

***Lemmatizing and tagging Latin literary classical texts  
for more than 50 years:  
the LASLA experience...***

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Langues Anciennes

## The LASLA, an old story...

The Laboratory for Statistic Analysis of Classical Languages (L.A.S.L.A.) was founded in November 1961 at the University of Liege

1961 aims :

- lemmatize and tag (Greek and) Latin literary CLASSICAL texts in order to :
  - publish indexes
  - allow the study of classical languages and literatures with statistic and quantitative methods;

2019 outcomes :

- large digitalized, lemmatized and annotated Latin corpora, from Plautus to Ausonius; some others Late Latin corpora
- NLP tools;
- Textual Data Analysis tools.

## The LASLA, in a few words...

- the structure of the information contained in the LASLA files
  - > the choices of the “founders” (L. Delatte – E. Evard)
- the main LASLA Latin corpus (and others)
- the LASLA NLP tools,
  - LASLA Encoding Initiative interface
  - Collatinus-LASLA
- the different ways to access the information contained in the LASLA files
  - Opera Latina interface
  - Hyperbase Latin 10.1, Hyperbase Web Edition, Hyperdeep
  - TXM,
  - SDMC
- the LASLA Data Transfer Agreement

## 1. The structure of the LASLA Latin files

The specificities of the LASLA Latin files :

- fully lemmatized texts,
- with a full morphosyntactic analysis and 1 syntactic tag
- systematically verified by confirmed latinists (M.A. or Ph.D.)
- not related to a specific grammar or a specific linguistic description

## 1. The structure of the LASLA Latin files

For each token of the text, :

1. the lemma (the word as it appears in the dictionary of reference, the *Lexicon totius latinitatis* of Forcellini, éd. de Corradini, Padoue, 1864)

2. an index which enables to distinguish various homograph lemmas

ET 1 = adverb, ET 2 = coordinating conjunction

or to spot proper names or adjectives derived from proper names

N opposite Roma means “proper name”

3. the form as appearing in the text

4. the reference, according to the *ars citandi*

5. the complete morphologic analysis in an alphanumeric format

6. regarding the verbs, syntactic indications :

main clauses verbs

subordinate clauses verbs (sorted by subordination type)



## 1. The structure of the LASLA Latin files

The LASLA Lemma :

- Handling the POS according to the Forcellini :
  - for the Classical texts, a (il)logical lemmatization (?) :  
AMICA Subst., AMICVS 1 Subst., AMICVS 2 Adj.  
CHRISTIANVS 1 Subst., CHRISTIANVS 2 Adj.  
SANCTVS Adj.
  - for the late latin texts, an additional tag « Use »  
SANCTVS Adj. but with tag « use as a substantive »
- with a systematic disambiguation :  
POPVLVS 1 “the people”  
POPVLVS 2 “the poplar”

## 1. The structure of the LASLA Latin files

A lemmatization taking into account :

- the clitics, the verbal compound forms and the ellipsis : *amatus castigatusque est*

amatus <est>	LEM AMO
castigatus <est>	LEM : CASTIGO
que	LEM :QVE
<castigatus> est	LEM:SVM_2

- the crasis : *amatust*

amatust	LEM AMO
<amatus est>	LEM:SVM_2

- the tmesis and the compound words : *ante uero quam*

ante	LEM ANTEQVAM
uero	LEM VERO
quam	LEM ANTE



# 1. The structure of the LASLA Latin files

- the morphosyntactic information : with a 9 positions tag > first POS

68 Catégorie	
Substantif	A
Verbe	B
Adjectif	C
Numéral	D

Pronom personnel	E
Pronom possessif	F
Pronom réfléchi	G
Pronom possessif réfléchi	H
Pronom démonstratif	I
Pronom relatif	J
Pronom interrogatif	K
Pronom indéfini	L
Adverbe	M
Adverbe relatif	N
Adverbe interrogatif	O
Adverbe négatif	P
Adverbe interrogatif-négatif	Q
Préposition	R
Conjonction de coordination	S
Conjonction de subordination	T
Interjection	U
Verbe auxiliaire	#

