Interlinking Corpora Through Lemmas

The LiLa Knowledge Base
of Interoperable Linguistic Resources for Latin

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Research question

State of affairs

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

- Textual Resources
- Lexical Resources
- NLP Tools

Scattered and unconnected

LiLa Knowledge Base

Approach: Linked Data paradigm

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

CLARIN
Common Language Resources and Technology Infrastructure

Infrastructure

LiLa
Linking Latin

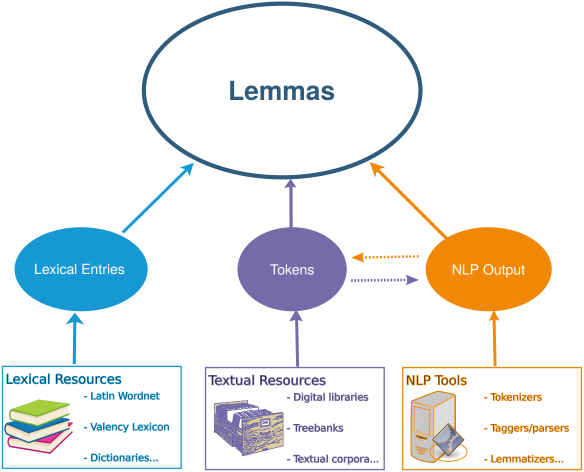
Interoperability

The Linked Data Principles
...just to be FAIR

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

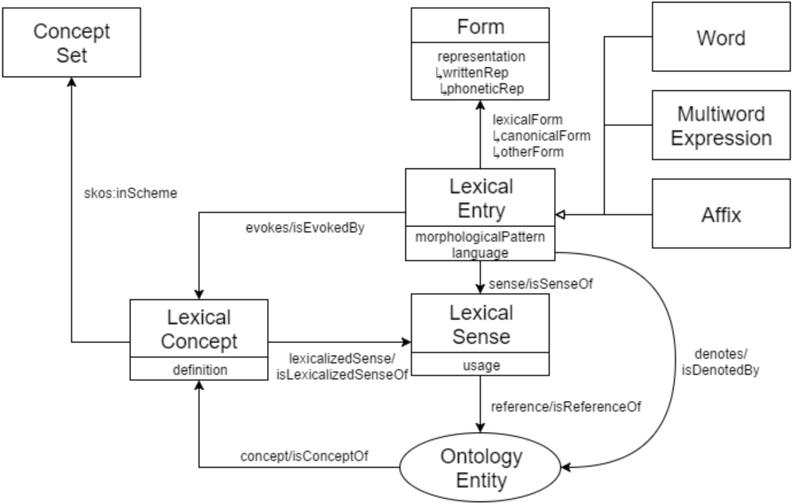
LiLa Knowledge Base

Lexically-based architecture and (meta)data sources



LiLa and Ontolex Lemon

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



Lemma Bank and Lexical Resources

The core of LiLa. Source: LEMLAT (extended)

Lemma *admiror* ‘to admire, to respect’

`https://lila-erc.eu/data/id/lemma/87541`

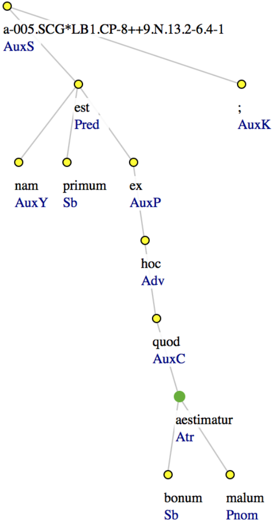
- Lemma Bank
- A derivational lexicon (Word Formation Latin)
- A polarity lexicon (LatinAffectus)
- An etymological dictionary (De Vaan)
- A Valency Lexicon (Latin Vallex)
- A manually checked subset of the Latin WordNet

(Annotated) Corpora in LiLa

A token from the *Index Thomisticus* Treebank in LiLa (original scheme)

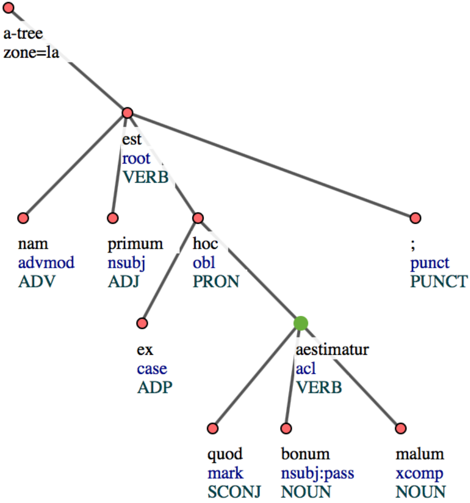
nam primum est ex hoc quod bonum ***aestimatur*** *malum*; (IT-TB: SCG, lib. 1, cap. 89, n. 13)

