://www.w3.org/2004/02/skos/core#Concept"/>
        <skos:prefLabel xml:lang="DE">Vase</skos:
      </rdf:Description>
    </skos:closeMatch>
```

Concept

BT

concept

NT

concept:

Source: http://id.loc.gov/authorities/subjects/sh85142374.skos.rdf

… so are in AAT;

Getty Vocabularies: LOD SPARQL | Any | Search... | Search | Brief

rhyta

Source:http://vocab.getty.edu/aat/300198841

Subject (100 of 193) | Predicate | Object | All

Website | Hierarchy | Download in: JSON | RDF | N3/Turtle | N-Triples

Inference: Explicit only

Statements in which the resource exists as a subject.

Predicate	Object
rdf:type	gvp:Concept
xl:prefLabel	aat_term:1000198841-el-Latn, aat_term:1000198841-en, aat_term:1000316909-es, aat_term:1000316909-fr, aat_term:1000498969-nl, aat_term:1000589081-zh-Hant, aat_term:1000589085-zh-Latn-pinyin-x-notone, aat_term:1000589090-zh-Latn-wadegile, aat_term:1000589091-de, aat_term:1000591848-zh-Latn-piny
xl:altLabel	
dcterms:created	
gvp:parentString	drinking vessels, <vessels for serving and consuming food>, culinary containers, <containers by function or (Hierarchy Name), Furnishings and Equipment (Hierarchy Name), Objects Facet
gvp:parentStringAbbrev	drinking vessels, <vessels for serving and consuming food>, ... Objects Facet