No distinction between  
determiners and pronouns :  
*is qui bene amat*

# 1. The structure of the LASLA Latin files

68 Catégorie	69 Sous-Catégorie	70 Cas	71 Nombre	72 Degré	73 Mode	74 Temps	75 Voix	76 Personne
Substantif	A	1re déclinaison	1					
		2e déclinaison	2					
		3e déclinaison	3					
		4e déclinaison	4					
		5e déclinaison	5					
		Anomal	6					
		Déclinaison grecque	7					
Verbe	B	1re conjugaison	1					
		2e conjugaison	2					
		3e conjugaison	3					
		4e conjugaison	4					
		Conjugaison mixte	5					
		Conjugaison anormale	6					
Adjectif	C	1re classe	1	Singulier 1 Pluriel 2	Positif 1 Comparatif 2 Superlatif 3			
		2e classe consonantique	2					
		2e classe type -er	3					
		2e classe type -is	4					
		2e classe imparisyllabique	5					
		Anomal	6					
		Déclinaison grecque	7					
Numéral	D	Cardinal	1					
		Ordinal	2					
		Distributif	3					
		Multiplicatif	4					
		Adverbe ordinal	5					
		Adverbe multiplicative	6					
Pronom personnel	E							
Pronom possessif	F							
Pronom réfléchi	G							
Pronom possessif réfléchi	H							
Pronom démonstratif	I							
Pronom relatif	J							
Pronom interrogatif	K							
Pronom indéfini	L							

With a full desambiguation :

- *domino*
- *amauerit*

## 1. The structure of the LASLA Latin files

A morphosyntactic tagging taking into account :

- the verbal compound forms :

castigatus <est> LEM : CASTIGO Tag 14 : indicative perfect  
<castigatus> est LEM:SVM\_2 Tag #

- the “deviant forms” of the Late latin texts :

ex :

- regular forms of the lemma *dulcis*, “smooth”,
  - tagged with the code of the adjectives of the second class in *-is* (24)
- anomalous form *dulciam*
  - tagged as a form of the lemma *dulcis*
  - with the code of the adjectives of the first class in *-is* (21)

## 1. The structure of the LASLA Latin files

A morphosyntactic tagging without disambiguation for the gender : a strange choice of the “founders”

### a) Genre

commun	1
féminin	2
masc. et fém.	3
masculin	4
masc. et neutre	5
neutre	6

## 1. The structure of the LASLA Latin files

- the syntactic encoding : regarding the verbs, a tag distinguishing main clauses verbs and subordinate clauses verbs (sorted by subordination type)

### Conjonctions de Subordination

Subj. seul complément.....	AA	Quamdiu int.....	GS	Quomodocumque.....	PT
Ablatif absolu.....	AD	Quamdudum.....	GX	Quonam.....	PU
Proposition infinitive.....	AG	Quamlibet.....	HA	Quoniam.....	PX
Ac, Atque.....	AK	Quamobrem rel.....	HD	Quoquo.....	RA
Ac si.....	AL	Quamobrem int.....	HG	Quorsus.....	RB
Proinde ac.....	AM	Quamquam.....	HK	Qvoqvomodo.....	RC
(Proinde) ac si.....	AN	Quamuis.....	HN	Quot rel.....	RD
An.....	AW	Quanam.....	HP	Quot int.....	RG
... An.....	AX	Quando adv. int.....	HS	Quotcumque.....	RK
An ... An.....	BA	Quando conj. sub.....	HX	Quotiens rel.....	RN
... Anne.....	BD	Quandocumque.....	JA	Quotiens int.....	RS
Antequam, anteaquam.....	BK	Quandoque.....	JD	Quotienscumque.....	RX
Ceu adv. ou conj. sub.....	BL	Quandoquidem.....	JE	Quotiensque.....	RY
Cuius, cuiusmodi.....	BM	Quantillus rel.....	JF	Quotquot.....	SA
Cum.....	BN	Quantillus int.....	JG	Quotus.....	SD
Cuicuiusmodi.....	BO	Quanto rel.....	JH	Quotuscumque rel.....	SG
Cumcumque.....	BS	Quanto int.....	JJ	Quotusquisque.....	SK
Cur rel.....	BW	Quantopere rel.....	JK	Quousque adv. rel.....	SM
Cur int.....	BX	Quantopere int.....	JN	Quousque adv. int.....	SN
Donec.....	CA	Quantulus rel.....	JS	Seu.....	SS

