



UNIVERSITÀ
CATTOLICA
del Sacro Cuore



The LiLa Knowledge Base in a Nutshell

The LiLa Team

LiLa Tutorial

*2nd International Conference of the European Association for Digital
Humanities (EADH 2021)*

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Introduction and fundamentals

- LiLa: mission and architecture

LiLa now!

- Lemma Bank and Lexical Resources

- Textual Resources

- Text Linker

- To sum up

Tutorial

- What, How and Who

- Programme & Communication Tools

Introduction and fundamentals

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What, How and Who

Programme & Communication Tools

We have built and collected (for Latin and other languages):

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- ▶ Textual Resources

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Scattered and unconnected

ERC Consolidator Grant 2018-2023

A collection of multifarious, interoperable linguistic resources described with the same vocabulary for knowledge description (by using common data categories and ontologies)

Interlinking as a Form of Interaction



Infrastructure



Interoperability

The Linked Data Principles

...just to be FAIR



- ▶ Use URIs for things (e.g. an entry in a lexicon, a token in a corpus)

The Linked Data Principles

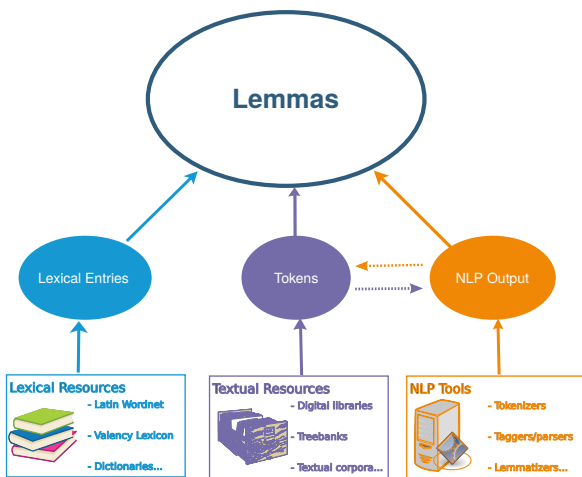
...just to be FAIR



- ▶ Use URIs for things (e.g. an entry in a lexicon, a token in a corpus)
- ▶ Use HTTP URIs to allow people (and machines) to look up things

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- ▶ Use HTTP URIs to allow people (and machines) to look up things
- ▶ Use web standards to represent/query (meta)data, such as RDF and SPARQL
- ▶ Include links to other URIs



LiLa reflects the annotation granularity of the resources it connects

No data enrichment or further analysis is performed
...but we can help you to enrich your (meta)data

LiLa: Requirements

Connecting resources in the Knowledge Base



To enter the LiLa Knowledge Base, a textual/lexical resource must be:

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- ▶ Lemmatised

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- ▶ Online!

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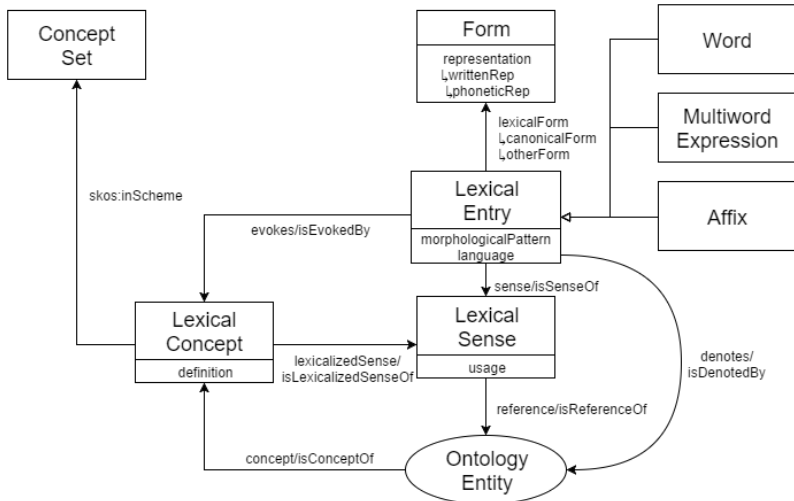
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LiLa and Ontolex Lemon

