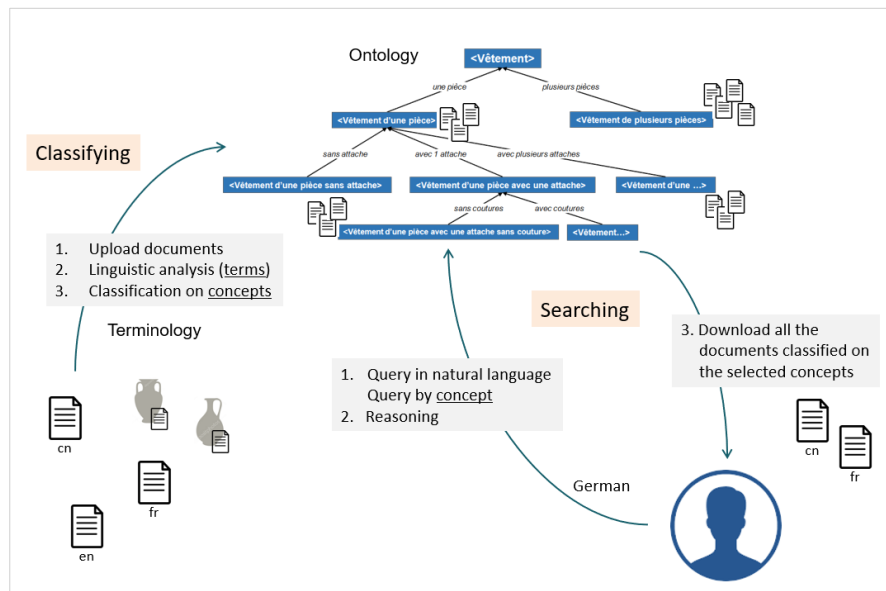# Ontological definition of terms
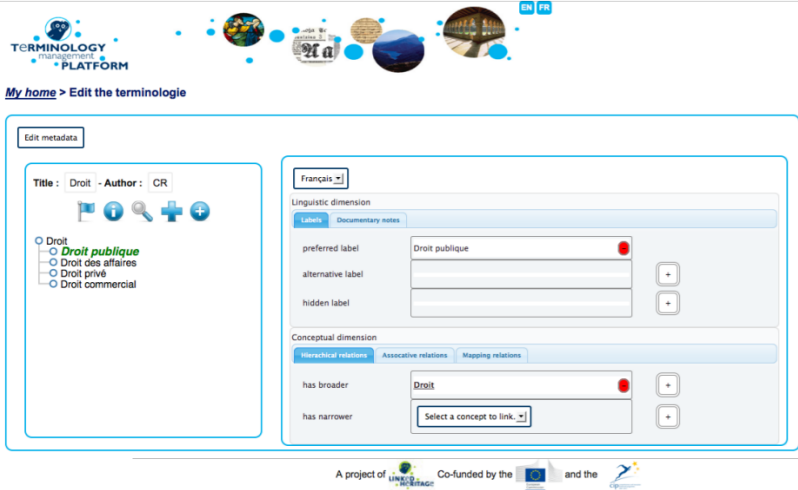# Examples from cultural heritage

Maria Papadopoulou

Université Savoie Mont-Blanc
LISTIC Lab-Equipe Condillac
www.condillac.org

Ontoterminology for Thesaurus

LINKED HERITAGE
2011-2013

ATHENA PLUS
Access to cultural heritage networks for Europeana
2013-2015

europeana think culture

TMP² OTe for THESAURUS

Thesaurus Management Platform v2

OTe for THESAURUS

Christophe Roche, Luc Damas, Julien Roche. Multilingual Thesaurus: The Ontoterminology Approach. CIDOC 2014 - Access and Understanding – Networking in the Digital Era, CIDOC COMITÉ INTERNATIONAL POUR LA DOCUMENTATION, Sep 2014, Dresden Germany.

