Lemmi, alberi e classi

Dall'*Index Thomisticus* ai Linked Data

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Digital Spritz - Università di Verona
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Overview

The Story So Far (through the lenses of the *Index Thomisticus*)

- Analogical and Isolated …but Findable
- Digital and (Partly) Accessible

Prefixes Matter. Infrastructures and Interoperability

- CLARIN. One place fits all
- Linguistic Linked Open Data. One place interlinks all
- It Works! The LiLa Knowledge Base

Conclusions …and Hopes for the Future

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Millions of Punched Cards

Analogical and isolated …but Findable

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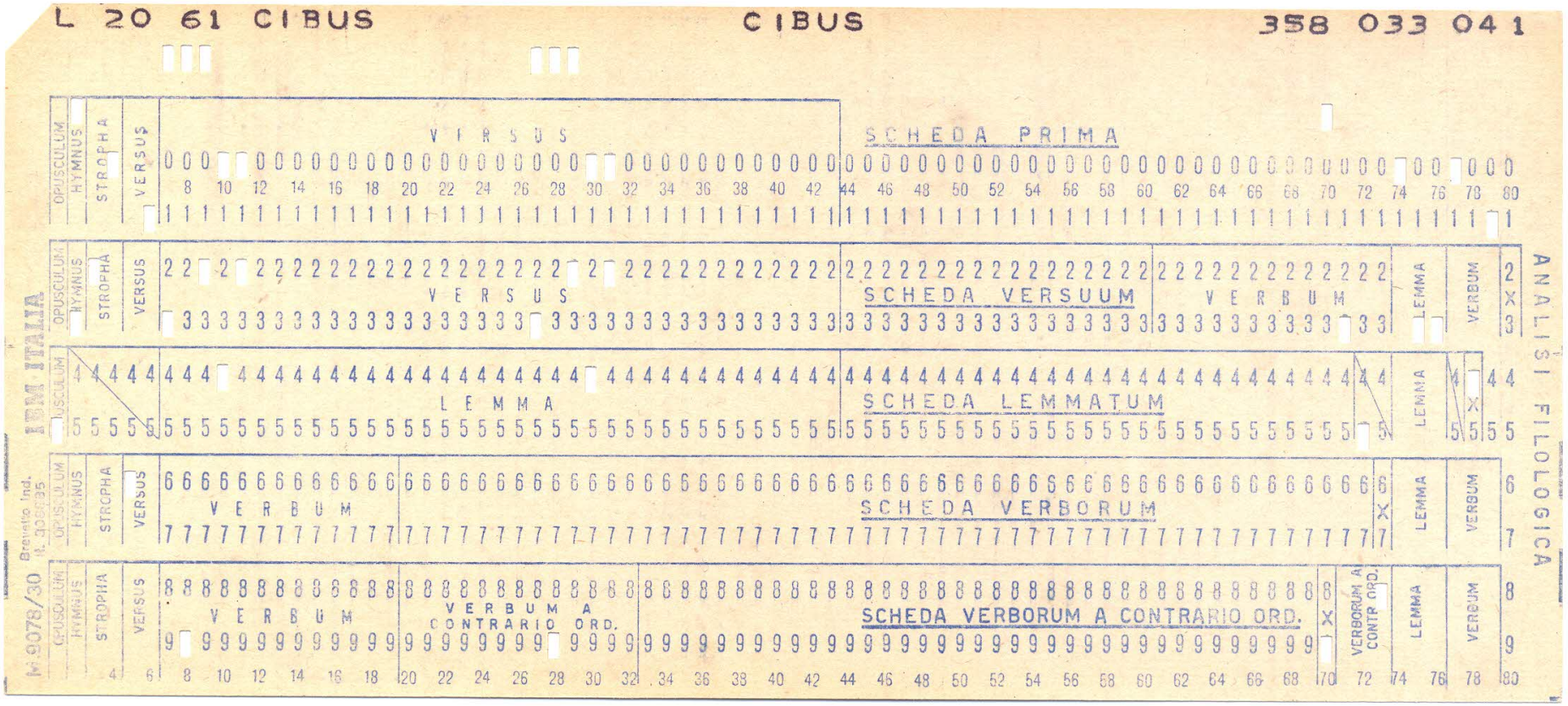

