(De)Coding Commentaries on 1. Timothy : Digital Readings

Main issues of digital text analysis :

- The accessibility of the text

- The linguistic structure of 16th-century Latin

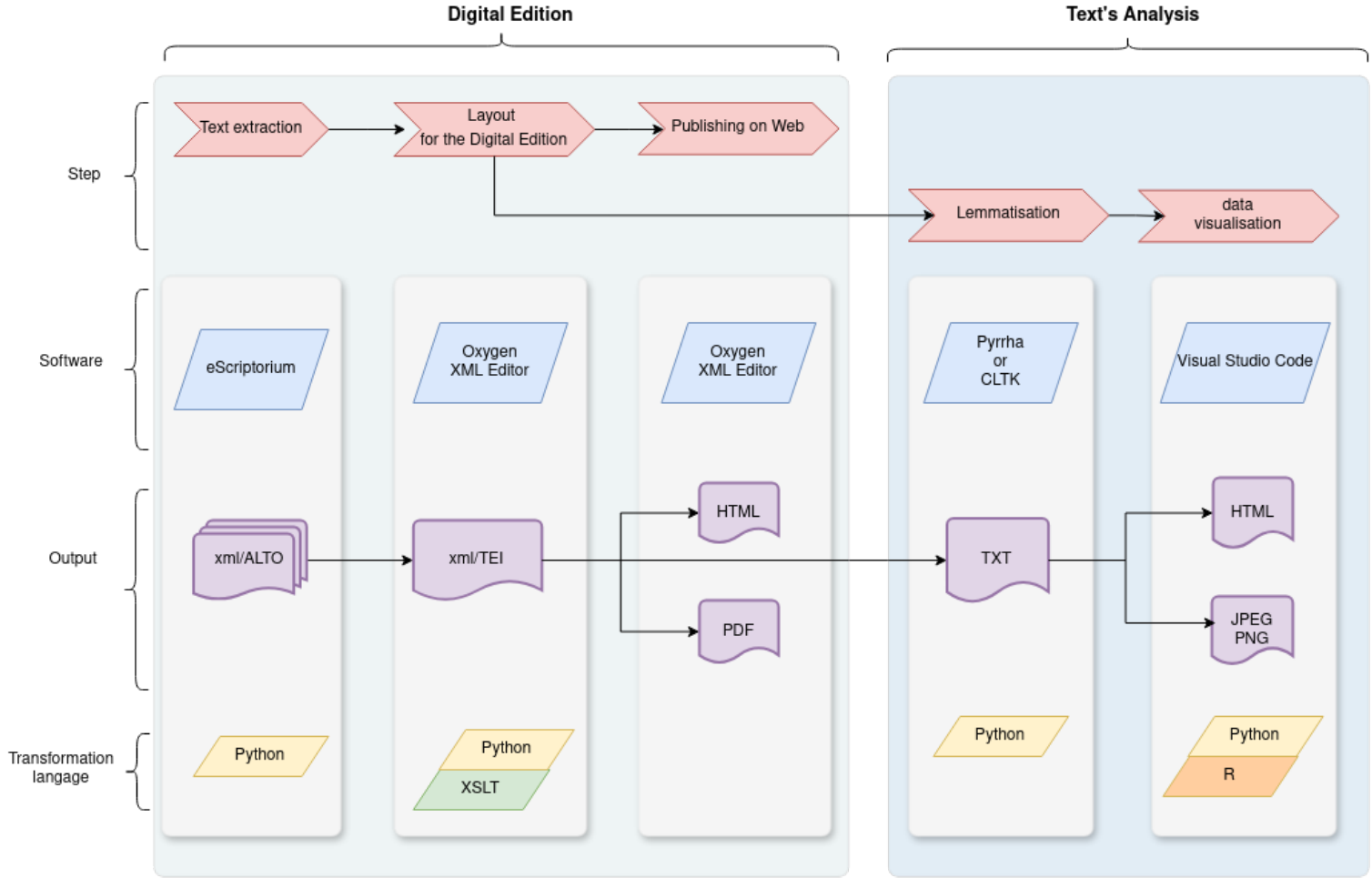
Main problem for digital analysis of the text :