OntoTerminology engine for thesaurus

ontoterminology : a terminology whose conceptual system is a formal ontology

Thesaurus Management Platform

OTe for THESAURUS
Thesaurus **M**anagement **P**latform version 2
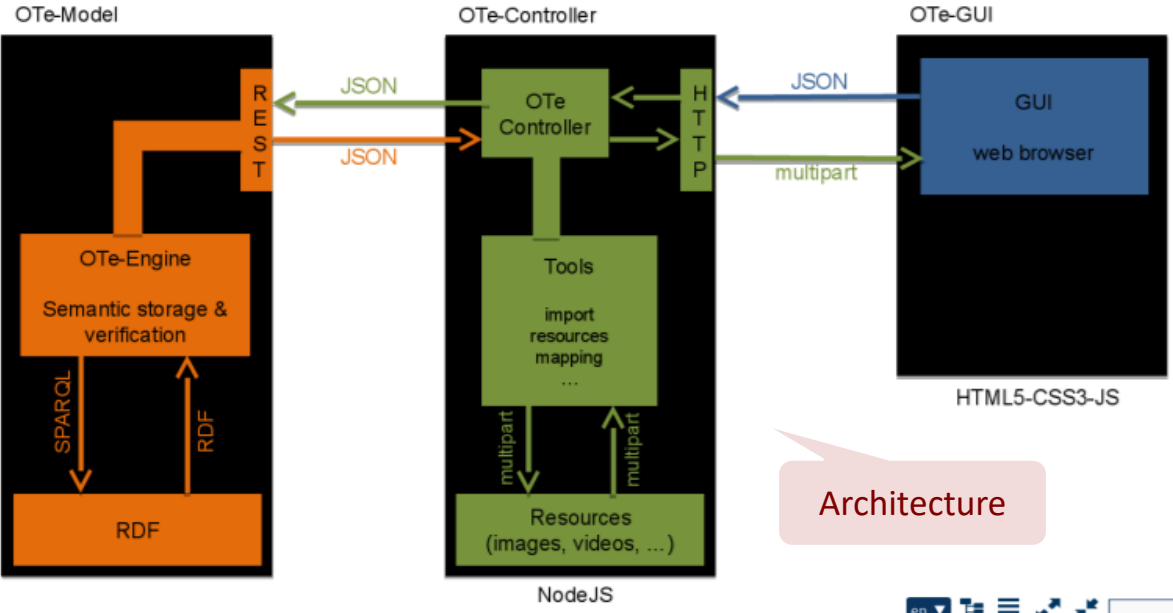
Architecture
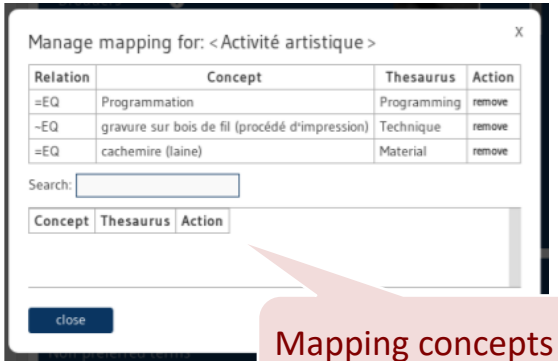
Mapping concepts in different thesauri
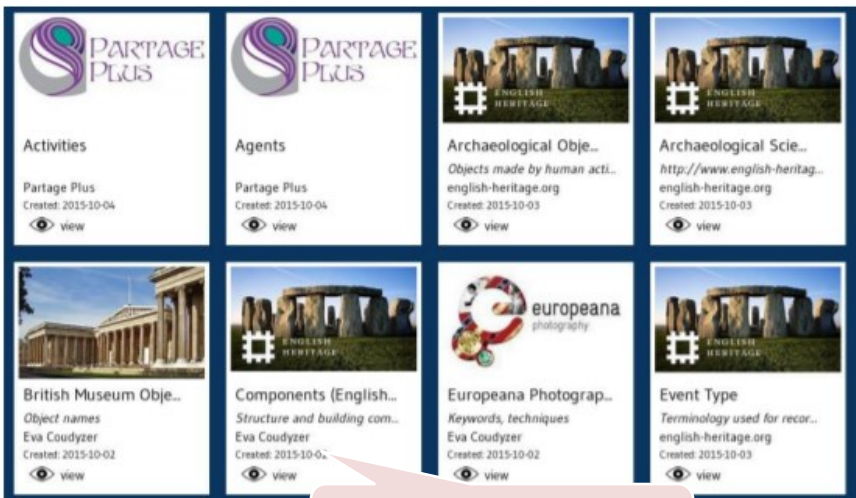
Display of thesauri list
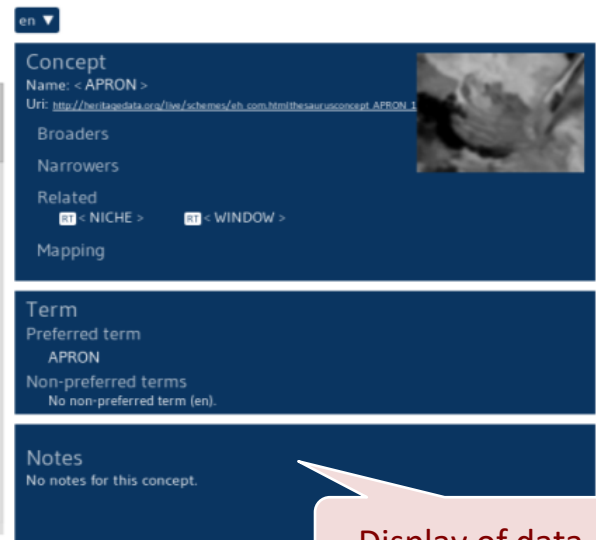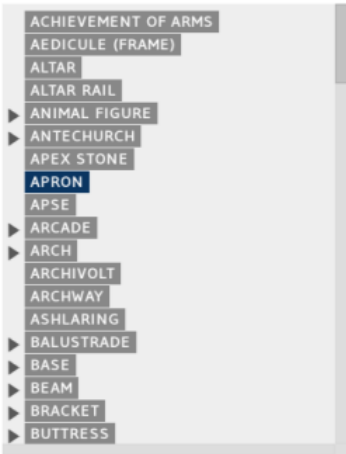
Display of data

Ontology

"today there is a demand [...] for vocabularies that enable inferencing by machines"

[ISO 25964-1]
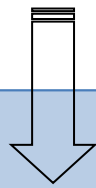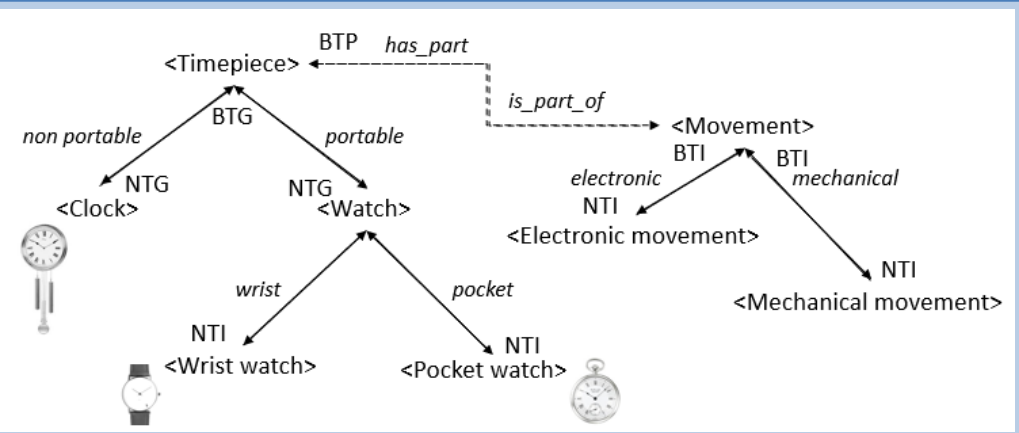
ONTOLOGY

a shared description of concepts and their relationships within a domain, formally defined, enabling automated reasoning and inferencing of new knowledge

Terminology

Linguistic

Conceptual

every term corresponds to a concept
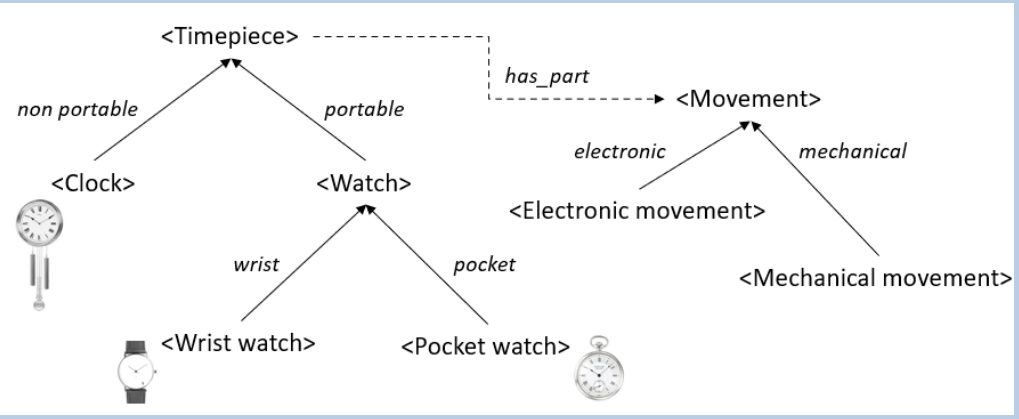
Term and Concept

term : - verbal designation of a concept (ISO 1087-1)
            - belongs to the terminology of the domain

concept : - knowledge based on a plurality of things
           - is extralinguistic
           - belongs to the ontology of the domain

ontological definition of the term : definition of the concept denoted by the term

concept
unit of thought

Semiotic Triangle

term
"verbal designation
of a concept''