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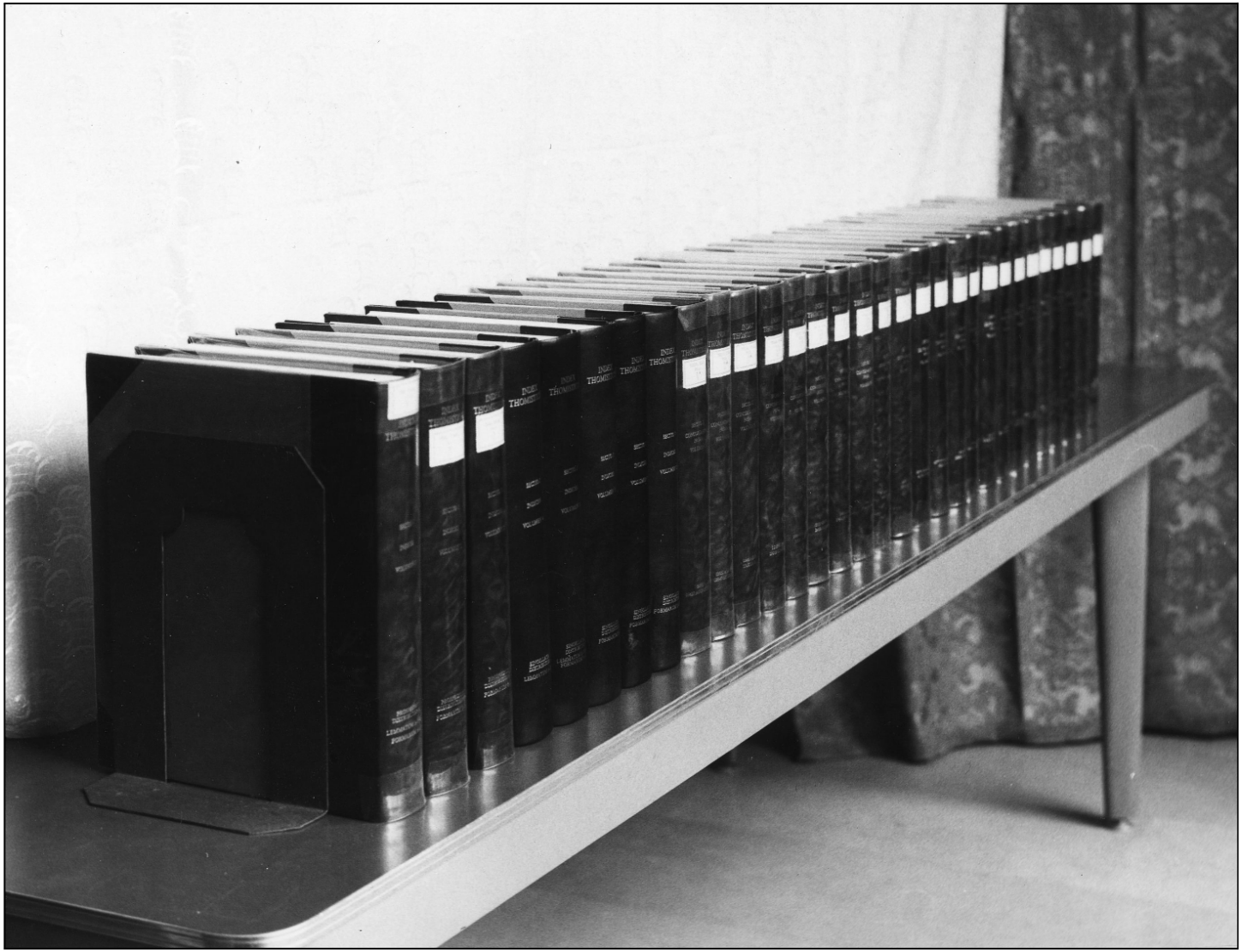
Analogical and isolated …but Findable