- The accessibility of the text

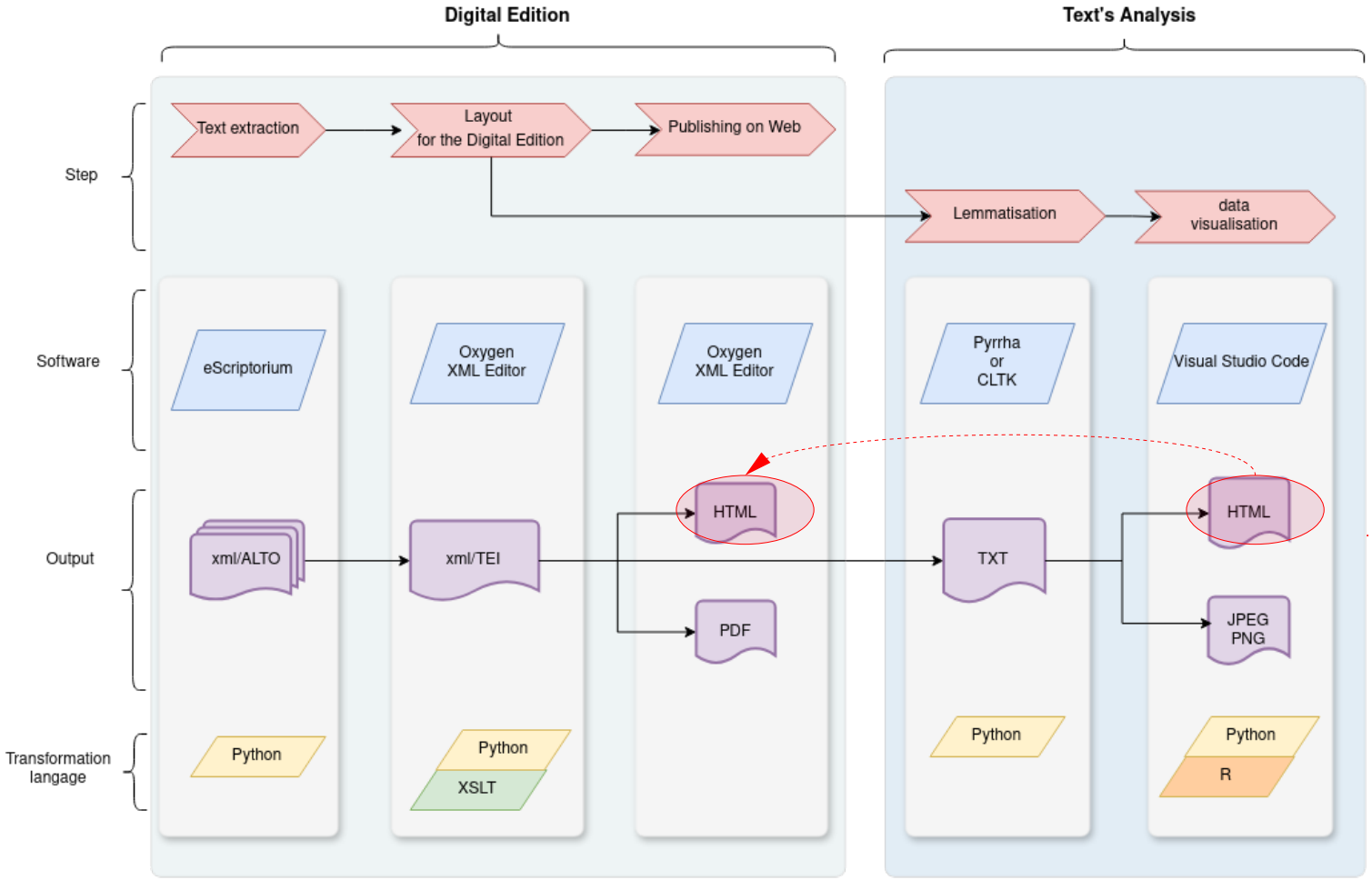
- The linguistic structure of 16th-century Latin

auctor ≠ author

Workflow


Digital Edition
Text's Analysis
Step
Text extraction
Layout
for the Digital Edition
Publishing on Web
Lemmatisation
data
visualisation
Software
eScriptorium
Oxygen
XML Editor
Oxygen
XML Editor
Pyrrha
or
CLTK
Visual Studio Code
Output
xml/ALTO
xml/TEI
HTML
PDF
TXT
HTML
JPEG
PNG
Transformation
langage
Python
Python
XSLT
Python
Python
R