(individual) object
material ☑
immaterial ☐

6
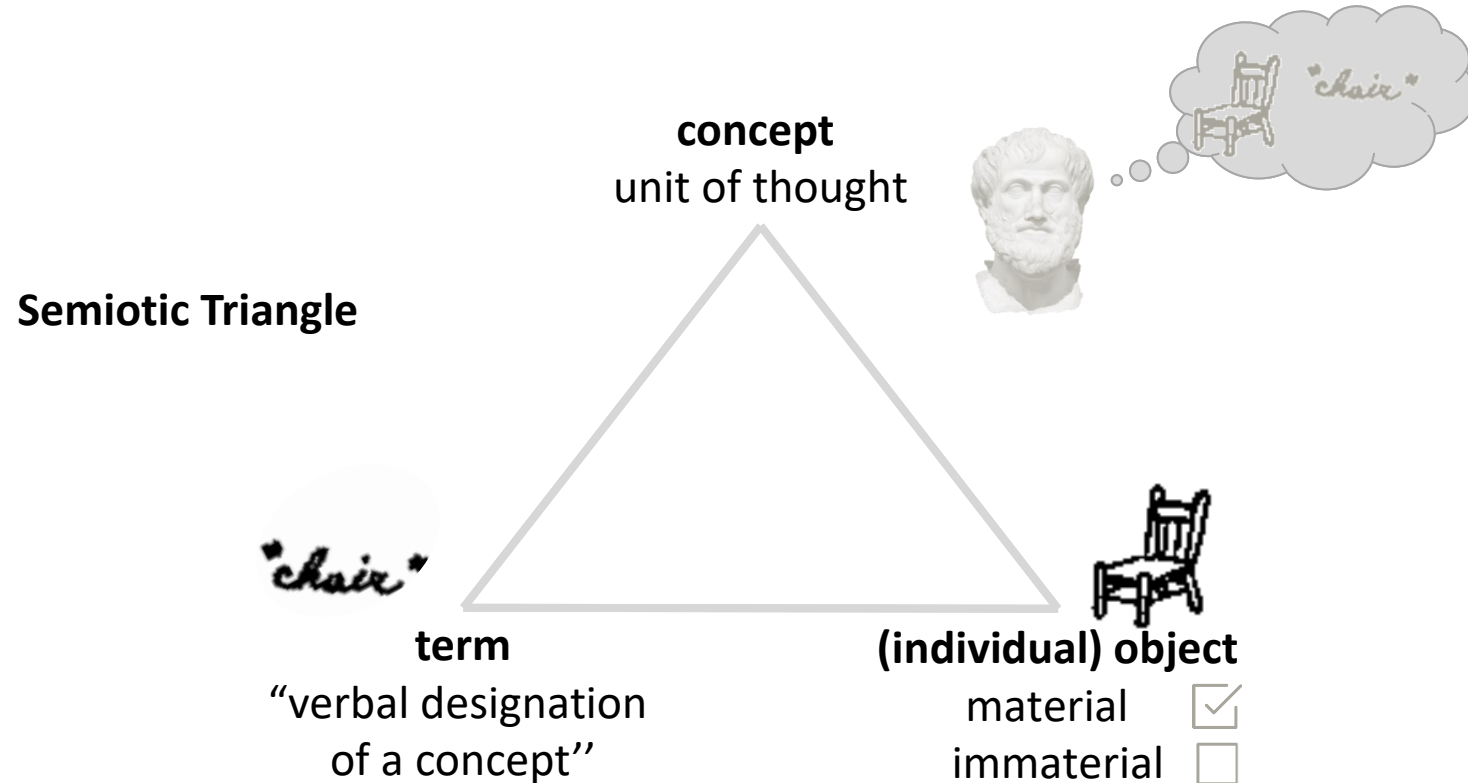
Definition of term *vs* definition of word

term : specialized lexical unit *designating* domain knowledge

Definition in terminology : emphasis on what the denoted object *is*,
i.e. on a term's extralinguistic (ontological) meaning

A. Rey (1979):
- Aristotelian definition by *genus proximum et differentia specifica*
- what is defined is not words, but terms organized in structured systems which reflect a conceptual organization of some sort, formal and consistent

Definition in lexicography : emphasis on contextual meaning variation,
i.e. meaning in discourse / usage

'You shall know a word by the company it keeps.' J. R. Firth (1957, 11)

Firth, John R. 1957. A synopsis of linguistic theory 1930–1955. In Studies in linguistic analysis, 1–32. Oxford: Blackwell

A. Rey (1979):
- concerns only the signs of a (natural) language
- does not focus on concepts and classes of things, but on word senses and classifies usage of these signs in discourse
- makes explicit the meaning(s) of words in discourse

Rey, Alain (1979) : La Terminologie, noms et notions, Paris, Presses Universitaires de France, Que Sais-je ?, nº 1780

Term and Concept

definition of thing

term „chiton" ⇢ linguistic expression of the descriptive enunciation in natural language

designation

linguistic

extra-linguistic

expression

formal definition of concept

concept<chiton> → representation of concept<chiton> by means of a descriptive enunciation
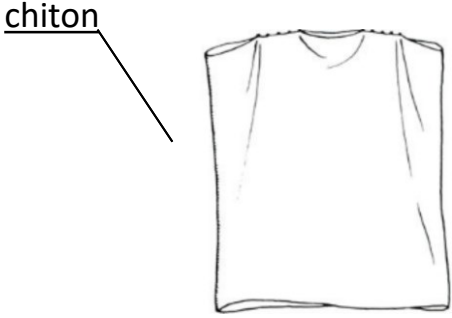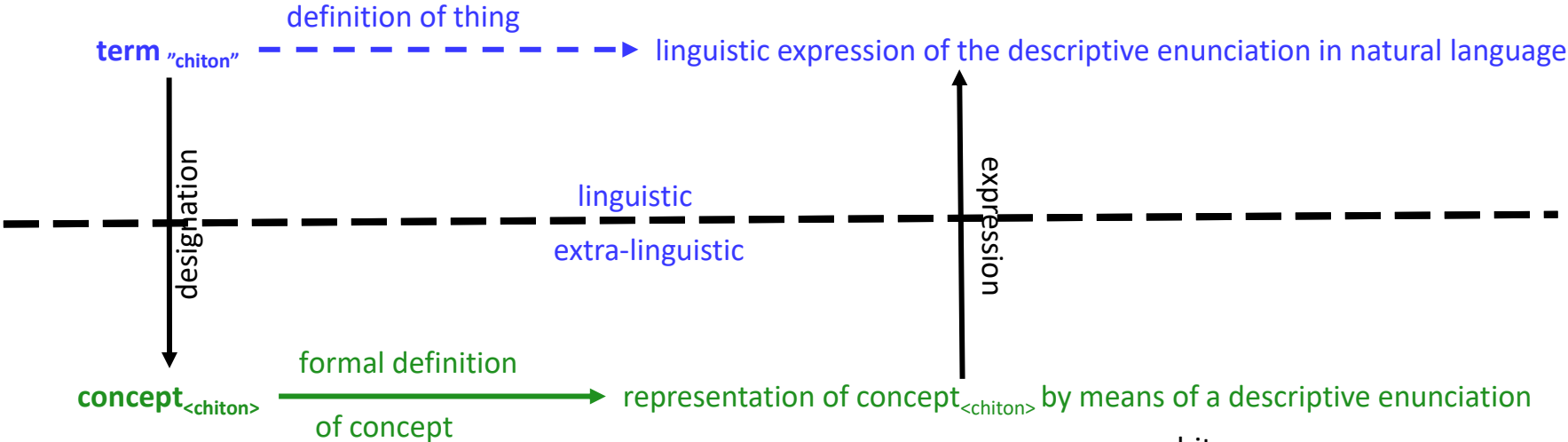
chiton