The Result ...on Paper

The *Index Thomisticus*



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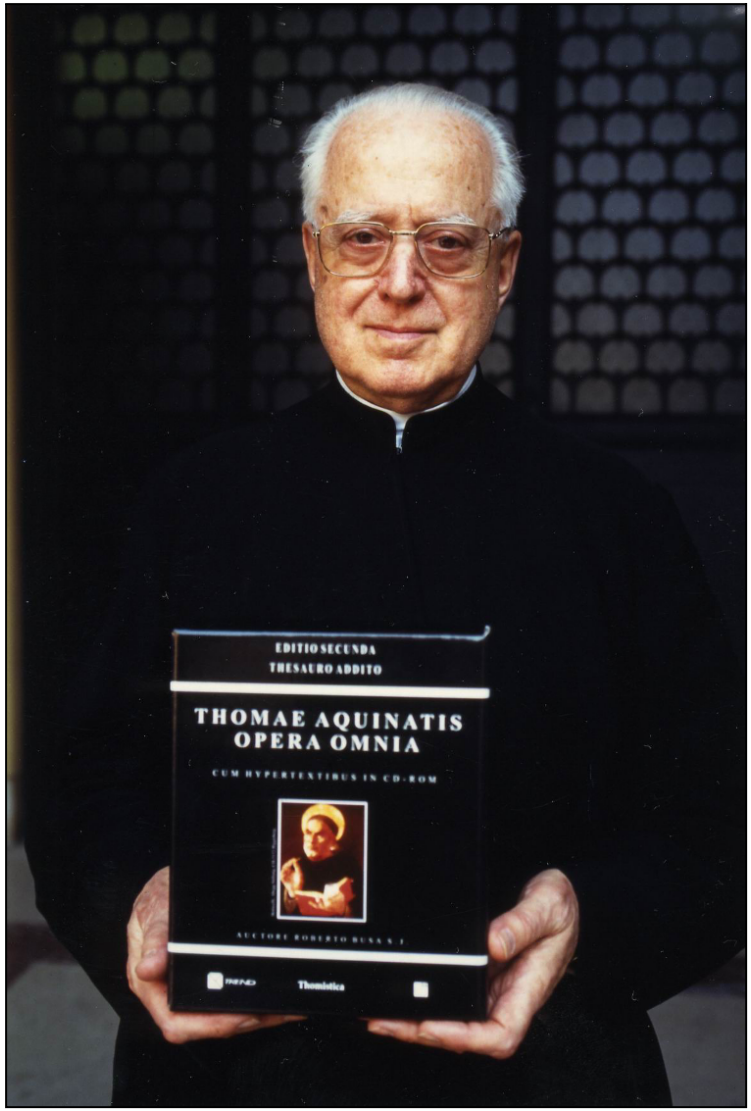
The Digital Turn: (meta)data (partly) accessible

The CD-ROM of the *Index Thomisticus*



The Digital Turn: (meta)data (partly) accessible

Thanks God for the CD-ROM!

The Digital Turn: (meta)data (partly) accessible

Thanks God for Internet!

CORPUS THOMISTICUM

INDEX THOMISTICUS

by Roberto Busa SJ and associates

web edition by Eduardo Bernot and Enrique Alarcón

la versione italiana non è ancora disponibile

Search: computare

concordances | terms | works | options | new search

FOUND 13 CASES IN 13 PLACES

1-10

CASE 1. PLACE 1. Super Sent., lib. 2 d. 14 q. 1 a. 4 arg. 4. [...]$^{-1}$ Sed ratione hujus convenientiae aer et ignis caelum dicuntur. Ergo videtur quod oportuisset similiter aqueum elementum inter caelos **computare.**

CASE 2. PLACE 2. Super Sent., lib. 4 d. 30 q. 2 a. 1 qc. 2 co. Ad secundam quaestionem dicendum, quod conveniens fuit matrem Christi matrimonio esse junctam tum propter causas in littera assignatas, tum etiam propter alias causas: quarum prima est, ut significaret Ecclesiam, quae est virgo et sponsa. Secunda, ut per Joseph genealogia Mariae texeretur: non enim erat consuetudo apud Hebraeos ex parte mulierum genealogiam **computare.** Tertia, ut virginibus excusatio tolleretur, si de fornicatione infamantur. [...]$^{-2}$

CASE 3. PLACE 3. Super Sent., lib. 4 d. 43 q. 1 a. 3 qc. 2 co. [...]$^{-7}$ Unde illi omnes qui tempus praedictum numerare voluerunt, hactenus falsiloqui sunt inventi. Quidam enim, ut Augustinus dixit ibidem, dixerunt ab ascensione domini usque ad ultimum ejus adventum quadringentos annos posse compleri, alii quingentos, alii mille: quorum falsitas patet; et similiter patebit eorum qui adhuc **computare** non cessant.