gvp:displayOrder	18
gvp:broaderGeneric	aat:300194567, aat:300198333, aat:300198865
gvp:broaderPreferred	aat:300194567
gvp:broaderNonPreferred	aat:300198333, aat:300198865
gvp:prefLabelGVP	aat_term:1000198841-en
gvp:prefLabelLoC	aat_term:1000198841-en
dcterms:source	aat_source:2000030301-subject-300198841, aat_source:2000051089-subject-300198841, aat_source:2000052378
dc:identifier	300198841
[illegible]	aat:300193229, aat:300197140, aat:300197148
prov:wasGeneratedBy	aat_rev:5000057716

Concept

BT

concept

NT

concept:

Results are obtained by entering the following in http://vocab.getty.edu/sparql :

```
# 5.1.10 Find Subject by Exact English PrefLabel
select * {?subj gvp:prefLabelGVP/xl:literalForm
"rhyta"@en}
```

Art and Architecture Thesaurus (AAT)

Facet:
Objects

Hierarchy:
Furnishing and Equipment

Concept:
containers (receptacles)

Guide term:
<containers by form>

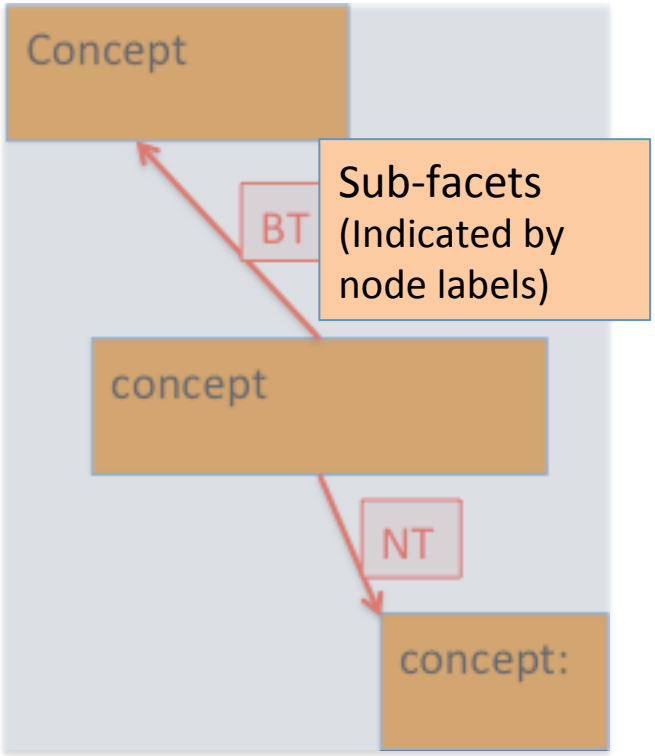
concept:
vessels (containers)

concept:
rhyta

: but AAT LOD has more:

Facets

[large] Hierarchies
(full coverage, deep layer)



5. An example
-- Use a <Guide Term> to obtain all concept URIs in a facet or hierarchy

Part 1. Get Data

ID: 300117143

<object genres by function> (object genres (objec
Name))

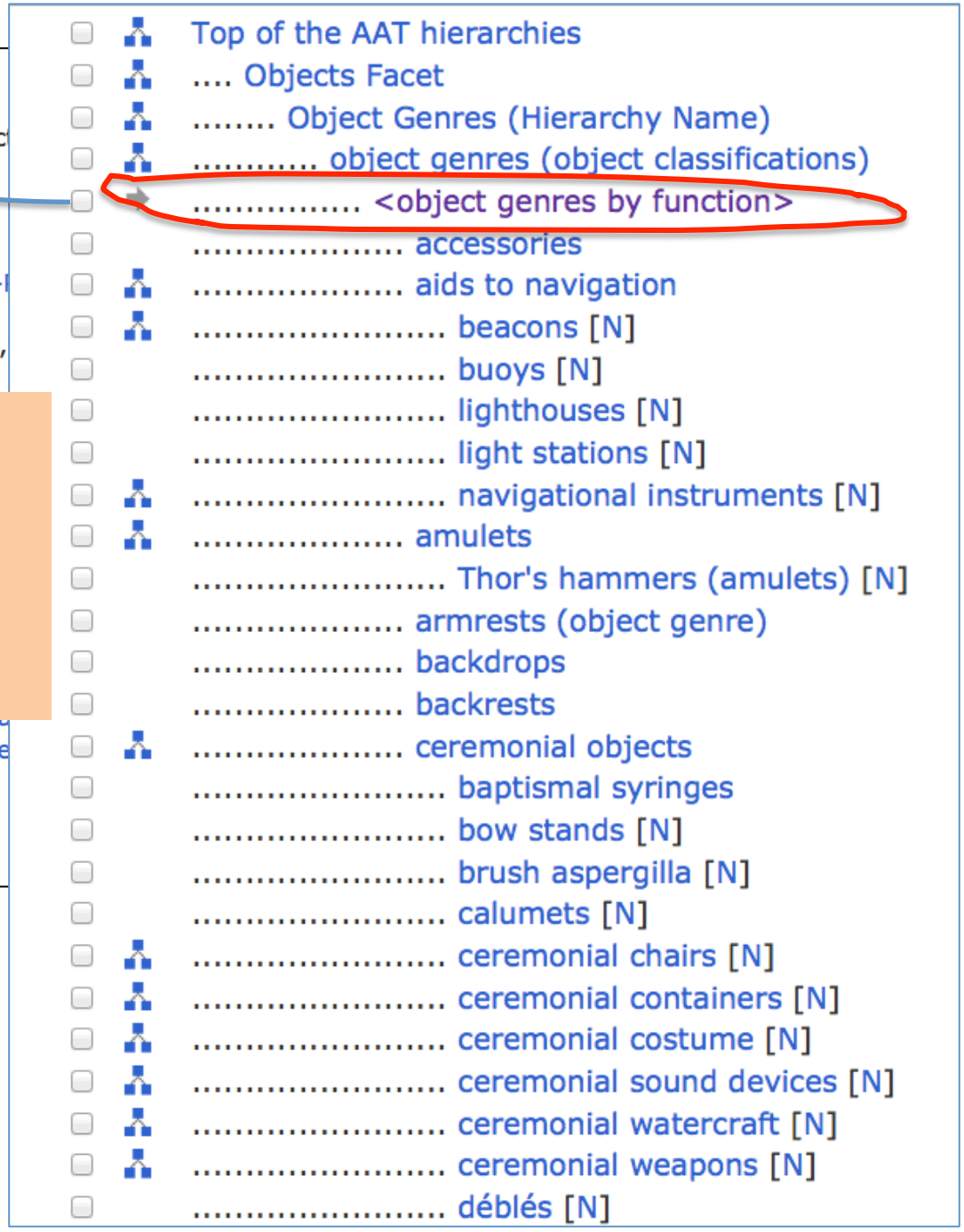