Workflow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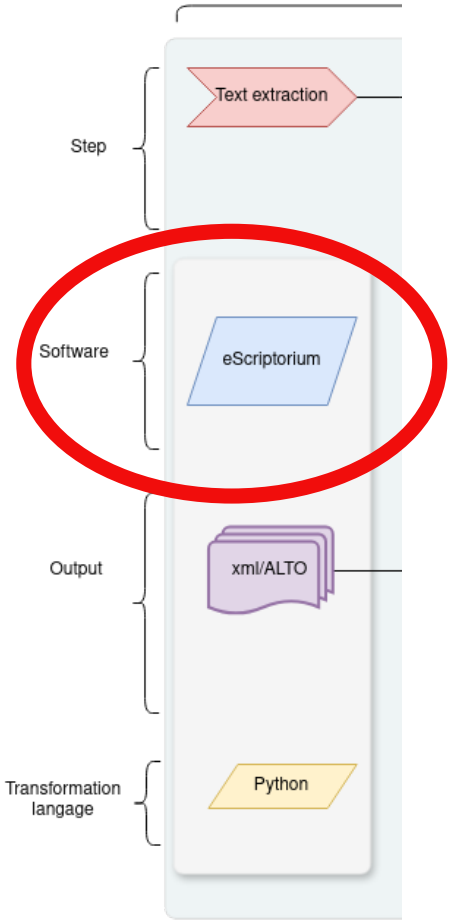
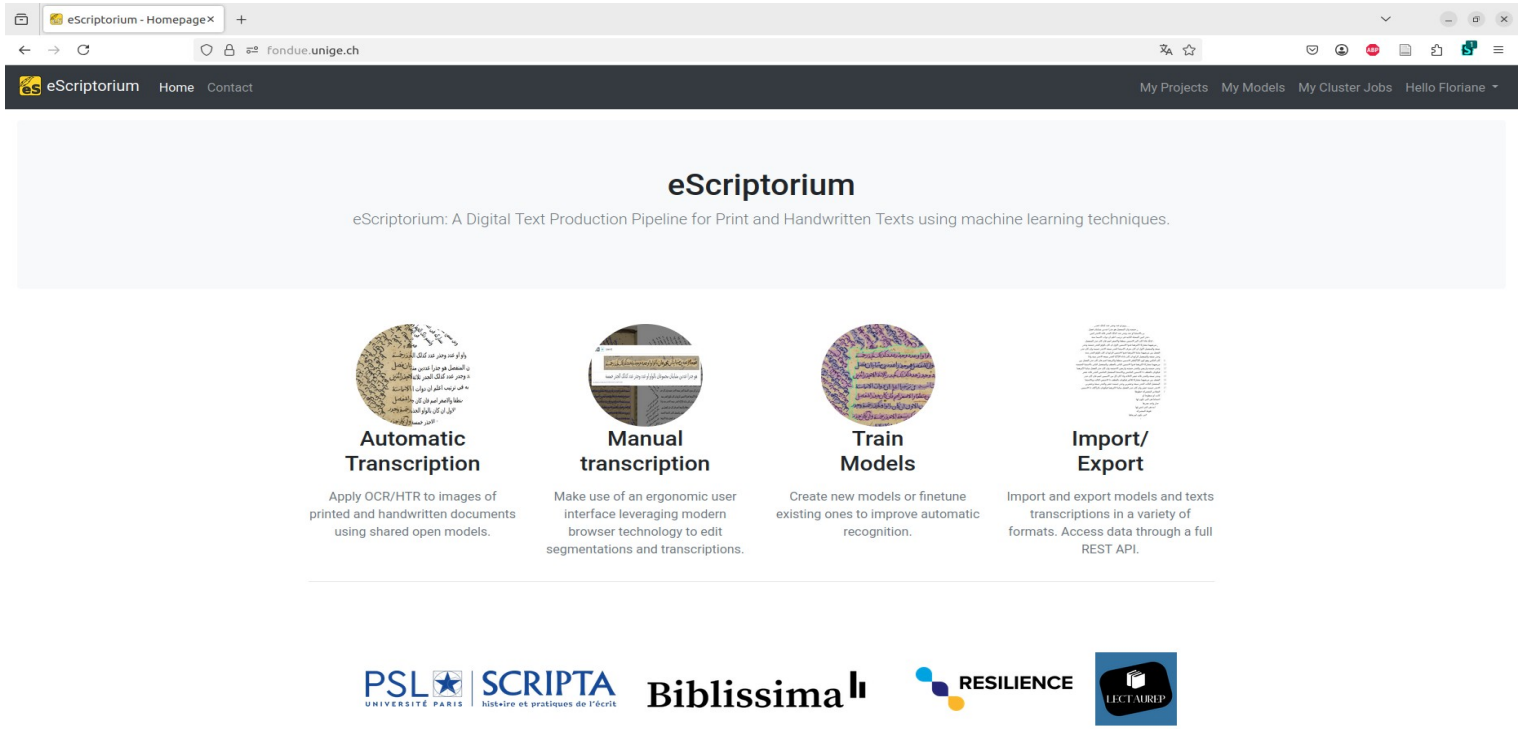