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One place fits all: making resources Accessible, Reusable and (partly) Findable

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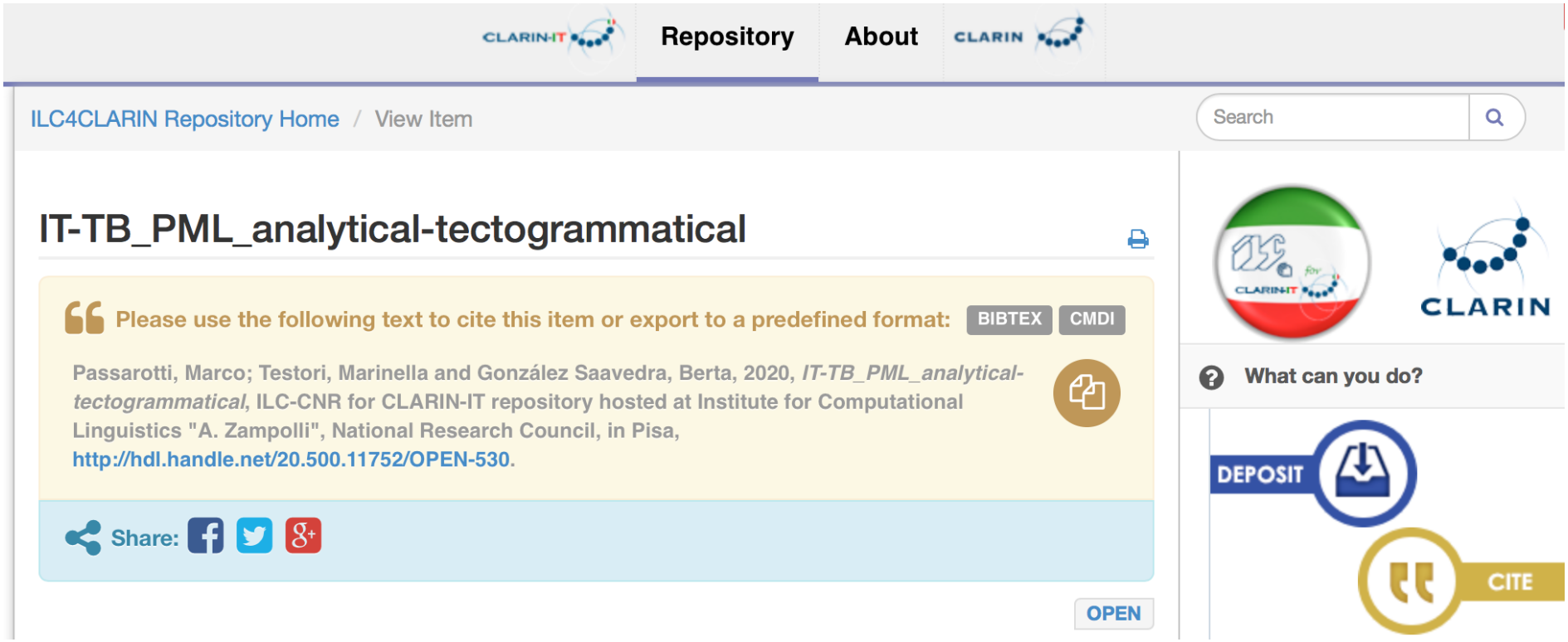

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- **Semantic interoperability**: linking metadata components to concepts stored in the CLARIN Concept Registry (CCR)

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Limitations to interoperability in CLARIN (P. Labropoulou: LLD CLARIN Café, 29/4/21)

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Limitations to interoperability in CLARIN (P. Labropoulou: LLD CLARIN Café, 29/4/21)

- CCR: a collection of concepts, identifiable by their persistent identifiers, relevant for the domain of language resources
  - no relations between internal concepts (hence, no semantic inference)
  - no relations to external concepts (no crosswalks to popular schemas)
  - lack of curation (too many similar concepts)

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- Include links to other URIs

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J. Gracia: LLD CLARIN Café, 29/4/21

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- Proprietary and heterogeneous formats
- Different representation schemes, query languages, annotation criteria and tagsets

Benefits of Applying LD to Linguistic Resources

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- Federation: to combine information from separated repositories
- Dynamicity: to provide access to the most recent version of a resource
- Ecosystem: a large and active community with common tools and practices. Initiatives: (1) COST Action *Nexus Linguarum* (COST Action 2019-2023): European network for Web-centred linguistic data science; (2) *Prêt-à-LLOD* (RIA 2019-2022): Ready-to-use Multilingual Linked Language Data for Knowledge Services across Sectors; (3) LD4LT (*Linked Data for Language Technology Community Group*): to create a consolidated LOD vocabulary for web (linguistic) annotation

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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