Formal definition of chiton in Tedi

<Garment without sleeves more than one part with sewing attached multiple attachments around body>

Formal definition of chiton exported in OWL/Protégé

```
<!-- http://www.semanticweb.org/ontologies/2019/2/
untitled-ontology-31#Garment_without_sleeves_more_than_one_part_attached_multiple_attachement_with_sewing_around_body -->

<owl:Class rdf:about="http://www.semanticweb.org/ontologies/2019/2/
untitled-ontology-31#Garment_without_sleeves_more_than_one_part_attached_multiple_attachement_with_sewing_around_body">
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Around_body_garment"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Attached_garment"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Garment"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Garment_with_sewing"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Garment_without_sleeves"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#More_than_one_part_garment"/>
    <rdfs:subClassOf rdf:resource="http://www.semanticweb.org/ontologies/2019/2/untitled-ontology-31#Multiple_attachment_garment"/>
    <note xml:lang="en">LSJ A. garment worn next the skin, tunic. I. in early times, only of a man&apos;s tunic</note>
    <status xml:lang="en">prefered</status>
    <rdfs:comment xml:lang="en">Sleeveless garment consisting of more than one part sewn together and fastened on the shoulders.</rdfs:comment>
    <rdfs:label xml:lang="en">chiton</rdfs:label>
    <rdfs:label xml:lang="fr">chiton</rdfs:label>
</owl:Class>
```

SubClass Of ⊕
- attached
- Garment_around_body
- Garment_with_sewing
- Garment_without_sleeves
- More_than_one_part_garment
- multiple_attachments

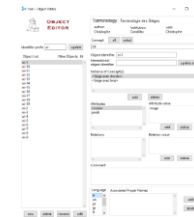# Linking terminologies via a shared ontology

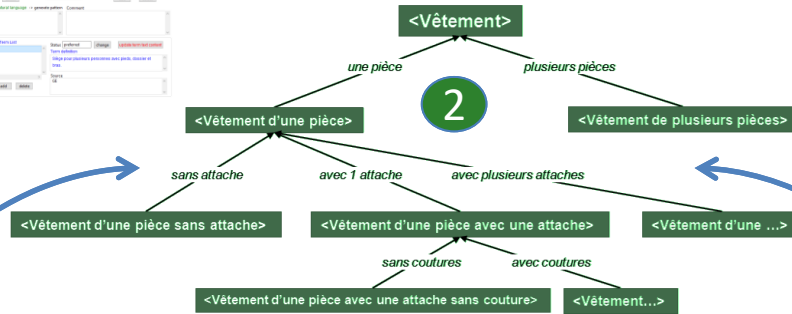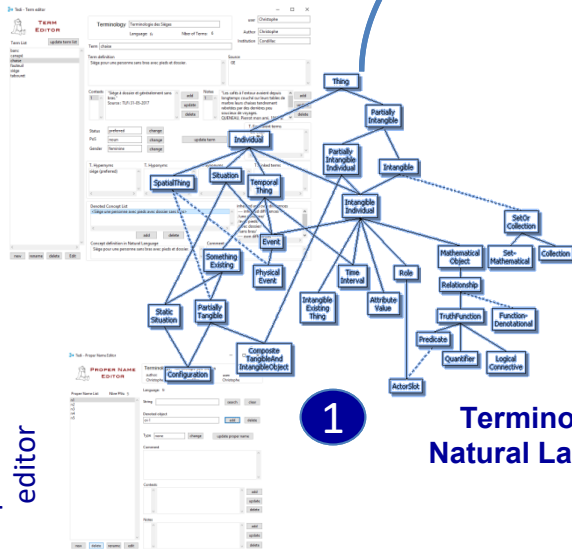**Concept editor**

Object editor

Shared Ontology

<Vêtement>

une pièce   *plusieurs pièces*

②

<Vêtement d'une pièce>   <Vêtement de plusieurs pièces>

sans attache   *avec 1 attache*   *avec plusieurs attaches*

<Vêtement d'une pièce sans attache>   <Vêtement d'une pièce avec une attache>   <Vêtement d'une …>

sans coutures   *avec coutures*

<Vêtement d'une pièce avec une attache sans couture>   <Vêtement…>

Term editor

Term Editor

TEDI   **ontoTerminology EDItor**
www.ontoterminology.com

Standard Vers. 2.5

login

Proper names editor

①

Terminology in Natural Language x

①
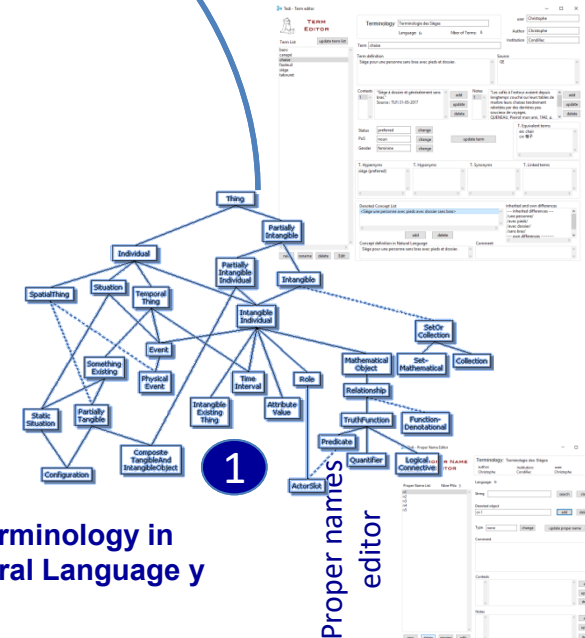
Terminology in Natural Language y

Proper names editor

Tedi : ontoTerminology editor

Editor of multilingual ontoterminologies

Concepts & Objects

Terms & Proper Names

Ontologies for Digital Humanities http://o4dh.com/

Methodology

Resources :
- **Corpus**
- **Dictionaries**
- **Thesauri**
- **…**

List of terms

Axes of analysis

Characteristics :
- essential
- descriptive

Putting into relation

term ⟷ concept

"zeira" ⟷

Linguistic Dimension

√ "term"
√ **Definition of term (natural language)**
√ **Connotative information**