## 1. The structure of the LASLA Latin files

- No other syntactic information, but a software LatSynt
- No Treebank, but a way to study sentence structure

Tacite, *Annales*, 13,11,2 / P2849 /

<&0014>[+LN14-LN14]{+LN12[+GK32-GK32]-LN12}

<&secuta (est)> que lenitas in Plautium Lateranum [+quem ob  
adulterium Messalinae ordine demotum -reddidit] senatui clementiam  
suam obstringens crebris orationibus {+quas Seneca testificando  
[+quam honesta -praeciperet] uel iactandi ingenii uoce principis -  
uulgabat}

## 2. The LASLA latin corpora

- The fully lemmatized and tagged texts, with files already available for sharing :

### 1. Classical texts (more than 1.600.000 words)

Caesar et alii	Petronius
Cato	Plautus : 8 plays
Catullus	Plinius (Iunior)
Cicero :	Propertius
rhetoric works : all;	Sallustius
philosophical works : partim	Seneca
Curtius	Tacitus
Horatius	Tibullus
Iuvenalis	Vergilius
Lucretius	
Ovidius (partially)	
Persius	

## 2. The LASLA latin corpora

- The fully lemmatized and tagged texts, with files already available for sharing :

### 2. Medio-Latin texts :

Sedulius Scottus

Hagiographic texts (300.000 words) : partialy available

### 3. Neo-Latin texts :

Descartes

Spinoza



## 2. The LASLA latin corpora

- The fully lemmatized and tagged texts, available with the search interfaces available for sharing in the future (ready, but research in progress):

Cornelius Nepos  
Livius (1st decade)  
Suetonius  
Historia Augusta

- The fully lemmatized and tagged texts, available for sharing in the future (ready, but work in progress):

Apuleius (*Metamorphoses*)  
Livius (2d decade)  
Ovidius (*Metamorphoses*,  
*Pontics*, *Tristes*)

Plinius the Elder  
New Hagiographic texts

### 3. The LASLA NLP tools

The LASLA Encoding Initiative interface : a selection interface

#### LASLA ENCODING INITIATIVE

ap - 001, 0001 - sentence n°: 1

die sequenti meus quidem dominus hortulanus quid egerit nescio me tamen miles ille qui propter eximiam impotentiam pulcherrime uapularat ab illo praesepio nullo equidem contradicente diductum abducit atque a suo contubernio hoc enim mihi uidebatur sarcinis propriis onustum et prorsum exornatum armatum que militariter producit ad uiam

N°	Form	Lemma	I.	Ana.	F.	U.	G.	SC	
1	DIE	DIES		15F00					<input checked="" type="checkbox"/>
2	SEQUENTI	SEQVENS		25E00			1		<input type="checkbox"/>
2	SEQUENTI	SEQVENS		25F00			1		<input type="checkbox"/>
2	SEQUENTI	SEQVOR		5LE41			1		<input type="checkbox"/>
3	MEUS	MEVS		42A00			4		<input checked="" type="checkbox"/>
4	QUIDEM	QVIDEM		60000					<input checked="" type="checkbox"/>
5	DOMINUS	DOMINVS		12A00					<input checked="" type="checkbox"/>
6	HORTULANUS								<input checked="" type="checkbox"/>
7	QUID	QVIS	1	47A			6		<input type="checkbox"/>
7	QUID	QVIS	1	47C			6		<input type="checkbox"/>
7	QUID	QVIS	2	48A00			6		<input type="checkbox"/>
7	QUID	QVIS	2	48C00			6		<input type="checkbox"/>
8	EGERIT	AGO		53C16					<input type="checkbox"/>
8	EGERIT	AGO		53C34					<input type="checkbox"/>
8	EGERIT	EGERO		53C11					<input type="checkbox"/>

#### Tools

Add line after word :

Delete Line N° :

Go to Sentence N°:


[LASLA Codes Table](#)

### 3. The LASLA NLP tools

## Collatinus – LASLA (Ph. Verkerk – CNRS \_ Lille)

in columella horae ex analemmtos transuerse describantur menstruae que lineae colum