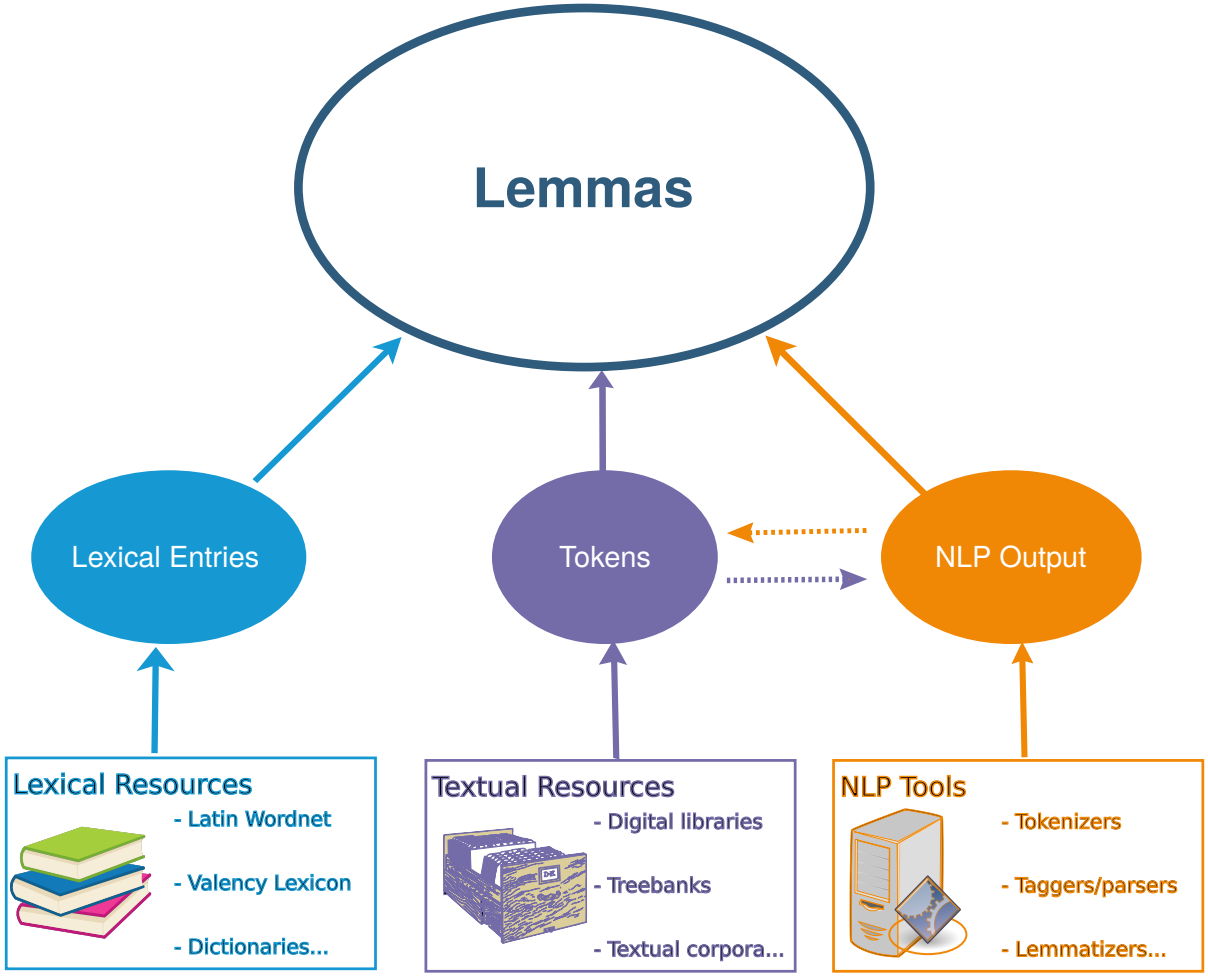
Infrastructure

LiLa
Linking Latin

Interoperability

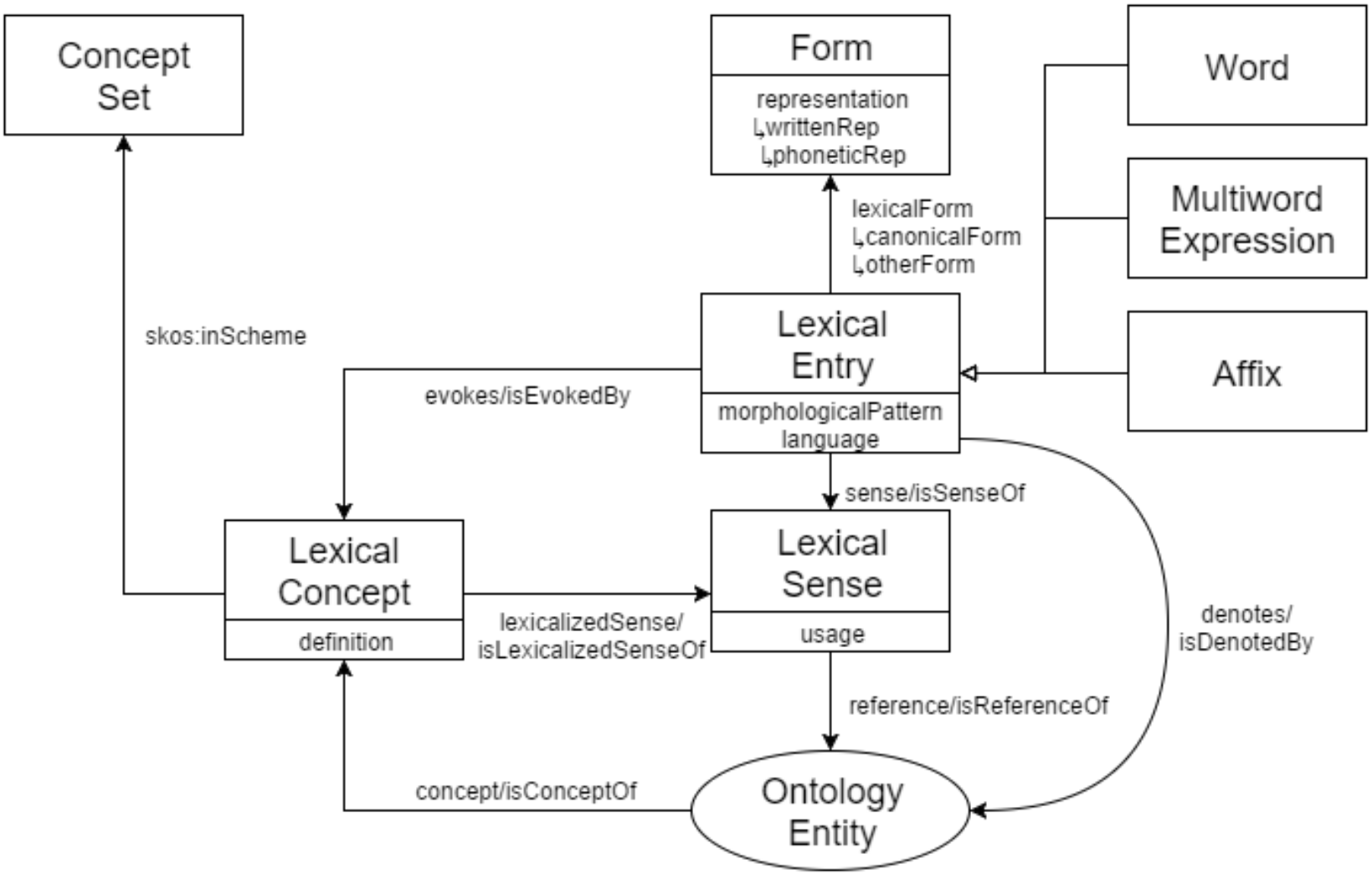
LiLa Knowledge Base

Lexically-based architecture and (meta)data sources



LiLa and Ontolex Lemon

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



Lemma *admiror* 'to admire, to respect'