A *de facto* W3C standard for publishing lexical data as LLOD



Lemma *admiror* 'to admire, to respect'

<http://lila-erc.eu/data/id/lemma/87541>

- ▶ Lemma Bank
- ▶ A derivational lexicon (Word Formation Latin)
- ▶ A polarity lexicon (LatinAffectus)
- ▶ An etymological dictionary (De Vaan)
- ▶ A Valency Lexicon (Latin Vallex)
- ▶ A manually checked subset of the Latin WordNet

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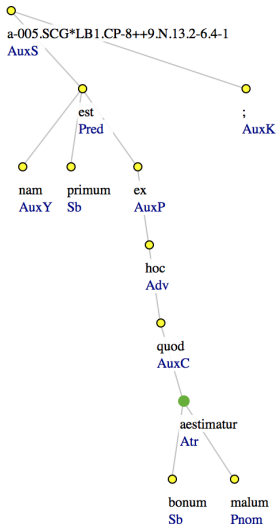
Programme & Communication Tools

(Annotated) Corpora in LiLa

Source: The *Index Thomisticus* Treebank (original scheme)

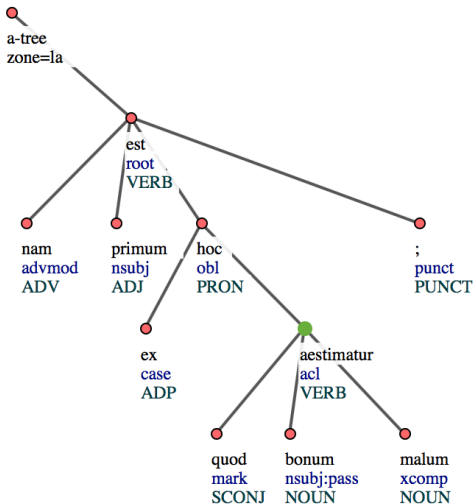
*nam primum est ex hoc
quod bonum **aestimatur**
malum;* (IT-TB: SCG, lib. 1,
cap. 89, n. 13)

*for the first arises because
the good **is judged** to be
evil;* (Trans. Anton C. Pegis)



(Annotated) Corpora in LiLa

Source: The *Index Thomisticus* Treebank (UD scheme)



Token *aestimatur*

`http://lila-erc.eu/lodview/data/corpora/
ITTB/id/token/005.SCG*LB1.CP-8++9.N.13.
2-6.4-1W8`

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LILA: TEXT LINKER (β) ©

LiLa
Linking Latin

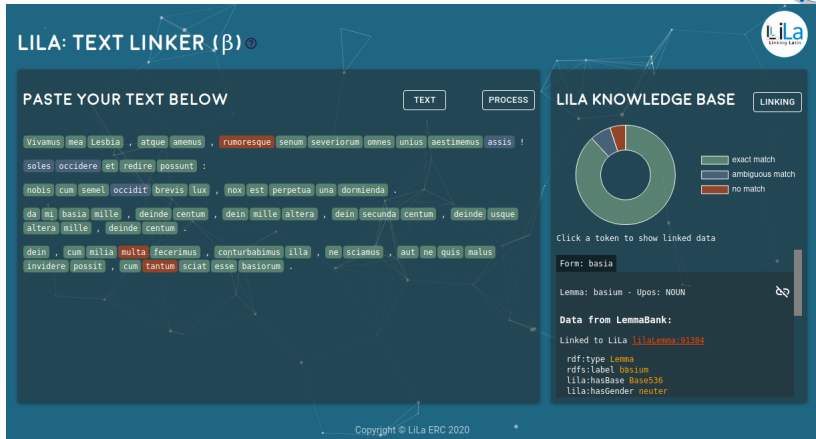
PASTE YOUR TEXT BELOW

TEXT PROCESS

Vivamus mea Lesbia, atque amemus,
rumoresque senum severiorum
omnes unius aestimemus assis!
soles occidere et redire possunt:
nobis cum semel occidit brevis lux,
nox est perpetua una dormienda.
da mi basia mille, deinde centum,
dein mille altera, dein secunda centum,
deinde usque altera mille, deinde centum.
dein, cum milia multa fecerimus,
conturbabimus illa, ne sciamus,
aut ne quis malus invidere possit,
cum tantum sciat esse basiorum. |