Terms:

object genres by function (**preferred**,C,U,English-
objectgenres naar functie (C,U,Dutch-P,D,U,U)
categorías de objetos por función (C,U,Spanish-P,

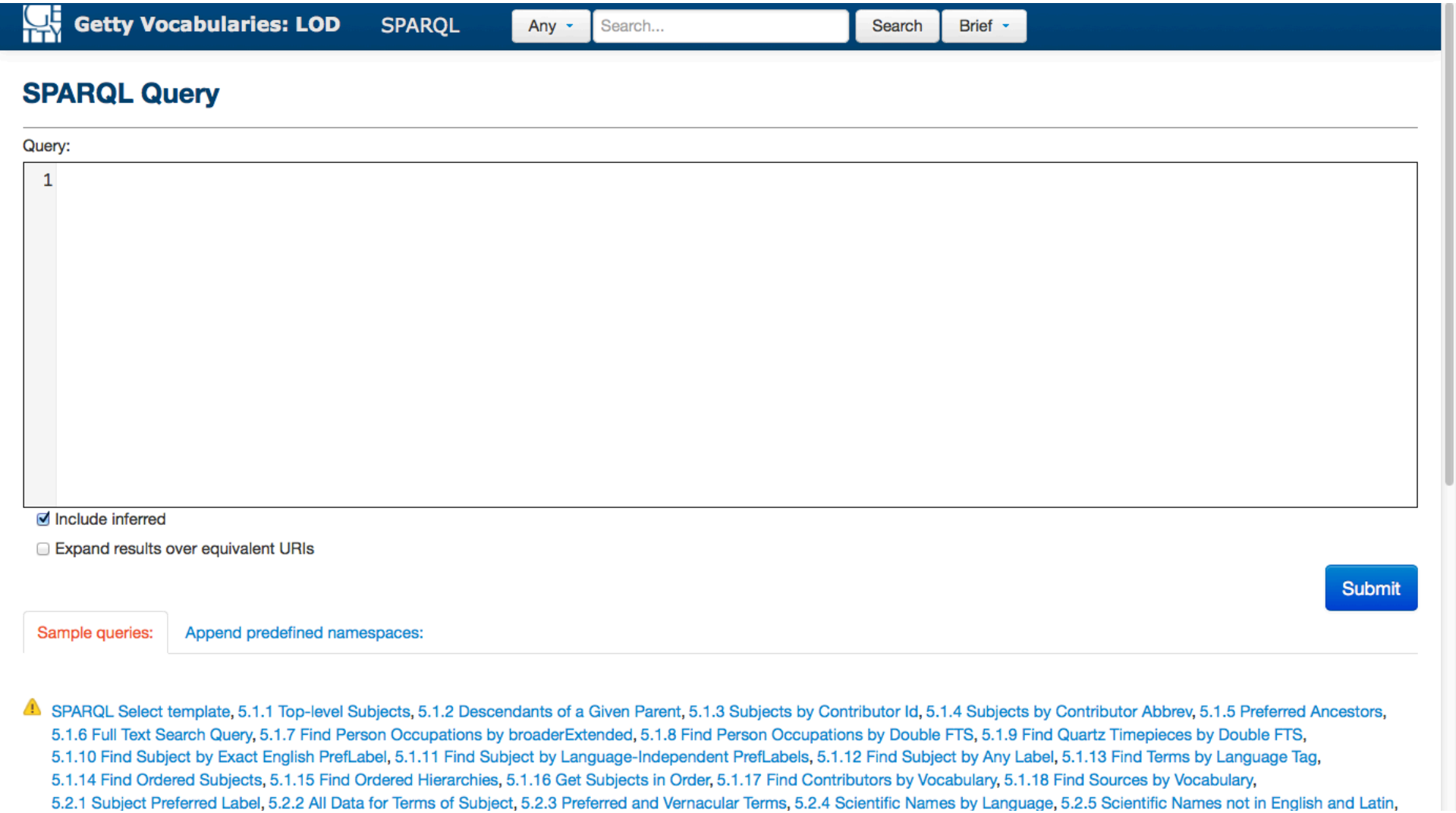
Steps:
After choosing a facet or a hierarchy from AAT…
1. **Get the ID**
2. **Go to SPARQL Endpoint**
   →next slide

objectgenres naar functie..... [RKD, AAT-Ned Pre
..... AAT-Ned (1994-)

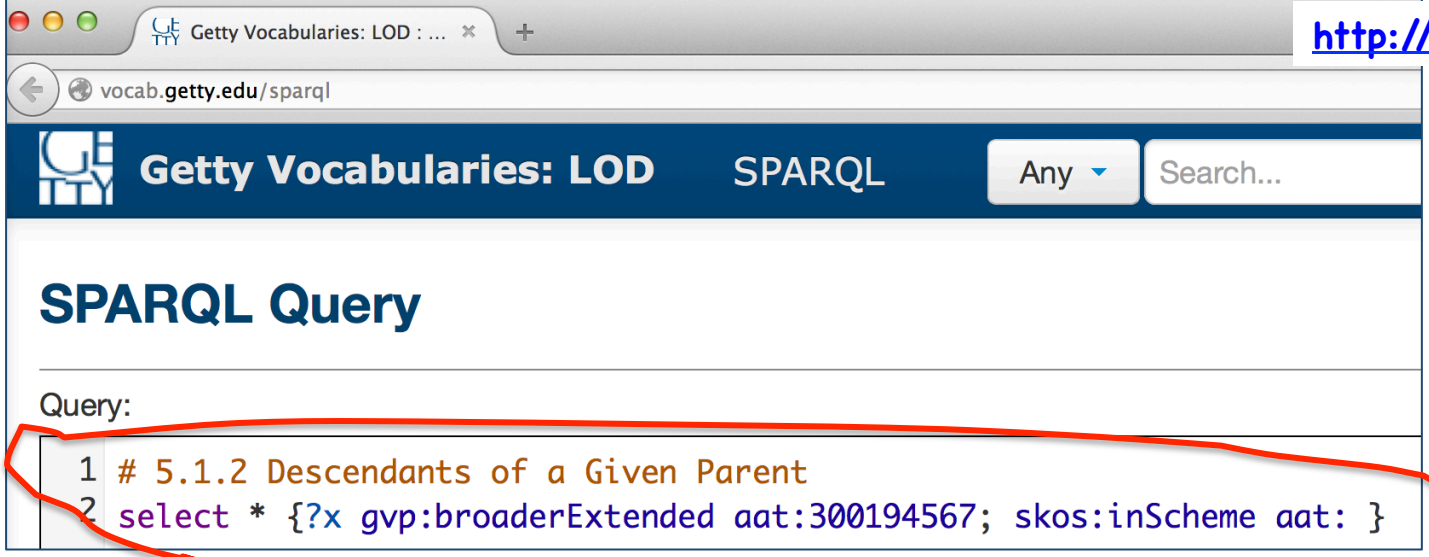
Subject: ..... [CDBP-DIBAM, RKD, AAT-Ned, VP]



Step 2. Go to Getty Vocab SPARQL Endpoint: http://vocab.getty.edu/sparql



http://vocab.getty.edu/sparql



Step 3. Choose "Descendants of a Given Parent" from the template, click.
→ The template's text will show on the top Query box.

Steps
4. Replace the ID (e.g., 300117143) in the Query template
[you may modify to add more requests]
5. Submit
6. Get all URIs and labels under this guide

SPARQL Query

Query:

```
1 # 5.1.2 Descendants of a Given Parent
2 select * {?x gvp:broaderExtended aat:300117143.
3   ?x gvp:prefLabelGVP [xl:literalForm ?l]; skos:inScheme aat:
4         } order by ?l
5
```

Note: I replaced the aat ID, also inserted a line to get the labels, and sort by label. Here is the text of the query:

```
select * {?x gvp:broaderExtended aat:300117143.