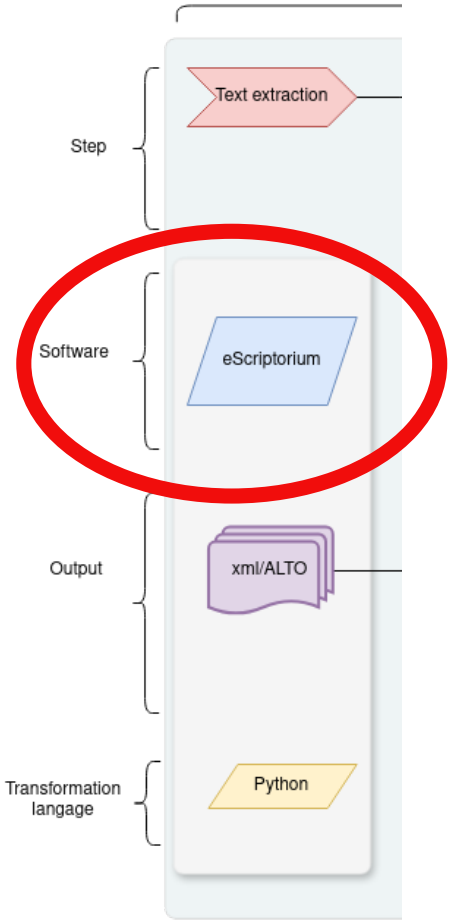
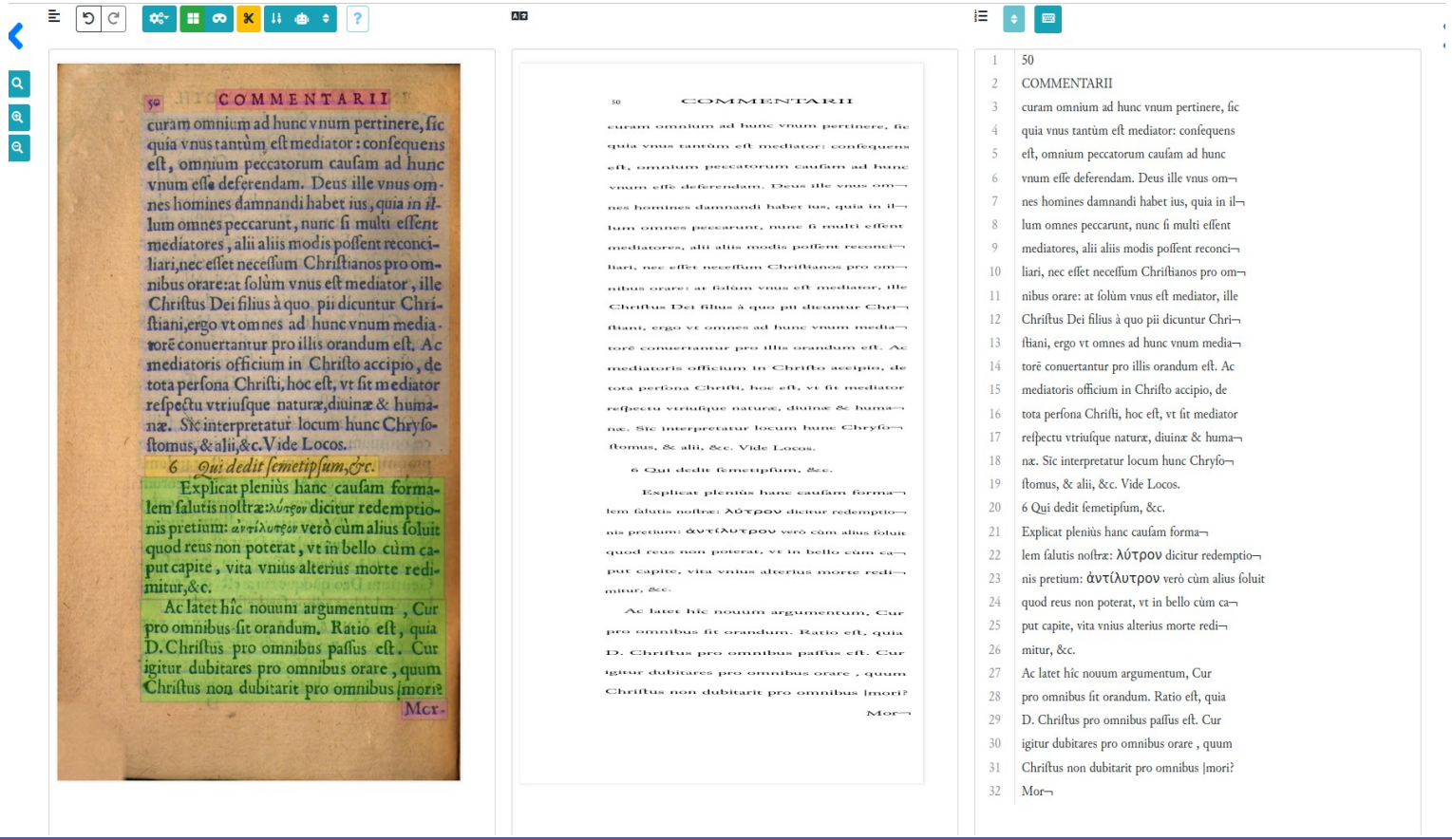