5497	in	IN	R	Ref&0287/8,7/
5498	columella	COLVMELLA	A161	Ref&0287/8,7/
5499	horae	HORA	A141	Ref&0287/8,7/
5500	ex	EX	R	Ref&0287/8,7/
5501	analemmtos			Ref&0287/8,7/
5502	transuerse	transuerse	k9 1	Ref&0287/8,7/
5503	describantur	DESCRIBO	B3 2 3123	Ref&0287/8,7/**
5504	menstruae	MENSTRVVS	C1411	Ref&0287/8,7/
5505	que	QVE	S	Ref=0287/8,7/
5506	lineae	LINEVS	C1411	Ref&0287/8,7/
5507	columella	COLVMELLA	A111	Ref&0287/8,7/
5508	signentur	SIGNO	B1 2 3123	Ref&0287/8,7/**

 Fenêtre de sélection

-9	Modifier la référence Ref&0287/8,7/		
-4	Supprimer ce mot...		
-2	Ajouter un mot...		
-1	Ajouter une analyse...		
0	columella	COLVMELLA	A111
1	columella	COLVMELLA	A161
-1	Ajouter une analyse...		
-2	Ajouter un mot...		
-4	Supprimer ce mot...		
-9	Modifier la référence Ref&0287/8,7/		

## 4. The ways to access LASLA information

LASLA OPERA LATINA

Corpus Selection (click here)

Lemma :

Subordination Code :

- the interface Opera Latina :

[www.ulg.ac.be/cipl/lsl.htm](http://www.ulg.ac.be/cipl/lsl.htm)

Documentary search (indexes)

No statistics

Category	Subcategory	Case	Degree
<input checked="" type="radio"/> (No Category) <input type="radio"/> Noun <input type="radio"/> Verb <input type="radio"/> Adjective <input type="radio"/> Numeral <input type="radio"/> Personal Pronoun <input type="radio"/> Possessive Pronoun <input type="radio"/> Reflexive Pronoun <input type="radio"/> Possessive Reflexive Pronoun <input type="radio"/> Demonstrative Pronoun <input type="radio"/> Relative Pronoun <input type="radio"/> Interrogative Pronoun <input type="radio"/> Indefinite Pronoun <input type="radio"/> Adverb <input type="radio"/> Relative Adverb <input type="radio"/> Interrogative Adverb <input type="radio"/> Negative Adverb <input type="radio"/> Negative Interrogative Adverb <input type="radio"/> Preposition <input type="radio"/> Coordinating Conjunction <input type="radio"/> Subordinating Conjunction <input type="radio"/> Interjection	<input checked="" type="radio"/> (No Mood) <input type="radio"/> Indicative <input type="radio"/> Imperative <input type="radio"/> Subjunctive <input type="radio"/> Participle <input type="radio"/> Verbal Adjective <input type="radio"/> Gerundive <input type="radio"/> Infinitive <input type="radio"/> Supine in -UM <input type="radio"/> Supine in -U	<input checked="" type="radio"/> (No Case) <input type="radio"/> Nominative <input type="radio"/> Vocative <input type="radio"/> Accusative <input type="radio"/> Genitive <input type="radio"/> Dative <input type="radio"/> Ablative <input type="radio"/> Locative <input type="radio"/> Indeclinable	<input checked="" type="radio"/> (No Degree) <input type="radio"/> Positive <input type="radio"/> Comparative <input type="radio"/> Superlative
			<input checked="" type="radio"/> (No Voice) <input type="radio"/> Active <input type="radio"/> Passive <input type="radio"/> Deponent <input type="radio"/> Semi-deponent
		<input checked="" type="radio"/> (No Tense) <input type="radio"/> Present <input type="radio"/> Imperfect <input type="radio"/> Future <input type="radio"/> Perfect <input type="radio"/> Pluperfect <input type="radio"/> Future Perfect <input type="radio"/> -us fui/fuierim/fuisse <input type="radio"/> -us fueram/fuissem <input type="radio"/> -us fuero/-urus fuisse	<input checked="" type="radio"/> (No Person) <input type="radio"/> 1st Person <input type="radio"/> 2nd Person <input type="radio"/> 3rd Person
			<input checked="" type="radio"/> (No Number) <input type="radio"/> Singular <input type="radio"/> Plural