?x gvp:prefLabelGVP [xl:literalForm ?l]; skos:inScheme aat:
} order by ?l
```

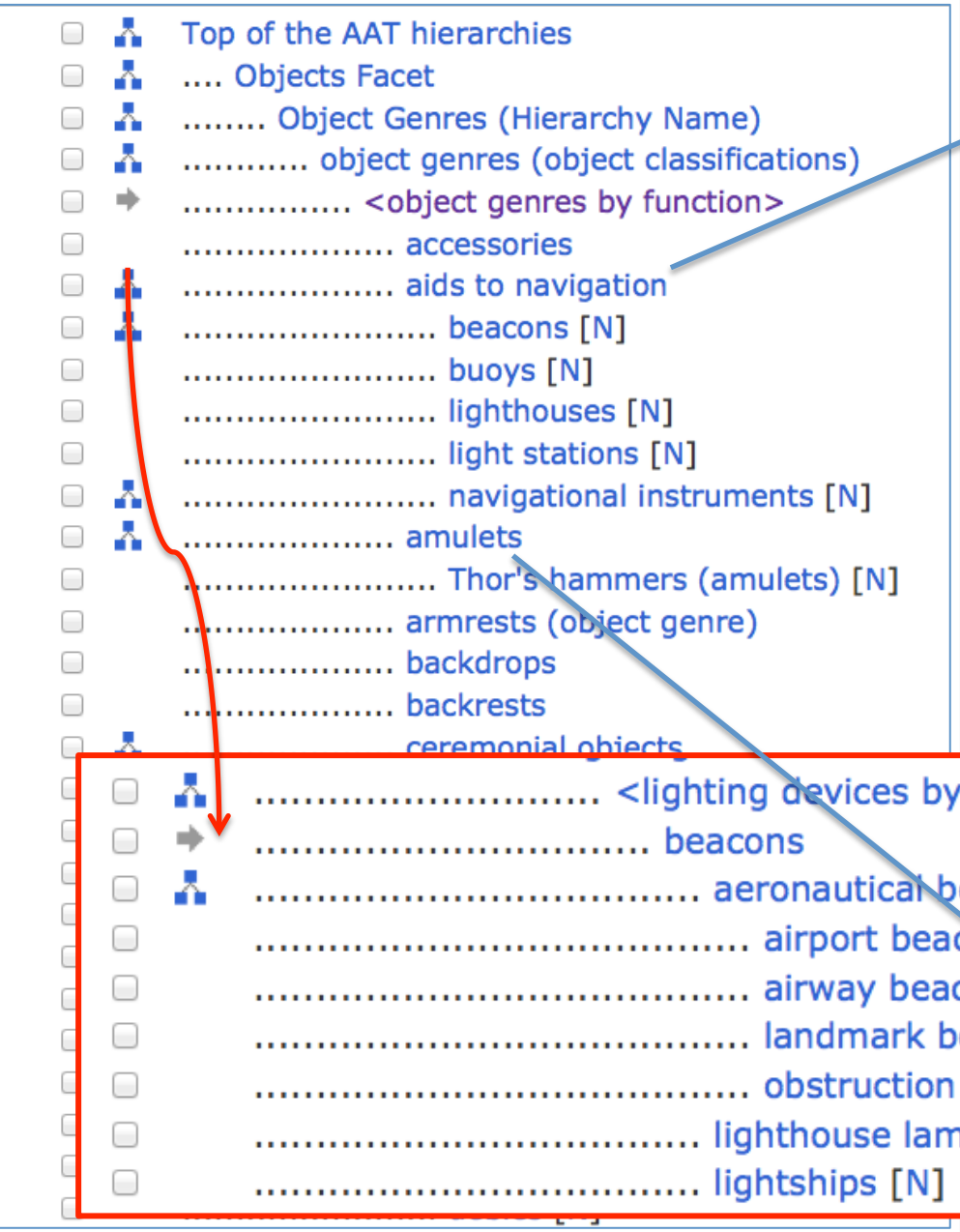
It gave me the results in 2 seconds:

SPARQL Query

Results for # 5.1.2 Descendants:... (100 of 525)

Download SPARQL Results in: JSON | XML

x	l
aat:300391225	<religious visual works by related event>@en
aat:300391082	Advent candleholders@en
aat:300391224	Advent wreaths@en
aat:300178242	Andachtsbilder@en
aat:300265145	Bhagavad-gītās@en
aat:300263184	Bible stories@en
aat:300264513	Bibles@en
aat:300263411	Bibles historiales@en



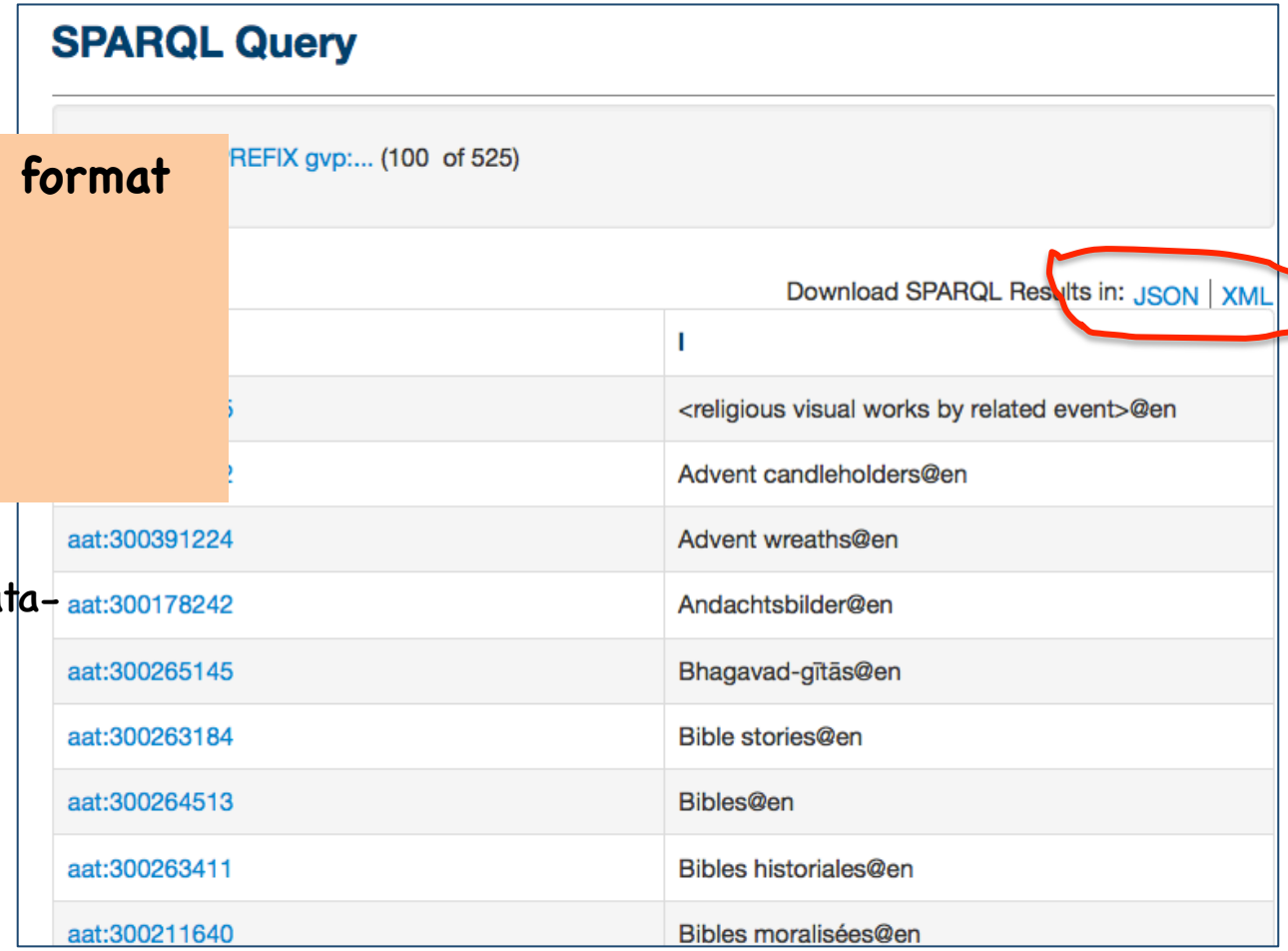
aat:300264447	agere lfa@en
aat:300262796	aids to navigation@en
aat:300210466	aigrettes (plumes)@en
aat:300181617	airport beacons@en
aat:300181651	airway beacons@en
aat:300263682	akonkromfi@en
aat:300210415	albs@en
aat:300198819	alms dishes@en
aat:300210416	almuces (hoods)@en
aat:300263075	aloalo@en
aat:300391092	
aat:300391083	
	altar cruets@en
	altarpieces@en
	alusi@en
	amices@en
	ampullae@en
aat:300266585	amulets@en

(I checked to make sure that the results are from multiple levels in the hierarchy.)

Step 7. Download JSON format data.

Download Options:
(1) JSON*
(2) XML

*JSON (JavaScript Object Notation) is a lightweight data-interchange format.



How to manage it by a non-techy person?

Non-techy person's wish:

I can see what are in the dataset;

I can use a spreadsheet to open and manage it.

Techy-person can prepare the file as:

1. From a JSON* file → convert to CSV** file (can be opened as spreadsheet) using an open source converter, or
2. From a JSON file → Manage from OpenRefine (open source system) or export to a spreadsheet

Results of the JSON file.