√ **Terminological relations**

Conceptual Dimension

√ **<Denomination of concept>**

√ **Definition of concept :**
- formal
- constructive

√ **Conceptual Relations**

Term editor

generation of a pattern of definition in NL

status POS gender

Tedi - Term editor

web help

Term Editor

Terminology   Greek Garment

Language: en   Last update: 28 août 2018

user   Christophe
author   Maria
institution   Condillac

Term List   Number of Terms: 254

search   clear

ependytes
ephamma
ephaptis
ephestris
epiblema
epichrysa pasmatia
epiporpama
epiporpema
epiporpoma
epitektos
epomydes
errammena
esthema
esthes
esthos
etruscan dress
exastis
exomis
fan
fancy drress
fibula
fringe
fur
gallic dress
garment
gloves
haliporphyros
halourgema

Term   exomis

update text content   proper name list editor

Term definition   -> generate pattern definition   ?

Short and non-pleated garment for man, usually worn around the body directly on the skin, this sleeveless garment consists of two sewn pieces of cloth attached on the left shoulder, leaving naked the right shoulder and part of the chest.

Status   preferred   change
PoS   noun   change
Gender   none   change

notes

Source

contexts

Contexts   Xenophon Memorabilia 2.7.5.5 Τί γάρ; ἔφη, ἱμάτιά τε ἀνδρεῖα καὶ γυναικεῖα καὶ χιτωνίσκοι καὶ χλαμύδες καὶ ἐξωμίδες; Σφόδρα γ', ἔφη, καὶ πάντα ταῦτα χρήσιμα.

add   update   delete

Notes   LSJ s.v. ἐξωμ-ίς , ίδος, ἡ, ⟨ὠμος⟩ A.= χιτὼν ἑτερομάσχαλος, tunic with one sleeve, leaving one shoulder bare, worn by slaves and the poor, Id.V.444 (cf. Sch.ad loc.), Lys.662, X.Mem. 2.7.5, etc.; by Laconizers, Ael.VH9.34;

add   update   delete

Orthographic variations   exomis

new   rename   delete   comment

Inflected forms

new   rename   delete   comment

T. Equivalent terms   more

fr: exomide
gr: ἐξωμ-ίς

terminological equivalents

T. Hypernyms   garment (preferred)

T. Hyponyms

T. Synonyms

T. Linked terms

terminological synonyms

terminological hypernyms

Denoted Concept List

<Garment male around body more than one part with sewing without sleeves

inherited and own differences

--- inherited differences ---
/with sewing/
/male/
/around body/
--- own differences --------
/more than one part/

add   delete   fast

denoted concept

Concept definition in Natural Language   Comment

male, around body, more than one part, with sewing, without sleeves, attached, one attachment, knee-length,

12

Concept editor

generic concepts inferred and declared

essential characteristics inherited and declared

explicit concept name

descriptive characteristics inherited and declared

relations

terms

Putting into relation « term » - <Concept>

Putting into relation

term ⟷ concept

"zeira" ⟷ [icons]

3
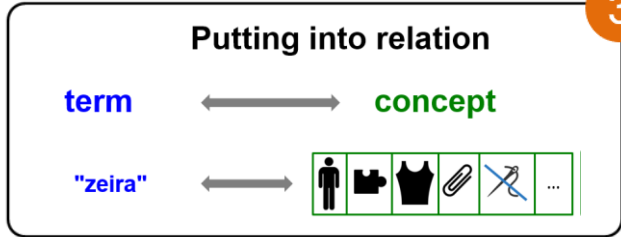
a term denotes a set of essential characteristics « stable » enough to carry a name in language

list of concepts possessing the selected characteristics

Tedi Dialog

SELECT A DIFFERENCE LIST

Matched concept list: 2

Difference list	Selected diff. list		concept diff. list
/ankle-length/ /knee-length/ ------------------- /more than one part/ /one part/ /pleated/ /unpleated/ ------------------- /with sewing/ /without sewing/ ------------------- /attached/ /wrapped/ ------------------- /over/ /under/ -------------------	/for man/ /around body/ /without sleeves/	exact match --------- --------------------------- <Garment male around body more than one part with sewing without sleeves attached one <Garment without sleeves one part without sewing attached one attachment male around b	/without sleeves/ /one part/ /without sewing/ /attached/ /one attachment/ /for man/ /around body/

[select concept]   [cancel]   [create concept]

Language	Associated Term List	Term definition
en fr ar cn de	chlamys	Garment for men without sleeves, consisting of one part, without sewing, attached by means of a fibula, with one point of attachment.

[->]   [<-]

list of possible essential characteristics (compatibility, dependency)

list of terms denoting the selected concept

14

Object editor

Exports

Different export formats :

- **Exchange and sharing of ontoterminologies**

- **Exploitation for different applications**

- **CSV, HTML, RDF/OWL (Protégé)**

http://www.ontologia.fr/OTB/SPARQL_Queries.pdf

Chlamys in Tedi

generation of a pattern of definition in NL

status
POS
gender

notes

contexts

Tedi - Term editor

web help

Term Editor

Terminology Greek Garment

Language: en   Last update: August 28, 2018

user Maria
author Maria
institution Condillac

Term List   Number of Terms: 2

chlam   search   clear

chlamydion
chlamys

Term chlamys   update text content   proper name list editor

Term definition -> generate pattern definition   [?]

Garment for men without sleeves, consisting of one part, without sewing, attached by means of a fibula, with one point of attachment.