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



(Annotated) Corpora in LiLa

A token from the *Index Thomisticus* Treebank in LiLa (UD scheme)



(Annotated) Corpora in LiLa

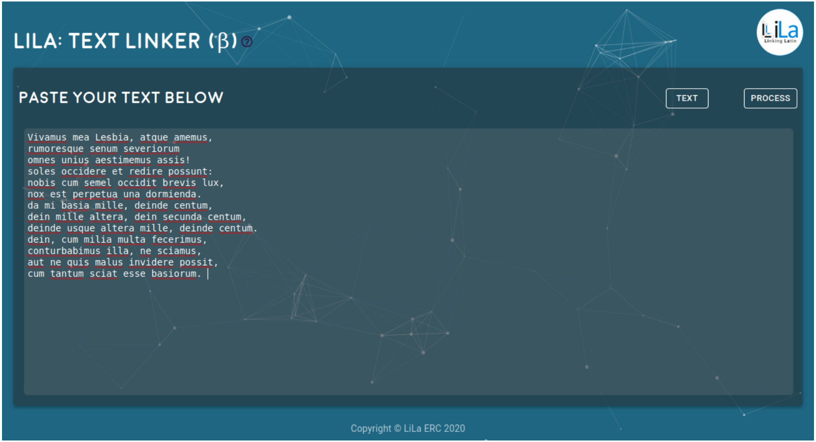
A token from the *Index Thomisticus* Treebank in LiLa

Token *aestimatur*

`https://lila-erc.eu/lodview/data/corpora/ITTB/id/token/005.SCG*LB1.CP-8++9.N.13.2-6.4-1W8`

TextLinker

Welcome screen

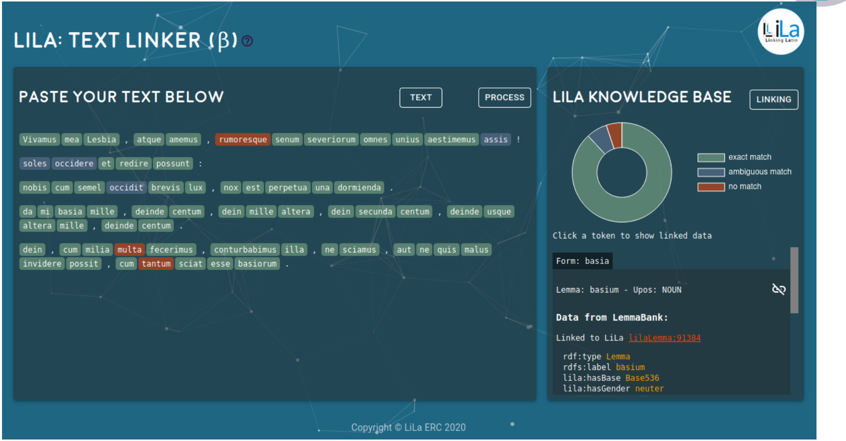


```
Vivamus mea Lesbia, atque amemus,
rumoresque senum severiorum
omnes unius aestimemus assis!
soles occidere et redire possunt:
nobis cum semel occidit brevis lux,
nox est perpetua una dormienda.
da mi basia mille, deinde centum,
dein mille altera, dein secunda centum,
deinde usque altera mille, deinde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

Figure: LiLa’s Text Linker

TextLinker

Processed output



LILA: TEXT LINKER (β)

PASTE YOUR TEXT BELOW

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 .

LILA KNOWLEDGE BASE

Click a token to show linked data

```
Form: basia

Lemma: basium - Upos: NOUN

Data from LemmaBank:

Linked to LiLa lilaLemma:91384

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

Figure: Text processed against the LiLa Knowledge Base

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

LiLa: Overview

Resources connected and upcoming connections

- **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**

LiLa: Accessing and Querying

Query Interface, Triplestore, Linker, Corpora and Lexica

Query Interface, Triplestore and Linker

- Query interface; Triplestore
- Linker

Linguistic Resources. Corpora

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

Linguistic Resources. Lexica

- Word Formation Latin
- Etymological Dictionary of Latin & the Other Italic Languages
- LatinAffectus
- Index Graecorum Vocabulorum in Linguam Latinam
- Latin WordNet
- Latin Vallex 2.0

Thanks!

Get in touch

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