```
{
  "head" : {
    "vars" : [ "x", "l" ]
  },
  "results" : {
    "bindings" : [ {
      "x" : {
        "type" : "uri",
        "value" : "http://vocab.getty.edu/aat/300217935"
      },
      "l" : {
        "xml:lang" : "en",
        "type" : "literal",
        "value" : "'ūds"
      }
    }, {
      "x" : {
        "type" : "uri",
        "value" : "http://vocab.getty.edu/aat/300264679"
      },
      "l" : {
        "xml:lang" : "en",
        "type" : "literal",
        "value" : "8mm (size: videotape)"
      }
    }, {
      "x" : {
        "type" : "uri",
        "value" : "http://vocab.getty.edu/aat/300055897"
      },
      "l" : {
        "xml:lang" : "en",
        "type" : "literal",
        "value" : "<artistic devices: literature>"
      }
    }, {
      "x" : {
        "type" : "uri",
        "value" : "http://vocab.getty.edu/aat/300133084"
      },
      "l" : {
        "xml:lang" : "en",
        "type" : "literal",
        "value" : "<composition and compositional elements>"
```


Descendants of a Given Parent:

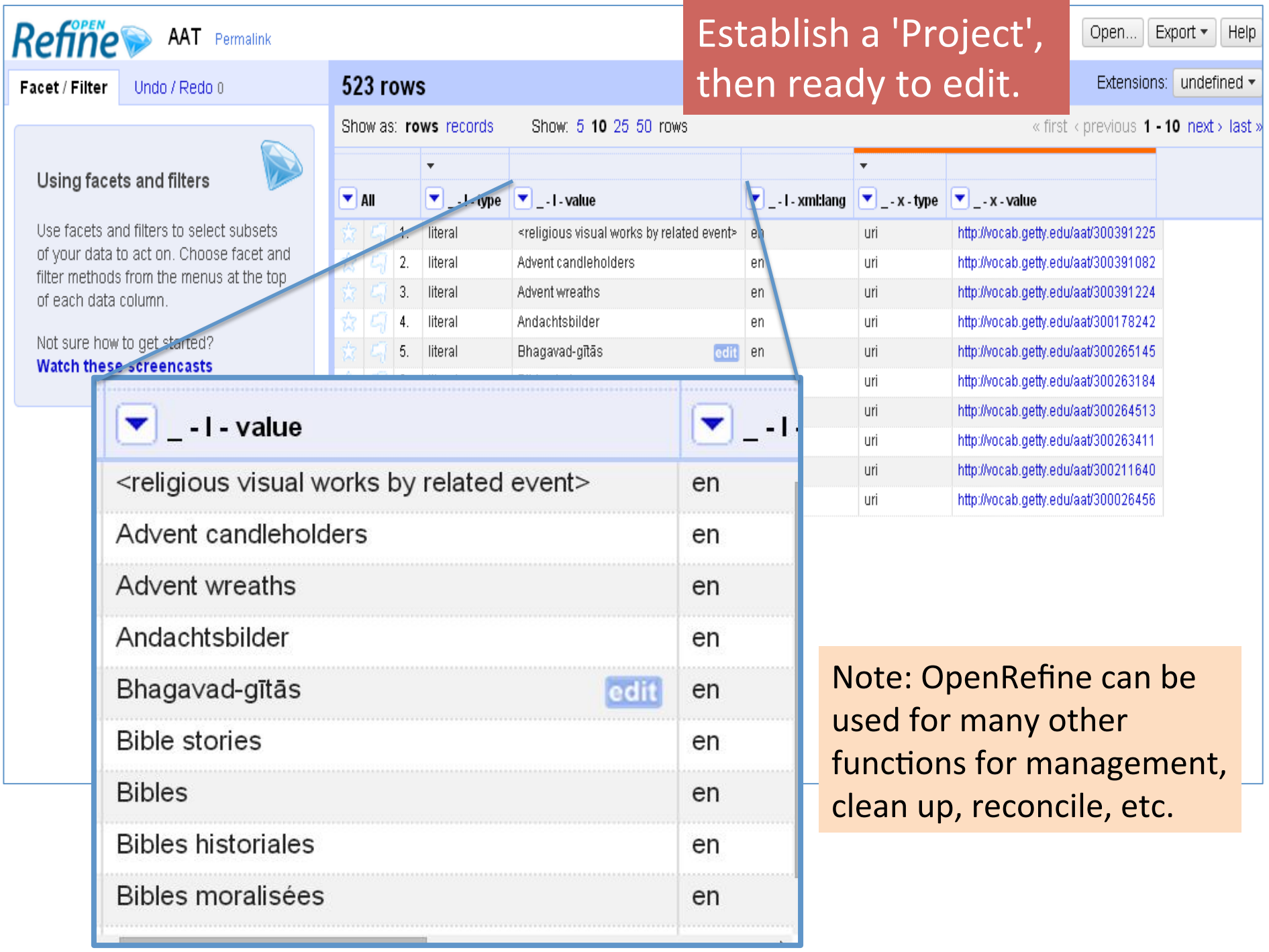
```
select * {?x gvp:broaderExtended aat:300117143.
?x gvp:prefLabelGVP [xl:literalForm ?l];
skos:inScheme aat:
} order by ?l
```

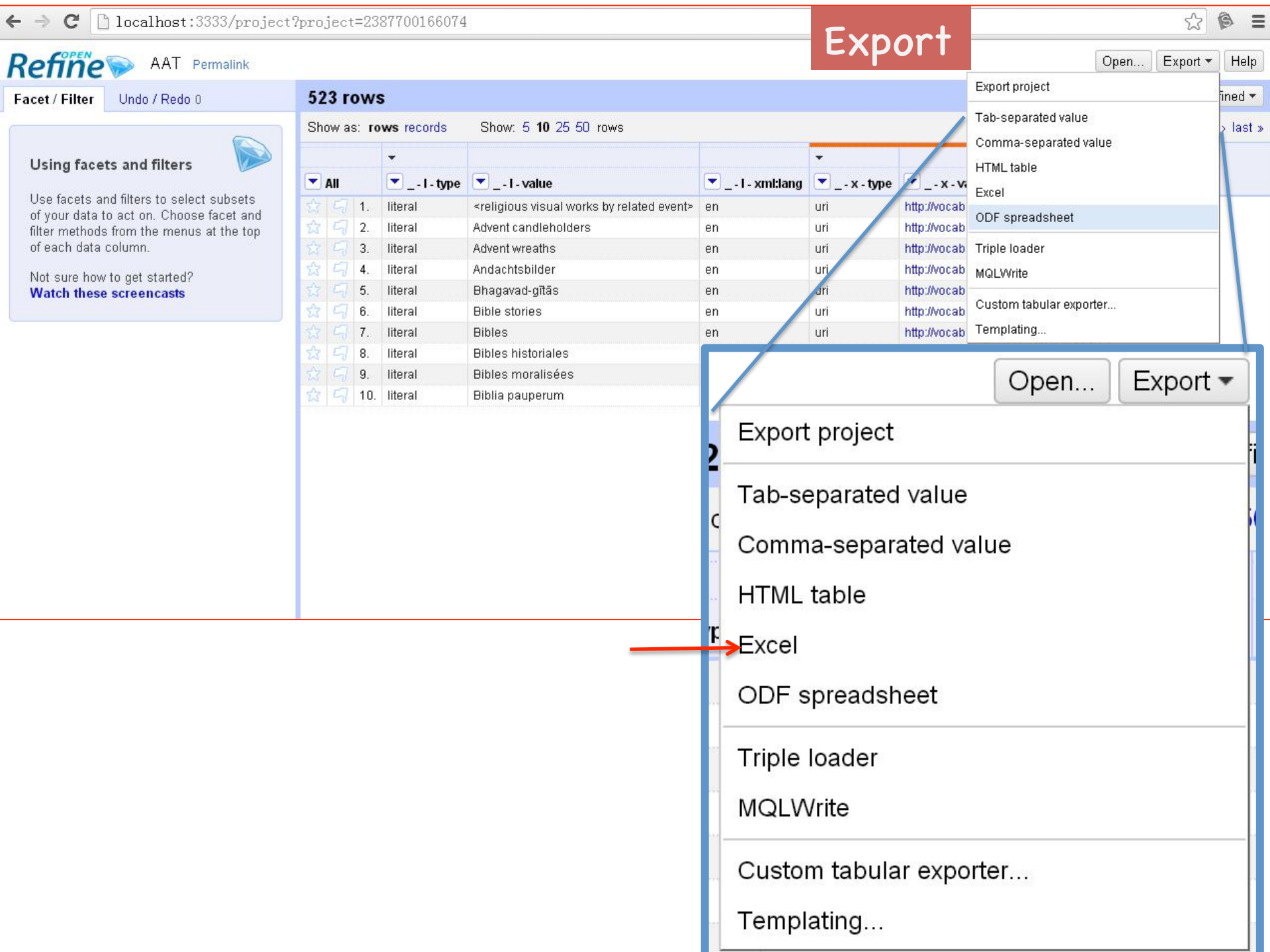
SPARQL Query

Results for # 4.1.2 Descendants... (100 of 523)

Download SPARQL Results in: JSON | XML

x	l
aat:300161886	striking blocks@en
aat:300202542	keepsakes (books)@en
aat:300220519	religious texts@en
aat:300210422	buskins (stockings)@en
aat:300181600	aeronautical beacons@en
aat:300007739	beacons@en
aat:300182941	lighthouse lamps@en
aat:300007741	lighthouses@en
aat:300180588	Hanukkah lamps@en
aat:300190801	votive lamps@en


Establish a 'Project', then ready to edit.
OpenRefine
AAT
Permalink
Open...
Export
Help
Facet / Filter
Undo / Redo 0
523 rows
Extensions: undefined
Show as: rows records
Show: 5 10 25 50 rows
« first ‹ previous 1 - 10 next › last »
Using facets and filters
Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.
Not sure how to get started?
Watch these screencasts
All
_ - l - type
_ - l - value
_ - l - xml:lang
_ - x - type
_ - x - value
