The Treatment of Word Formation in the LiLa Knowledge Base

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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

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Scattered and unconnected

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From Information to Knowledge

2018-2023

A collection of interoperable linguistics resources (and NLP tools) described with the same vocabulary for knowledge description

Interlinking as a Form of Interaction

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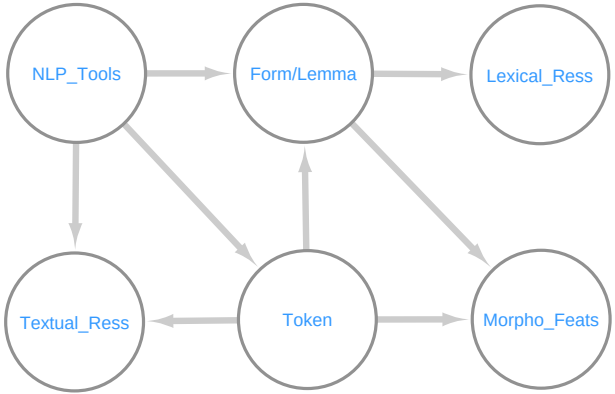
Each component of the ontology is uniquely identified through a URI.

LiLa Knowledge Base

Lexically-based architecture and (meta)data sources



Word Formation Latin
recap

WFL: Word formation-based lexical resource for Classical Latin

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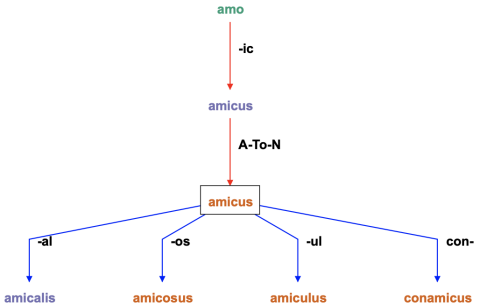
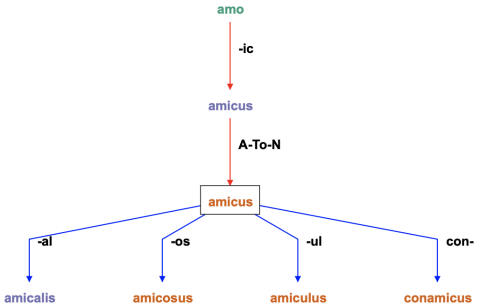
- WFRs are modelled as **directed one-to-many input-output** relations between lemmas (based on I&A model of grammatical description)
- **Morphotactic** approach: each WF process is treated individually as the application of one single rule in a certain order



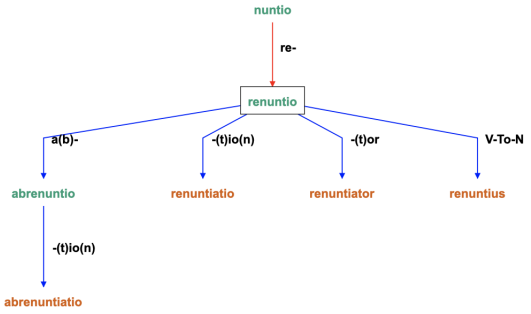
- Relationships between lemmas of the same “word formation family” are represented as the edges in a **directed graph** with a **hierarchical tree-like** structure



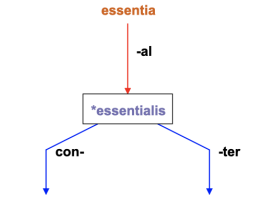
- Relationships between lemmas of the same “word formation family” are represented as the edges in a **directed graph** with a **hierarchical tree-like** structure
- A **node** is a lemma, and an **edge** is the WFR used to derive the output lemma from the input one, together with any affix

But: **directed graphs** are not completely satisfactory in representing the full range of relationships included within a word formation family.
Main problems:

- Directionality



- Non-linear derivations



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- The CELL has a central role in the paradigm (predictability and regularity)
- Each cell must be described in both its morphological characteristics and its semantic features, due to the underlying role of semantics in accounting for derivational processes

Word Formation in LiLa

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- No morphotaxis.

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Construction Morphology (CxM)

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- Constructions and schemas are word-based and declarative
- Perfect for LiLa => words are described in their formative elements, which can be organised into connected classes of objects into an ontology.

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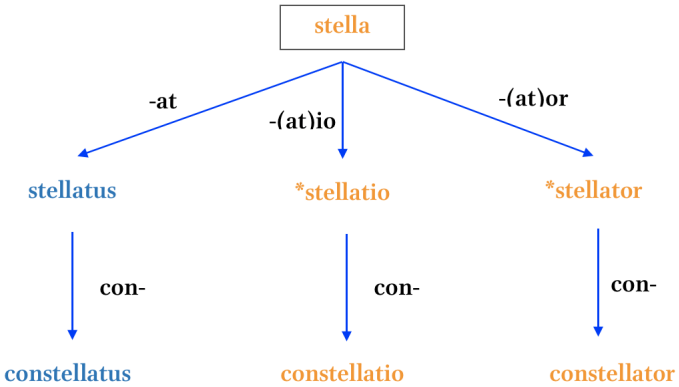
Connected by three possibile relationships:

1. hasPrefix
2. hasSuffix
3. hasBase

Stella - WFL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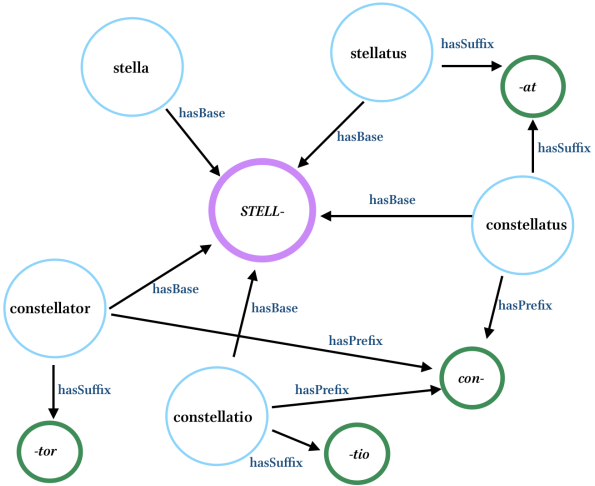
STELL - LiLa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- Find all occurrences of nouns displaying agent/instrument and action suffixes (tio/tor) that govern verbs as subjects in the Latin treebanks connected in LiLa
- Count the frequency of the 15 most used affixes attached to nouns

Future Plans

Many!

- Find a way of defining and naming all "base" nodes
- Perhaps try to add word formation specific semantic information to the LiLa knowledge base
- Enlarge the lexical basis for which WF is provided with Medieval Latin lemmas contained in Lemlat.

Conclusions
Summing up

Added value of adding WFL to the LiLa Knowledge Base:

- allows for a better displayed, less assuming, less problematic way of describing words in their formative elements
- lets us connect a lexical resource with the realisation of its words inside texts.

Thank you!
Get in touch

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