Search

## 4. The ways to access LASLA information

The downloadable “Hyperbase-latin” : documentary and statistic exploration

The screenshot shows the 'HYPERBASE' interface for 'LITTÉRATURE LATINE'. The main menu includes 'INFORMATION', 'FONCTIONS DOCUMENTAIRES', and 'FONCTIONS DE SÉLECTION'. The left sidebar contains sections for 'REGLAGES' (with buttons for 'Installer', 'Réinitialiser', 'Option calcul', 'Option Codes', 'Option écran'), 'FONCTIONS STATISTIQUES' (with buttons for 'Spécificités', 'Graphique', 'Liste', 'Distribution', 'Factorielle', 'Arborée', 'Évolution', 'Phrases-clés', 'Excel'), and 'NAVIGATION' (with buttons for 'Anar', 'Retour', 'Quitter'). The central area displays a classical painting of two figures in a landscape. At the bottom, a text box reads: 'HYPERBASE version 5.5' and 'Textes latins du LASLA: J. Denooz, G. Fournelle. Réalisation: É. Brunet, S. Mellet.'

collaboration  
with  
the UMR 7032  
« Bases, corpus,  
langage »  
(CNRS-University  
of Nice)  
- Etienne Brunet



## 4. The ways to access LASLA information

The Interface Hyperbase Web Edition : with various databases



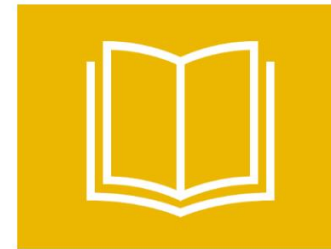
- FrontEnd : HTML, JAVASCRIPT, PHP
- BackEnd : Python
- Database : JSON



Nouvelle base



Base existante



Bibliothèque

Dernières bases consultées



historia



latin



lasla



tragiques



euripide

















seneca

<http://hyperbase.unice.fr/hyperbase/?edition=lasla>

## 4. The ways to access LASLA information

- With various Latin (and Greek) databases <http://hyperbase.unice.fr/> (choose “Bibliothèque”)
- Deviced and organized for statistics (chronological – selective)

Identifiant	Nom complet	Auteur	Langue	Taille
 poetas	Poesia do início do século XX	<a href="http://www.literaturabrasileira.ufsc.br">www.literaturabrasileira.ufsc.br</a>	portuguese	155663
 latin	Sélection des textes latins de la base classique du L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	2035176
 tragoediae	Tragédies de Sénèque traitées par le L.A.S.L.A.	<a href="#">LASLA</a>	latin	65177
 lasla	Ensemble des textes latins classiques du corpus du L.A.S.L.A. (ULg) disponibles au 1er mars 2017	<a href="#">LASLA</a>	latin	2104866
 poetae	Oeuvres poétiques latines classiques traitées par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	385258
 orationes	Discours latins de l'époque classique traités par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	465297
 historia	Oeuvres historiques latines classiques traitées par le L.A.S.L.A. (ULg)	<a href="#">L.A.S.L.A. (ULg)</a>	latin	663482
 libri	Traité latins classiques traités par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	344671
 cicero	Oeuvres de Cicéron traitées par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	496384
 seneca	Oeuvres de Sénèque le Philosophe traitées par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	332202
 tacitvs	Oeuvres de Tacite traitées par le L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	latin	171850
 plavtvs	Comédies de Plaute traitées par le L.A.S.L.A.	<a href="#">LASLA</a>	latin	68019
 tragiques	Sélection des textes grecs de la base classique du L.A.S.L.A. (ULg)	<a href="#">LASLA</a>	greek	280094
 euripide	Euripide, Œuvre complète, (Théâtre grec)	<a href="#">LASLA</a>	greek	160892

# 1. The notion of “motif” : detection

- Hyperbase Web Edition : devised for documentary search (indexes)