1. literal <religious visual works by related event> en uri http://vocab.getty.edu/aat/300391225
2. literal Advent candleholders en uri http://vocab.getty.edu/aat/300391082
3. literal Advent wreaths en uri http://vocab.getty.edu/aat/300391224
4. literal Andachtsbilder en uri http://vocab.getty.edu/aat/300178242
5. literal Bhagavad-gītās edit en uri http://vocab.getty.edu/aat/300265145
uri http://vocab.getty.edu/aat/300263184
uri http://vocab.getty.edu/aat/300264513
uri http://vocab.getty.edu/aat/300263411
uri http://vocab.getty.edu/aat/300211640
uri http://vocab.getty.edu/aat/300026456
_ - l - value
_ - l
<religious visual works by related event> en
Advent candleholders en
Advent wreaths en
Andachtsbilder en
Bhagavad-gītās edit en
Bible stories en
Bibles en
Bibles historiales en
Bibles moralisées en
Note: OpenRefine can be used for many other functions for management, clean up, reconcile, etc.


Export
localhost:3333/project?project=2387700166074
OpenRefine
AAT
Permalink
Open...
Export
Help
Facet / Filter
Undo / Redo 0
523 rows
Show as: rows records
Show: 5 10 25 50 rows
Using facets and filters
Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.
Not sure how to get started?
Watch these screencasts
All
_ - l - type
_ - l - value
_ - l - xml:lang
_ - x - type
1. literal <religious visual works by related event> en uri
2. literal Advent candleholders en uri
3. literal Advent wreaths en uri
4. literal Andachtsbilder en uri
5. literal Bhagavad-gītās en uri
6. literal Bible stories en uri
7. literal Bibles en uri
8. literal Bibles historiales
9. literal Bibles moralisées
10. literal Biblia pauperum
Export project
Tab-separated value
Comma-separated value
HTML table
Excel
ODF spreadsheet
Triple loader
MQLWrite
Custom tabular exporter...
Templating...
Open...
Export
Export project
Tab-separated value
Comma-separated value
HTML table
Excel
ODF spreadsheet
Triple loader
MQLWrite
Custom tabular exporter...
Templating...

Use other templates to obtain needed data for your microthesauri. More examples

- Find AAT URIs and labels according to a Contributor:

```
#5.1.3 Subjects by Contributor Id
select * {
  ?x a gvp:Subject; dct:contributor aat_contrib:
10000178.