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

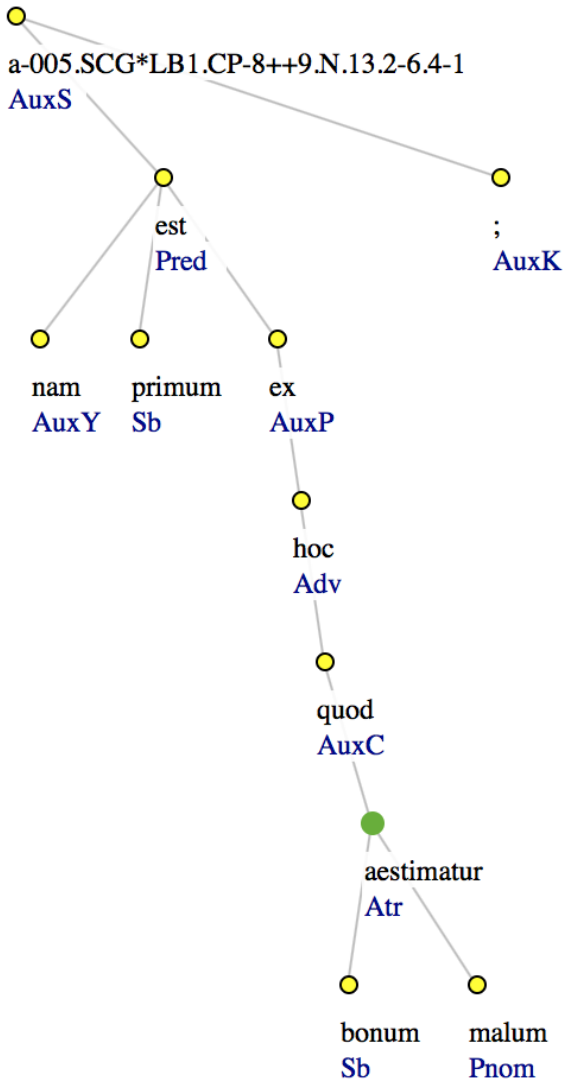
- Lemma Bank
- A bilingual dictionary (Lewis & Short)
- A derivational lexicon (Word Formation Latin)
- A polarity lexicon (LatinAffectus)
- An etymological dictionary (De Vaan)
- A Valency Lexicon (Latin Vallex)
- A manually checked subset of the Latin WordNet