Status preferred   change
PoS noun   change
Gender none   change

Source

Contexts
1   συναρμόττοντας, καὶ γῆ μὲν οὐ παρῆν λευκή, τῶν δὲ ἀλφίτων λαμβάνοντες ἐν πεδίῳ μελαγγείῳ κυκλοτερῆ κόλπον ἦγον, οὗ τὴν ἐντὸς περιφέρειαν εὐθεῖαι βάσεις ὥσπερ ἀπὸ κρασπέδων εἰς σχῆμα   add   update   delete

Notes
1   al. (iii B. C.), PLond.2.402 ii 16 (ii B. C.), X.Eph.1.8 cod., POxy.1288.24 (iv A. D.). (For its shape cf. Plu. Alex.26.)   add   update   delete

Orthographic variations
chlamys

new
rename
delete
comment

Inflected forms

new
rename
delete
comment

T. Equivalent terms   more

T. Hypernyms
garment (preferred)

T. Hyponyms

T. Synonyms

T. Linked terms

Denoted Concept List
<Garment without sleeves one part without sewing attached one attachment m

inherited and own differences

add   delete   fast

Concept definition in Natural Language

Comment

new   rename   delete   edit term

Chlamys in Protégé

OTV - OntoTerminology Vocabulary

http://ontoterminology.com/export

Description: Term

Equivalent To ⊕

SubClass Of ⊕
- OTVCore

General class axioms ⊕

SubClass Of (Anonymous Ancestor)

Instances ⊕

Target for Key ⊕

Disjoint With ⊕
- Concept
- AxisOfAnalysis
- Attribute
- ProperName
- Difference
- Object
- Relation

Class hierarchy: Term

- owl:Thing
  - OTVCore
    - Attribute
    - AxisOfAnalysis
    - Concept
    - Difference
    - Object
    - ProperName
    - Relation
    - Term

Annotations: Term

Annotations ⊕

rdfs:label
Term

rdfs:comment
The class of OTV Terms

rdfs:isDefinedBy
http://www.ontologia.fr/OTB/otv.rdf
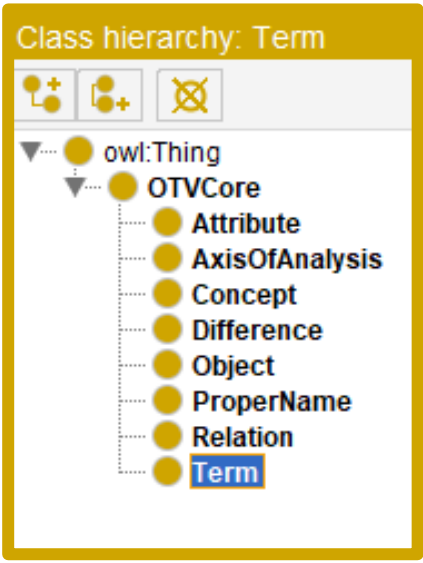
```
1   <?xml version="1.0" encoding="utf-8"?>
2   <!-- Ontoterminology vocabulary (otv) -->
3   <!-- Concept Theory of Terminology (C.T.T.) -->
4   <!-- http://ontoterminology.com/ -->
5
6   <!-- 24th December 2020 -->
7
8 ▼ <!-- *************************************************
9        |||||||||||||||   OTV VOCABULARY
10       *************************************************
11
12      The OTV Vocabulary is defined as an OWL Ontology including
13      OWL Classes, OWL Object Properties, and OWL Annotation Properties
14
15 ▼    == OWL Classes ==
16
17 ▼    otv:Concept
18          comment: an ontoterminology concept is an instance of the otv:Concept class
19          extension = { ontoterminology concepts }
20
21      otv:AxisOfAnalysis
22          extension = { ontoterminology axes of analysis}
23
24      otv:Difference
25          extension = { ontoterminology differences }
26
27      otv:Relation
28          extension = { ontoterminology relations }
29
30      otv:Attribute
31          extension = { ontoterminology attributes }
32
33      otv:Object
```

Object property matrix:

Fit columns to content

Object Property

- owl:topObjectProperty
  - difference
  - instanceOf
  - isA
  - denotedByProperName
  - denotedByTerm
  - denotedConcept
  - denotedObject
  - belongsToAxis
  - ownDifference
  - containsDifference
  - inheritedDifference

Domain	Range
Concept	Difference
Object	Concept
Concept	Concept
Object	ProperName
Concept	Term
Term	Concept
ProperName	Object
Difference	AxisOfAnalysis
Concept	Difference
AxisOfAnalysis	Difference
Concept	Difference

Greek garment

Tedi Onto-Dictionary on "Greek Garment" (en)

Date: November 16, 2021 - Time: 18:04:23 - Version: 2.5 - www.ontoterminology.com/tedi

search: [   ]

- allix
- anaxyrides
- chiton
- chiton arrhaphos
- chiton cheiridotos
- chiton chortaios
- chiton orthostadios
- chiton poderes
- chitoniskos
- chlaina
- chlamys
- chlamys ephestris
- cloak
- ependytes
- exomis
- garment
- himation
- himation nymphikon
- kandys
- peplos

himation

Definition: Sleeveless Garment consisting of one piece of cloth with sewing wrapped around body.

Status: preferred

Context(s):

1) IG II² 1514, line 47 ἱμάτ[ι]ον ἀνδρεῖον, Ἀργονιὰς ἀνέθηκεν· .

2) IG II² 1514, line 17 Ναυσὶς ἱμάτιον γυναικεῖον πλατυαλουργὲς περι[κυ]μάτιον· .

3) Aristoph. Eccl. 333
Βλέπυρος
οὔκ, ἀλλὰ τῆς γυναικὸς ἐξελήλυθα
τὸ κροκωτίδιον ἀμπισχόμενος οὐνδύεται.

Ἀνήρ
τὸ δ' ἱμάτιόν σου ποῦ 'στιν;

Aristophanes, Ecclesiazusae
F.W. Hall and W.M. Geldart, Ed
Accessible online:
http://www.perseus.tufts.edu/hopper/text?doc=Perseus:abo:tlg,0019,010:333&lang=original

4) Aristoph. Cl. 179
Strep.
Well. What then did he contrive for provisions?

Dis.
He sprinkled fine ashes on the table, and bent a little spit, and then took it as a pair of compasses and filched a cloak from the Palaestra.
Accessible online: http://www.perseus.tufts.edu/hopper/text?doc=Perseus:abo:tlg,0019,003:179&lang=original

Note(s):

1) LSJ (Perseus) ἱμάτιον [ῐ_μα^-], τό, in form a Dim. of ἷμα (i.e. εἷμα),
A.a piece of dress; in usage always of an outer garment, formed by an oblong piece of cloth worn above the χιτών, Ar.Ec.333, IG22.1524.205, al., D.24.114, etc.; "λαμπρὸν ἱ. ἔχων" Epich.[277]; θοἱμά crasis for τὸ ἱμ-, Ar.Nu.179, al.; "θοἱμάτιον καθεὶς ἄχρι τῶν σφυρῶν" D.19.314; "ἱματίων ἕλξεις" Pl.Alc.1.122c; of the Roman toga, Plu.Brut.17, Cor.14: hence ἐν ἱματίοις, of civilians,= togati, Id.Cam.10; Ἑλληνικόν, opp. the toga, Luc.Merc.Cond.25.
2. ἱμάτια, τά, generally, clothes, Hdt.1.9, Pl.Plt.279e, D.27.10; by crasis, "θαἱμάτια" Hippon.83.1, Ar.V.408 (lyr.), Lys.1093; of grave-clothes, ἐν εἱμ. τρισὶ [θάπτειν] IG 12(5).593.2 (Iulis, v/iv B.), cf. Plu.So
3. metaph., "ἱμάτια πόλεως τείχη" Eust.1871.50.
II. generally, cloth, Hdt.4.23, D.S. 14.109, Ael.VH8.7, Iamb.VP21.100. [ῐμ- in Att. Inscrr., IG12.427, 386.18, 22.1514.16, etc.; εἱμ- ib.12(5) l.c. (εμ- Iap.), 5(1).1390.16, al.(Andania, i B.C.), which is easie explain, v. εἷμα, εἱματισμός.]
Accessible online: http://www.perseus.tufts.edu/hopper/morph?l=i%28ma%2Ftion&la=greek&can=i%28ma%2Ftion0#lexicon