  ?x gvp:prefLabelGVP [xl:literalForm ?l]
}
```

- Find, within this set of data, only those involving a particular contributor, e.g., by CDBP-DIBAM (Dirección de Bibliotecas, Archivos y Museos; Santiago, Chile), id: 300117143.)

```
select ?x ?l ?contrib {
  ?x gvp:broaderExtended aat:300117143.
  ?x gvp:prefLabelGVP [xl:literalForm ?l].
  ?x dcterms:contributor aat_contrib:10000131.
}
```

Some other cases of using AAT LOD

Integrating AAT into editors

E.g., EADitor

Plug-in for Adobe Bridge

Web Taxonomy plugin

Visualization

Visualize the hierarchies

Visualize around an individual concept

Multilingual services

e.g., Europeana semantic enrichment

Linked Open data
GETTY VOCABULARIES

Portal enrichment

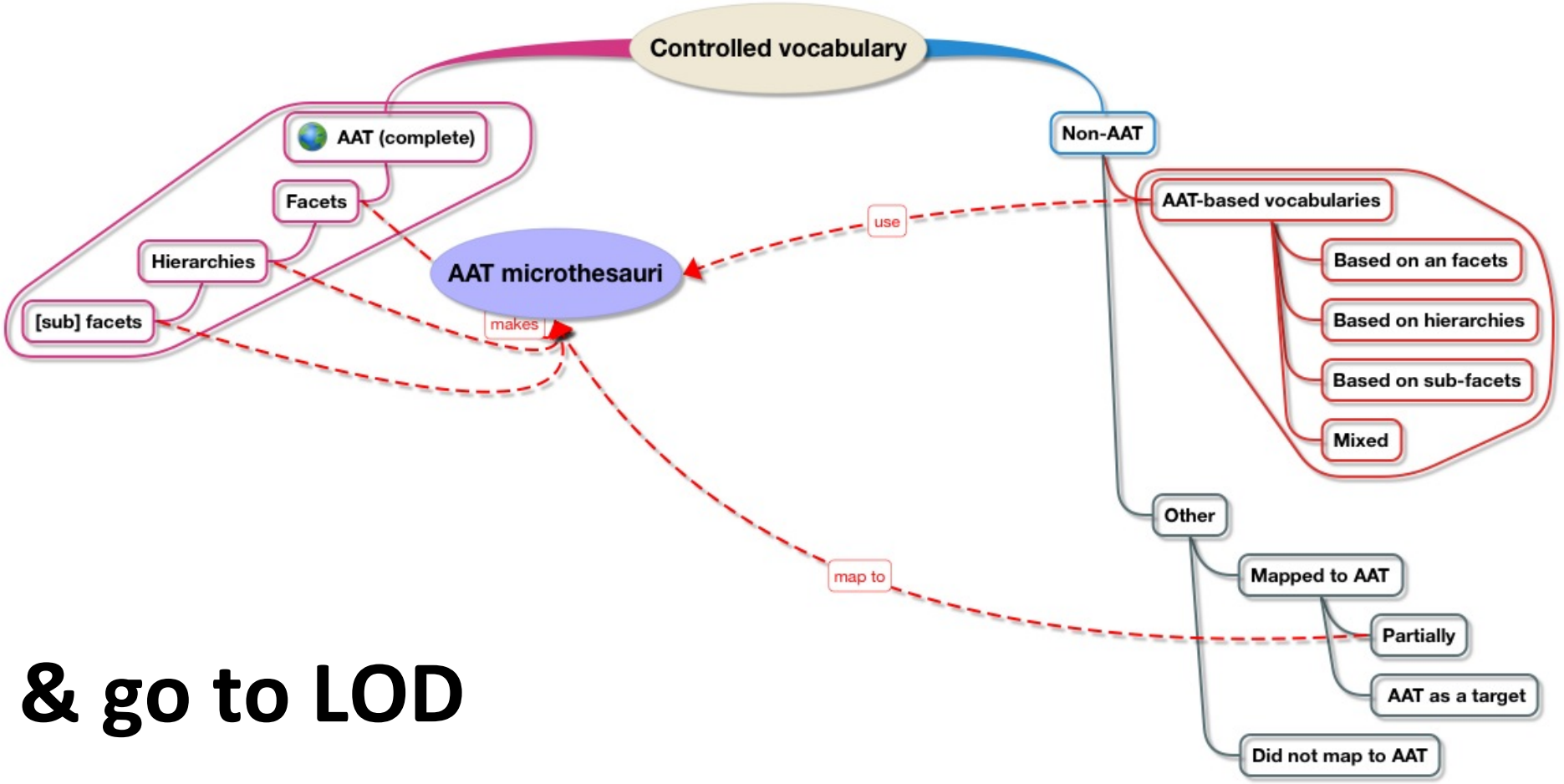
e.g., Europeana. Search mapping to AAT by facets: Object, Activities, Format, Type, Material, etc.

Extending to multilingual

Use by digital art history projects

6. Conclusion
LOD AAT Microthesauri

- use,
- create,
- derive from, &
- map to



& go to LOD

www.slideshare.net/mzeng/aat-microthesauri

THANK YOU!

Using KOS as the Connectors of Linked Datasets

Imma Subirats
-- Food and Agriculture Organization of the United Nations (Italy)
Marcia Lei Zeng
-- Kent State University (USA)

77th ASIS&T Annual Meeting, Oct. 31-Nov. 5, 2014, Seattle, USA