Textual Resources

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)



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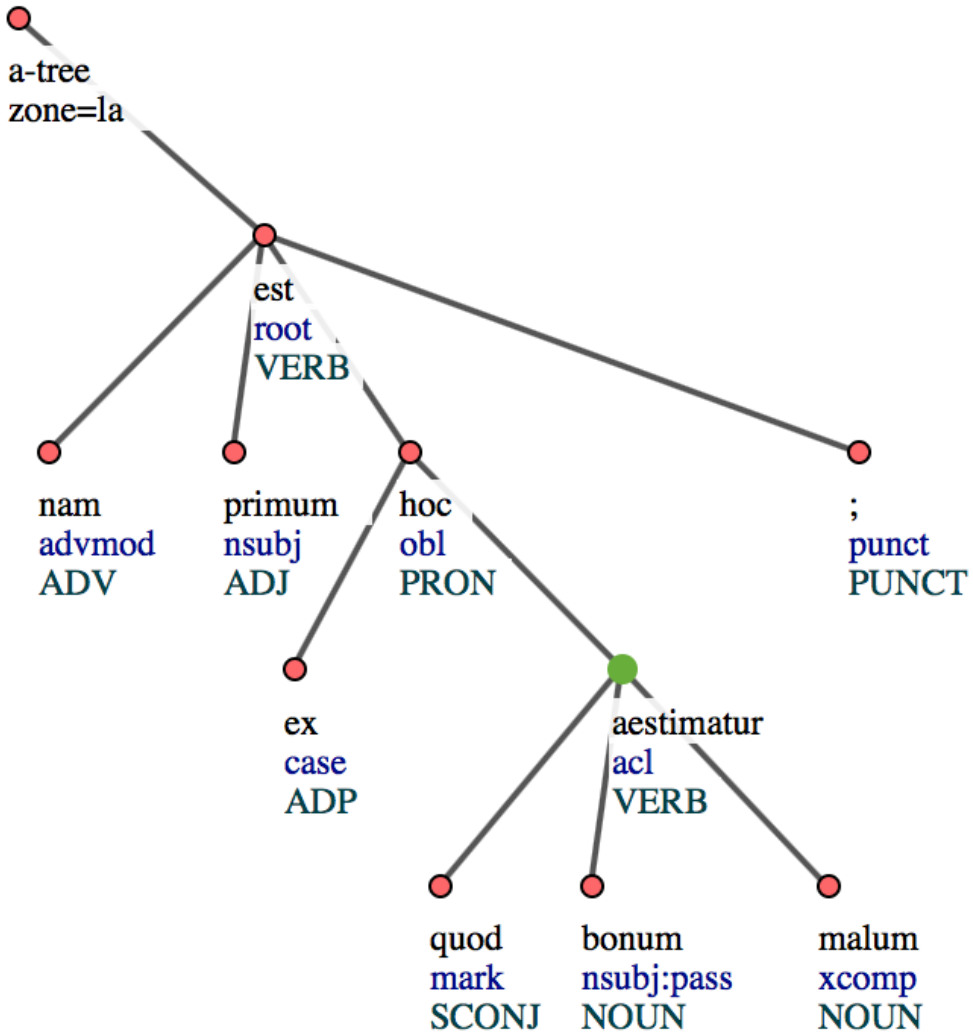