Equivalent(s):
- fr: himation (none)
- gr: ἱμάτιον (preferred)

Concept: <Garment without sleeves one part without sewing wrapped around body>
essential characteristic(s): /one part/, /without sleeves/, /around body/, /without sewing/, /wrapped/,
a kind of: <Garment without sewing>, <Garment around body>, <Garment without sleeves>, <One part garment>,

Web reference: http://arachne.uni-koeln.de/item/marbilder/4803541
Illustration: 602063 attische Lekythos des Theseus-Malers - 000300148705, Scene 1: Komos

Definitions by *genus et differentia*

- **Volute-krater definition in the Beazley Archive**

Volute-krater

genus

essential characteristic

instance

The volute-krater is named after its handles. The François Vase is a famous and early example, but the typical Athenian form occurs only later in the sixth century, with the handles tightly curled so that they look like the volutes on Ionic columns. The shape is also found in metal. Over the course of the fifth and fourth centuries, examples become slimmer, and Apulian volute-kraters from South Italy are particularly elaborate.

Source: https://www.beazley.ox.ac.uk/tools/pottery/shapes/volute.htm

Athenian red-figure volute-krater ht. 46.5cm.

Ontological definition of terms: what for?

✔ human-readable terminologies become interoperable (W3C)

✔ intuitive, tool-assisted concept theory for terminology building

✔ term definitions can be checked for consistency and completeness

✔ improved search options: on concepts, terms, characteristics

✔ the characteristics-based definition of concepts (and terms) provides a common basis for domain experts to agree on

✔ way of thinking and ease-of-use for domain experts is taken into account
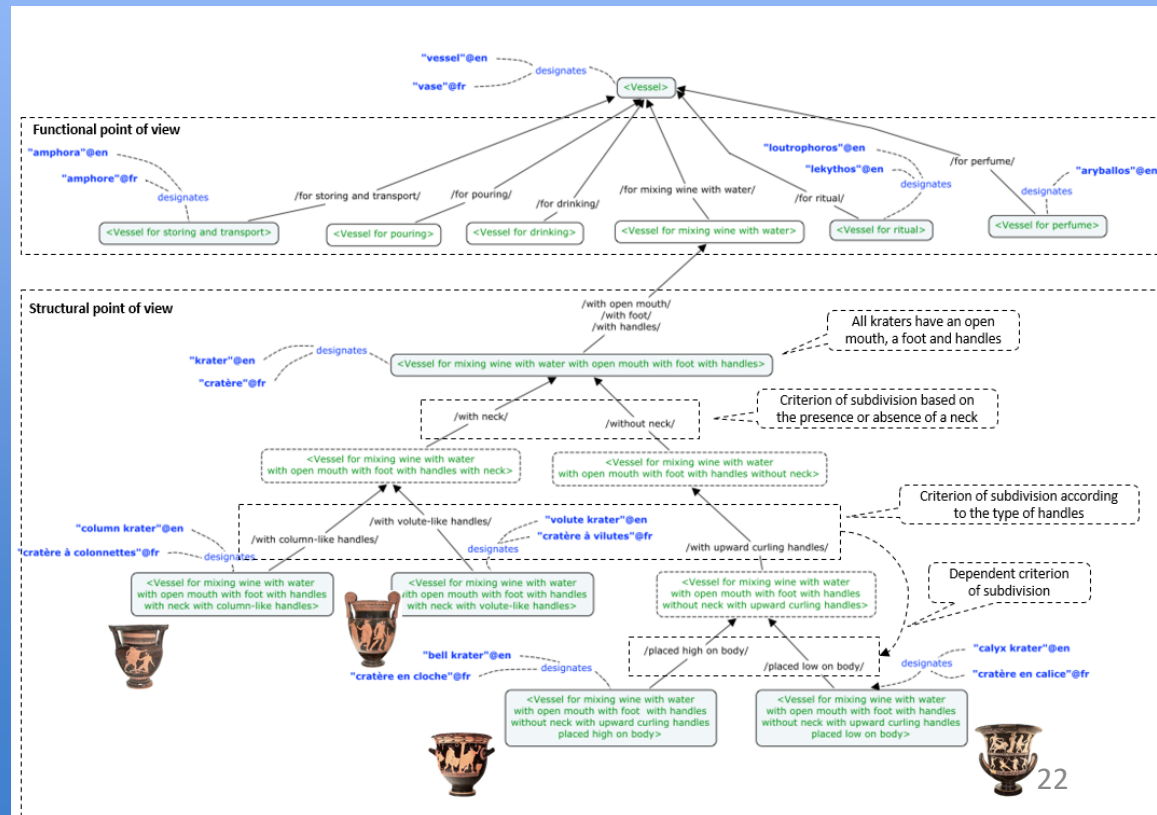
search: [   ]

- amphora
- bell krater
- belly amphora
- calyx krater
- column krater
- hydria
- krater
- lekythos
- neck amphora
- panathenaic amphora
- panathenaic prize amphora
- pelike
- type A amphora
- type B amphora
- type C amphora
- vase
- volute krater

calyx krater

Definition: Krater without neck, with upward curling handles placed low on the body.