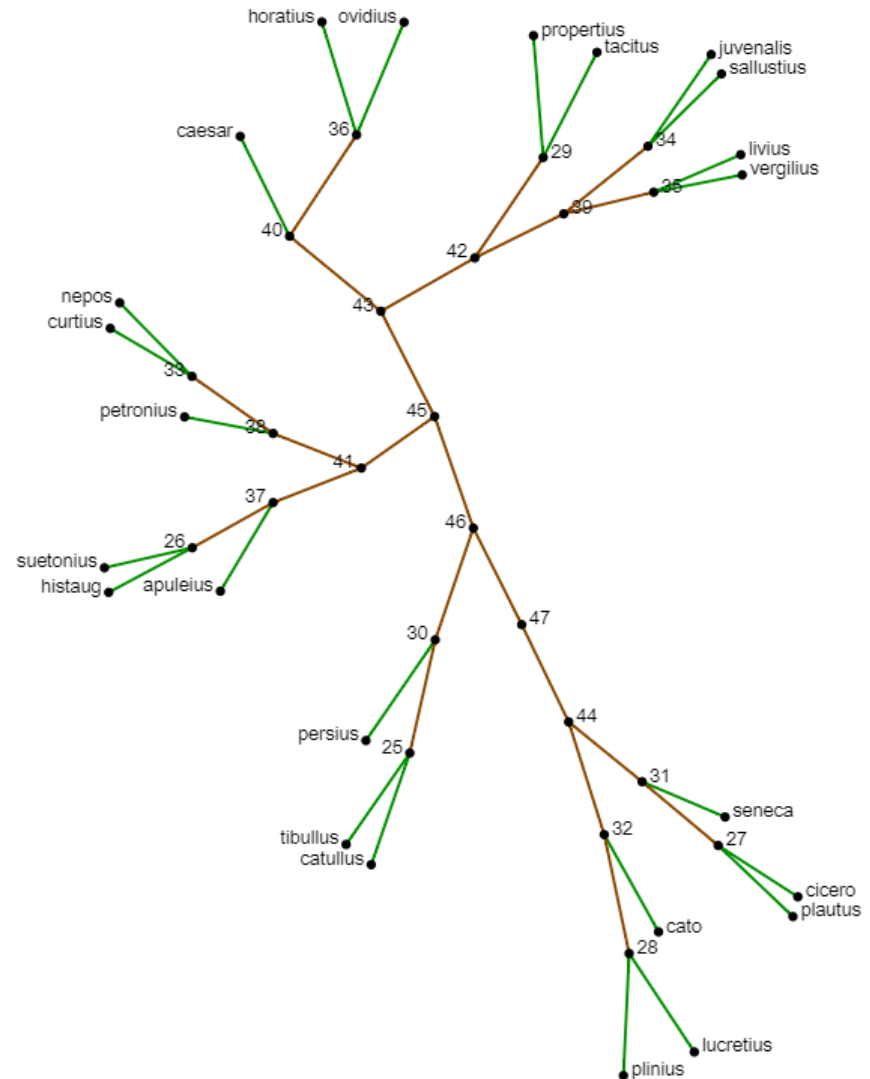
partie gauche	pivot	partie droite	référence
AVT TV DEVOVEO CERTVS	ABDERA_N DIES		oviibin_467
CAEDES PER HAEMONIVS_A SOLVO	ACASTVS_N AQVA		ovfasti2_2,40
FAVSTVLVS_N INFELIX ET_2 PANDO_2	ACCA_N CAPILLVS		ovfasti5_5,453
QVIS_1 SEQVOR .	ACCESSVS TERRA	PATERNVS NEGO .	oviepist_10,64
IPSE TV	ACCESSVS TVRBA	LOCVS QVE DO .	oviarsa1_1,604
CAREO ANIMOSVS QVE	ACCIVS_N OS_1		oviamor1_1,15,19
PARCE ANDROMACHA_N VEXO	ACHAIA_N VICTRIX_1		oviepist_8,13
DONEC_SVM_2 MISCEO NVLLVS	ACHELOVS_N RACEMVS		ovfasti5_5,343
IAM STO	ACIES FERRVM	MORS QVE PARATVS_2	ovfasti3_3,215
MISCEO VIR TERO	ACONITVM CICVTA		oviarsa3_3,465
AT_2 NON	ACTORIDES_N LECTVS_1	TEMERO ACHILLES_N	oviarsa1_1,743
	ACTORIDES_N PELEVS_N	IPSE QVOQVE PELEVS_N PHOCVS_N	ovfasti2_2,39
DVM_2 LOQVOR ELATVS METVO	ACVMEN CAVDA		ovfasti4_4,163
HVMIDVLVS QVI_1 FIO	ACVMEN LINVM		oviarsa3_3,629
BRIAREVS_N FACIO EX	ADAMAS SECVRIS		ovfasti3_3,805
HIC_1	ADITVS CIRCVS	QVE NOVVS PRAEBEO AMOR	oviarsa1_1,163
DO ETIAM PONO	ADITVS CONVIVIVM	MENSA	oviarsa1_1,229
DIFFICILIS	ADITVS IMPETVS	OMNIS HABEO .	oviremed_120
TERREO	ADMONITVS COR	QVE TIMOR MICO .	ovfasti3_3,36
MENS FVGIO	ADMONITVS FRIGVS	QVE PERAMBVLQ ARTVS_1	oviepist_9,135
INCIDO_1	ADMONITVS LIBER_1	ABERRO_2 AMOR_N .	oviremed_662