Textual Resources

A token from the *Index Thomisticus* Treebank in LiLa

Token *aestimatur*

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

LiLa: Overview

Resources connected and upcoming connections

- **Corpora**
  - [x] Index Thomisticus Treebank (*Summa contra Gentiles*): ca. 450,000 nodes
  - [x] Dante Search (700th death anniversary): ca. 46,000 tokens
  - [x] *Querolus sive Aulularia*: ca. 17,000 tokens
  - [ ] PROIEL and LLCT treebanks
  - [ ] Computational Historical Semantics, LASLA and CroALa Corpora
- **Lexica**
  - [x] Word Formation Latin: ca. 46,000 lemmas (Classical Latin)
  - [x] Etymological dictionary of Latin & the other Italic Langs.: ca. 1,400 entries
  - [x] LatinAffectus: ca. 2,300 entries
  - [x] Index Graecorum Vocabulorum in Linguam Latinam: ca. 1,800 entries
  - [x] Latin WordNet: ca. 1,000 manually checked entries
  - [x] Latin Vallex 2.0: Valency Lexicon
  - [x] Lewis & Short Dictionary
- **NLP tools**
  - [x] LEMLAT (lemma bank): ca. 150,000 lemmas
- **TOTAL: approximately 16 million triples** + 10 further millions

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
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- LatinAffectus + Latin WordNet
- Index Graecorum Vocabulorum in Linguam Latinam
- Latin Vallex 2.0
- Lewis & Short Latin-English dictionary

Open Challenges

It is not so easy ...but we are doing our best

To fully exploit digital texts

texts "in a form that both humans and machines can use,
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(S. Huskey, SunoikisisDC SS 2021 - Session 12)

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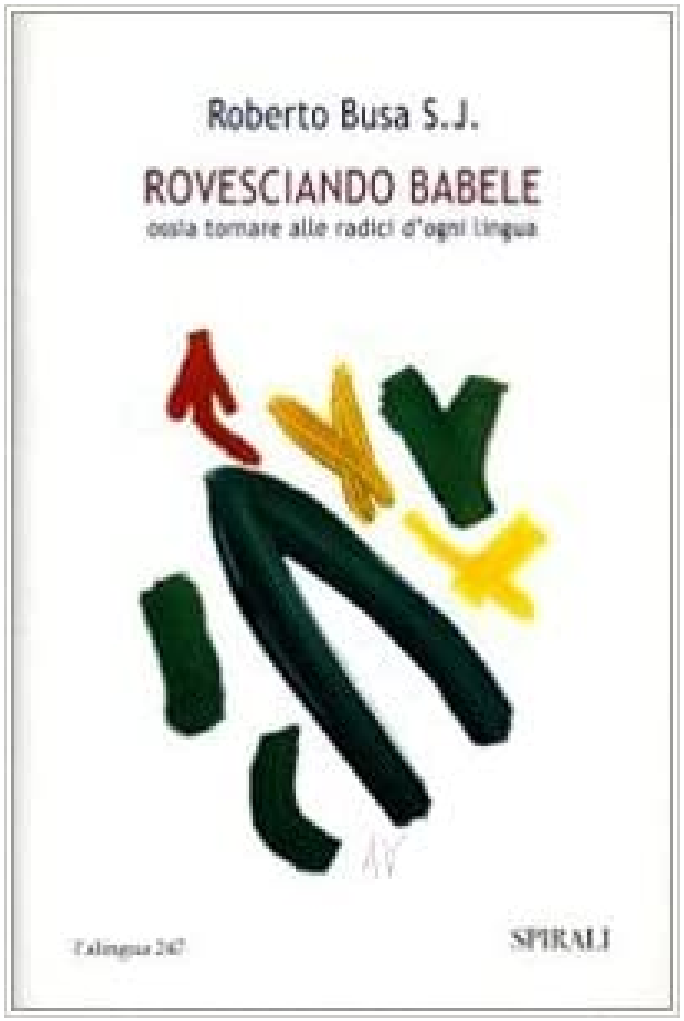
- Models still missing for several types of (meta)data: e.g. for critical editions
- Community-based effort: persuading resource developers to adopt LOD practices and reaching consensus around shared vocabularies, ontologies, data categories etc.

A Shared, Formal Representation of What Exists

A common *language* to turn Babel upside down



Thanks!
Get in touch

LiLa: Linking Latin
Università Cattolica del Sacro Cuore
CIRCSE Research Centre

info@lila-erc.eu

https://github.com/CIRCSE

https://lila-erc.eu

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