Status: preferred

Source: Expert

Note(s):

1) "The handles of the calyx-krater are placed low down on the body, at what is termed the cul. Their upward curling form lends the shape an appearance reminiscent of the calyx of a flower, hence the name. The earliest known example was possibly made by Exekias in the third quarter of the sixth century. It continues to be produced, mainly in red-figure, becoming more elongated over the course of the fifth and fourth centuries." Classical Art Research Centre, University of Oxford. Accessible online: https://www.beazley.ox.ac.uk/tools/pottery/shapes/calyx.htm 2020 05 08

2) "The calyx-krater is one of the largest Attic vases, and is reminiscent of a bell-shaped flower. It is named for its convex lower body that has the configuration of the calyx of a flower, while the flaring upper body is suggestive of the bell-shaped corolla. It has large, robust, upturned handles situated opposite one another on the cul. The calyx-krater appears in Attic black-figure after the middle of the 6th c. BCE and is a popular shape until the end of red-figure."
http://kerameikos.org/id/calyx_krater

Equivalent(s):
- fr: cratère en calice (preferred)
- gr: κρατήρας καλυκοειδής (preferred)

Concept: <Vessel for mixing wine with water with handle(s) with foot with open mouth without neck with upward curling handles upward curling handles placed low on the body>

essential characteristic(s): /vessel/, /for mixing wine with water/, /with handle(s)/, /with foot/, /with open mouth/, /without neck/, /with upward curling handles/, /upward curling handles placed low on the body/,

a kind of: <Vessel for mixing wine with water with handle(s) with foot with open mouth without neck>,

linked to: <Place>, <Part upward curling handle>, <Foot>, <Handle>,

foaf:depiction http://ontologia.fr/Images/GreekVase/Beazley-Calyx-Krater.png
foaf:depiction http://www.beazley.ox.ac.uk/images/pottery/shapes/bellcropped.jpg
rdfs:seeAlso http://www.beazley.ox.ac.uk/tools/pottery/shapes/calyx.htm
skos:exactMatch http://www.wikidata.org/entity/Q15407662
skos:exactMatch http://vocab.getty.edu/aat/300198858
skos:exactMatch http://kerameikos.org/id/calyx_krater

Web reference: Beazley Collection - Classical Art Research Centre - University of Oxford
Illustration: Calyx krater from Classical Art Research Centre (Beazley)

http://ontoterminology.com/wp-content/uploads/2020/11/krater.en_.html

Objects of this type: 63

Beazley-16377

foaf:depiction http://ontologia.fr/Images/GreekVase/Beazley-16377.png
foaf:depiction http://www.beazley.ox.ac.uk/XDB/ASP/imageViewerV2.asp?filename=\Vases\SPIFF\Images200\Unatt75to99\16377.A1\\image.tif
rdfs:seeAlso http://www.beazley.ox.ac.uk/record/3FC608C0-97AA-470C-A2FB-4815FB62EB7B
rdfs:seeAlso http://ark.dasch.swiss/ark:/72163/080e-75aaae260b2e1-c

Chinese Ming and Qing pottery

Date: November 16, 2021 - Time: 18:01:01 - Version: 2.5 - www.ontoterminology.com/tedi

search:

- arrow vase
- arrow vase I
- arrow vase II
- awl-handle vase
- cong-shaped vase
- vase
- vessel

arrow vase
Definition: Vase with long neck and pierced handles.
Status: preferred

Equivalent(s):
- zh: 贯耳瓶 (preferred)

Concept: <Vessel in clay for decoration with one mouth with neck with long neck with handles with pierced handles without lid without ring>
essential characteristic(s): /in clay/, /for decoration/, /with one mouth/, /with neck/, /with long neck/, /with handles/, /with pierced handles/, /without lid/, /without ring/,
a kind of: <Vessel in clay for decoration with one mouth>,

rdfs:seeAlso https://art.thewalters.org/detail/26828/arrow-vase/
rdfs:seeAlso http://masterpieces.asemus.museum/masterpiece/detail.nhn?objectId=11005

Objects of this type: 1
oi-1
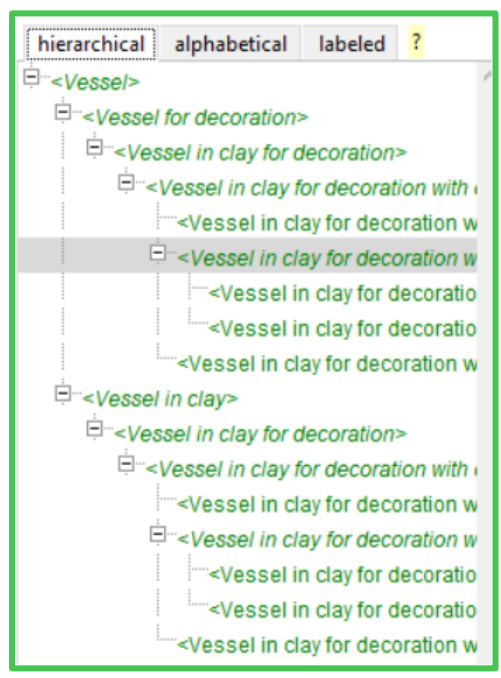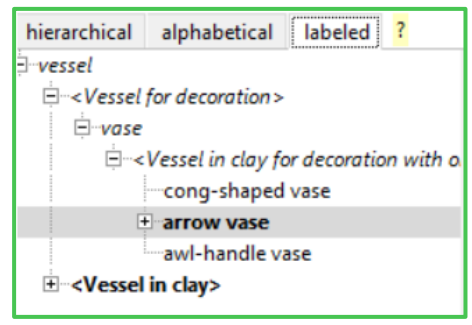rdfs:seeAlso http://masterpieces.asemus.museum/masterpiece/detail.nhn?objectId=11005

| alphabetical | hierarchical | ? |

- arrow vase
- arrow vase I
- arrow vase II
- arrow vase III
- awl-handle vase
- cong vase
- cong-shaped vase
- cup
- cylindrical vase
- double-gourd vase
- double-gourd vase I
- double-gourd vase II
- double-gourd vase III
- double-tube vase
- elephant leg vase
- flower-mouth vase

Term 贯耳瓶   check period | begin period | 0
                            ? ok | end period | 0
Term definition <- generate definition pattern ?
花瓶 with one mouth, with neck, with long neck, with handles, with pierced handles, without lid, without ring.

Formal ? <Vessel in clay for decoration with one mouth> + /with neck/ + /with long neck/ + /with handles/ + /with
Definition pierced handles/ + /without lid/ + /without ring/

| alphabetical | hierarchical | ? |

- 容器
  - 花瓶
    - 贯耳瓶
      - 贯耳瓶I
      - 贯耳瓶II
  - 杯
  - 贯耳瓶III

| hierarchical | alphabetical | labeled | ? |

- vessel
  - <Vessel for decoration>
    - vase
      - <Vessel in clay for decoration with o...
        - cong-shaped vase
        - **arrow vase**
        - awl-handle vase
  - <Vessel in clay>

| hierarchical | alphabetical | labeled | ? |

- <Vessel>
  - <Vessel for decoration>
    - <Vessel in clay for decoration>
      - <Vessel in clay for decoration with ...
        - <Vessel in clay for decoration w...
          - <Vessel in clay for decoration w...
            - <Vessel in clay for decoratio...
            - <Vessel in clay for decoratio...
            - <Vessel in clay for decoration w...
  - <Vessel in clay>
    - <Vessel in clay for decoration>
      - <Vessel in clay for decoration with ...
        - <Vessel in clay for decoration w...
        - <Vessel in clay for decoration w...
          - <Vessel in clay for decoratio...
          - <Vessel in clay for decoratio...
          - <Vessel in clay for decoration w...

Thank you!

maria.papadopoulou@univ-savoie.fr