## 4. The ways to access LASLA information

Hyperbase Web Edition :

- devised for statistic search (z-score, Factorial Analysis, Tree Analysis...)
- Ex. : tree Analysis according to the distribution of POS



## 4. The ways to access LASLA information

- With an integrated tool for studying the specific co-occurrences (and co-occurrences of pairs)

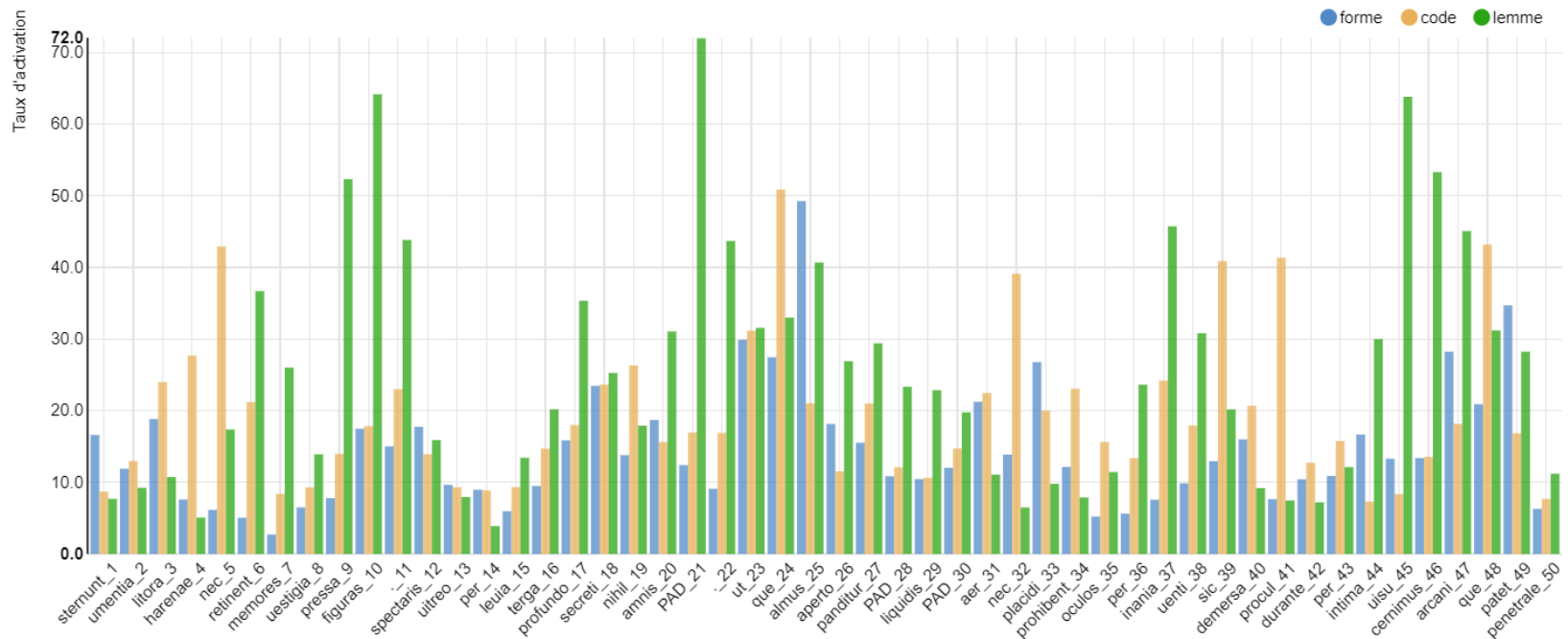




## 4. The ways to access LASLA information


- Ex. : sentences of Ausonius' *Mosella*, identified as sentences of Ovid's *Halieutica*