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Figure: LiLa's Text Linker



LILA: TEXT LINKER (β)

PASTE YOUR TEXT BELOW [TEXT] [PROCESS]

Vivamus nea Lesbia, atque amemus, rumoresque senum severiorum omnes unius aestinemus assis !
soles occidere et redire possunt :
nobis cum semel occidit brevis lux, nox est perpetua una dormienda .
da mi basia mille, deinde centum, dein mille altera, dein secunda centum, deinde usque
altera mille, deinde centum .
dein, cum milia multa fecerimus, conturbabimus illa, ne sciamus, aut ne quis malus
invidere possit, cum tantum sciat esse basiorum .

LILA KNOWLEDGE BASE [LINKING]

Click a token to show linked data

Form: basia

Lemma: basium - Upos: NOUN

Data from LemmaBank:

Linked to LiLa [lilaLemma:91294](#)

rdf:type Lemma
rdfs:label basium
lila:hasBase Base536
lila:hasGender neuter

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Figure: Text processed against the LiLa Knowledge Base

<http://lila-erc.eu:8080/LiLaTextLinker/>

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► Corpora

- ✓ Index Thomisticus Treebank (*Summa contra Gentiles*): ca. 450,000 nodes
- ✓ Dante Search (700th death anniversary): ca. 46,000 tokens
- ✓ *Querolus sive Aulularia*: ca. 17,000 tokens
- PROIEL and LLCT treebanks
- Computational Historical Semantics, LASLA and CroALa Corpora

► Lexica

- ✓ Word Formation Latin: ca. 46,000 lemmas (Classical Latin)
- ✓ Etymological dictionary of Latin & the other Italic Langs.: ca. 1,400 entries
- ✓ LatinAffectus: ca. 2,300 entries
- ✓ Index Graecorum Vocabulorum in Linguam Latinam: ca. 1,800 entries
- ✓ Latin WordNet: ca. 1,000 manually checked entries
- ✓ Latin Vallex 2.0: Valency Lexicon
- Lewis & Short Dictionary

► NLP tools

- ✓ LEMLAT (lemma bank): ca. 150,000 lemmas

► TOTAL: approximately 13 million triples

Query Interface, Triplestore and Linker

- ▶ Query interface; Triplestore
- ▶ Linker

Linguistic Resources. Corpora

- ▶ Index Thomisticus Treebank
- ▶ Dante Search
- ▶ *Querolus sive Aulularia*

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- ▶ **WHO-1:** anyone who wishes to publish Latin texts on the web.

- ▶ **WHAT:** to show the workflow we employ to connect a linguistic resource for Latin to the LiLa Knowledge Base, and to demonstrate the way in which LiLa can be queried.
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- ▶ **WHO-1:** anyone who wishes to publish Latin texts on the web.
- ▶ **WHO-2:** anyone interested in the different aspects involved in the construction of a Linguistic Linked Open Data knowledge base.

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Programme (CET)

- ▶ 9:00-10:30: Introduction, quiz
- ▶ 10:30-10:45: 🍷 break
- ▶ 10:45-13:00: Hands-on work (test on Horace, *Carmina* 1), Q&A

☕ other breaks agreed together as the activity progresses

Tools

- ▶ Chat/Raise hand on Teams: for quick help
- ▶ Google Drive: for collaborative note-taking:
<https://tinyurl.com/e4upvykb>

- ▶ Repository for the tutorial:
<https://github.com/CIRCSE/Tutorials/tree/main/EADH2021>
- ▶ Collaborative notebook: <https://tinyurl.com/e4upvykb>
- ▶ TextLinker (**!!Beta Version!!**):
<http://lila-erc.eu:8080/LiLaTextLinker/>
- ▶ Repository of SPARQL queries:
<https://github.com/CIRCSE/SPARQL-queries>
- ▶ LiLa Lemma Bank query interface: <https://lila-erc.eu/query/>
- ▶ LiLa SPARQL interface: <https://lila-erc.eu/sparql/>

Thanks!

Get in touch



LiLa: Linking Latin

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