Probabilité : 98 %



## 4. The ways to access LASLA information

- the TXM software (ENS-Lyon) : for more specific purposes, with XML  
Lasla File (<http://textometrie.ens-lyon.fr/spip.php?rubrique96>)

Requête :  [pos="47,\*"] [] {0,5} [word="ego"] [] {0,5} [pos="5..3,\*"]

Clés de tri : #1 None #2 None #3 None #4 None

|< < 1-6 / 6 > >|

Référence	Context gauche	Pivot	Context droit
	aduortite debetis uelle quae uelimus meruimus et ego et pater de uobis et re publica nam	quid ego memorem	ut alios in tragoediis uidi Neptunum Virtutem Victoriam Martem Bello
	istam cenam largire si sapis essurientibus hau malum huic est pondus pugno perii pugnos ponderat	quid si ego illum tractim tangam	ut dormiat seruaeris nam continuas has tris noctes peruigilaui pes
	illac hirnea quid nunc uincon uincon argumentis te non esse Sosiam tu negas med esse	quid ego ni negem	qui egomet siem per Iouem iuro med esse neque me falsum dicere
	pol haec praestigiatrix mulier multo maxuma est aut pateram hic inesse oportet agedum exsolue cistulam	quid ego istam exsoluam	opsignatast opsignatast recte res gesta <est> <gesta>est bene t
	appella falsa falso nomine haeret haec res si quidem haec iam mulier facta <est> <facta>est ex uiro	quid ego feci qua <propter> istaec <qua>propter dicta dicantur	mih iute edictas facta tua ex me quaeris quid deliqueris quid ego t
	quid me aspectas stolidi quid nunc uis tibi aut quis tu es homo uerbero etiam	quis ego sim	me rogatas ulmorum Accheruns quem pol ego hodie ob istaec dicta

```

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## 4. The ways to access LASLA information

- in order to search for Multidimensional textual Motifs :

SDMC : <http://tal.lipn.univ-paris13.fr/sdmc>

**Sequential Data Mining under Constraints**

Concordancier

Motifs Séquentiels	N°	Motifs	Calcul
Fouille récursive	1	{in}{partes}{equitatu} sup=2	<a href="#">Afficher concordancier</a>
Concordancier	2	{in}{cum}{legionibus} sup=2	<a href="#">Afficher concordancier</a>
Documentation	3	{qui}{se}{que}{in} sup=2	<a href="#">Afficher concordancier</a>
	4	{qui}{de}{ad} sup=2	<a href="#">Afficher concordancier</a>
	5	{qui}{causa}{constiterant} sup=2	<a href="#">Afficher concordancier</a>
	6	{qui}{eius}{fuerat} sup=2	<a href="#">Afficher concordancier</a>
	7	{qui}{obsides}{atque} sup=2	<a href="#">Afficher concordancier</a>
	8	{omnes}{arma}{possent} sup=2	<a href="#">Afficher concordancier</a>
	9	{se}{in}{ut} sup=2	<a href="#">Afficher concordancier</a>
	10	{se}{que}{Caesari} sup=2	<a href="#">Afficher concordancier</a>
	11	{ab}{parte}{ascensu} sup=2	<a href="#">Afficher concordancier</a>
	12	{flumen}{quod}{in} sup=2	<a href="#">Afficher concordancier</a>
	13	{a}{passuum}{duobus} sup=2	<a href="#">Afficher concordancier</a>
	14	{et}{et}{in} sup=2	<a href="#">Afficher concordancier</a>
	15	{et}{et}{in} sup=2	<a href="#">Afficher concordancier</a>

## 5. The LASLA Data Transfert Agreement

- The LASLA is sharing its data with non commercial research projects
- A limitation : files not to be transferred or made public
- “Recipients” :
  - Lila
  - Wordnet – Exeter
  - Bergamo University
  - Alpheios
  - The Bridge – Haverford College
  - Regla - Rección y complementación en griego y latín
  - Deucalion-model-lasla: LASLA Latin Lemmatizer Alpha - Ecole Nationale des Chartes
- Others ?