From Images to Text : eScriptorium

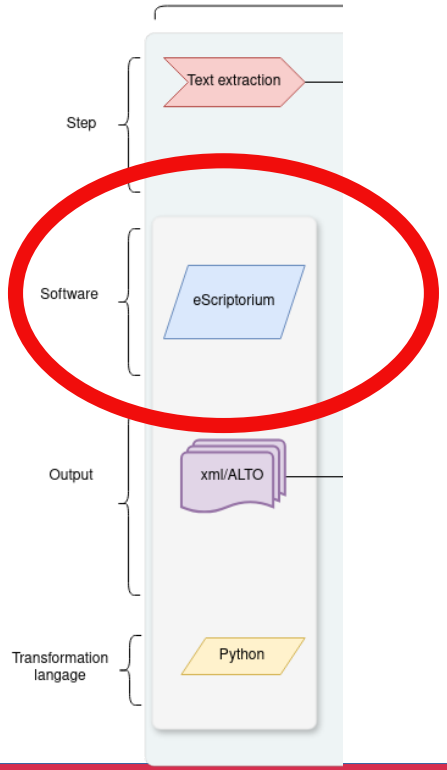




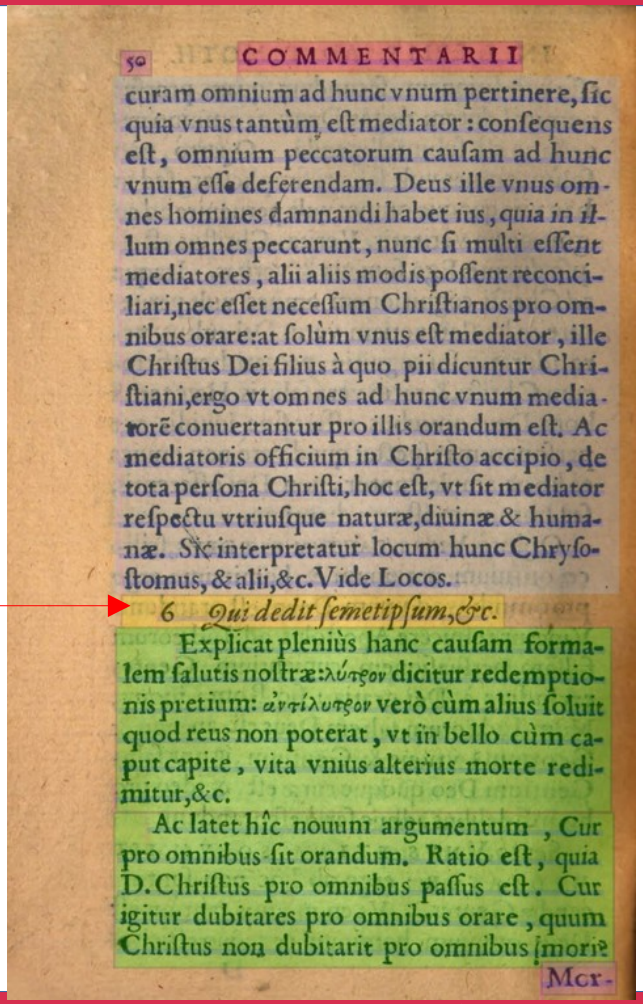
From Images to Text :



From Images to Text : Segmentation



verse


50 COMMENTARII

curam omnium ad hunc vnum pertinere, ſic quia vnus tantùm eſt mediator: conſequens eſt, omnium peccatorum cauſam ad hunc vnum eſſe deferendam. Deus ille vnus omnes homines damnandi habet ius, quia in illum omnes peccarunt, nunc ſi multi eſſent mediatores, alii aliis modis poſſent reconciliari, nec eſſet neceſſum Chriſtianos pro omnibus orare: at ſolùm vnus eſt mediator, ille Chriſtus Dei filius à quo pii dicuntur Chriſtiani, ergo vt omnes ad hunc vnum mediatorẽ conuertantur pro illis orandum eſt. Ac mediatoris officium in Chriſto accipio, de tota perſona Chriſti, hoc eſt, vt ſit mediator reſpectu vtriuſque naturæ, diuinæ & humanæ. Sic interpretatur locum hunc Chryſoſtomus, & alii, &c. Vide Locos.

6 *Qui dedit ſemetipſum, &c.*

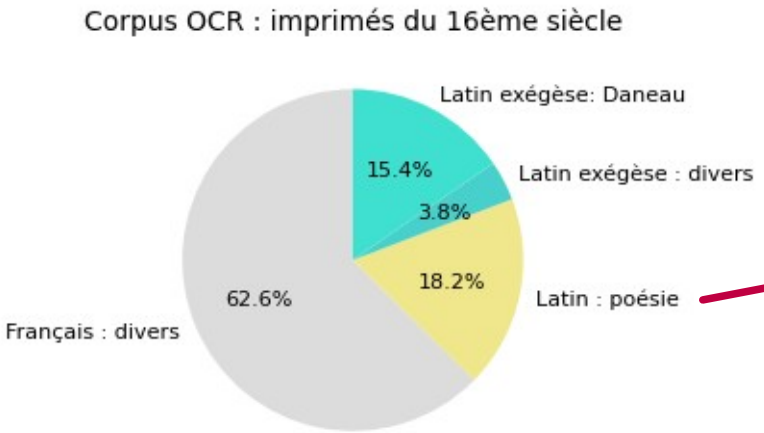
Explicat pleniùs hanc cauſam formalem ſalutis noſtræ: λύτρον dicitur redemptionis pretium: ἀντίλυτρον verò cùm alius ſoluit quod reus non poterat, vt in bello cùm caput capite, vita vnius alterius morte redimitur, &c.

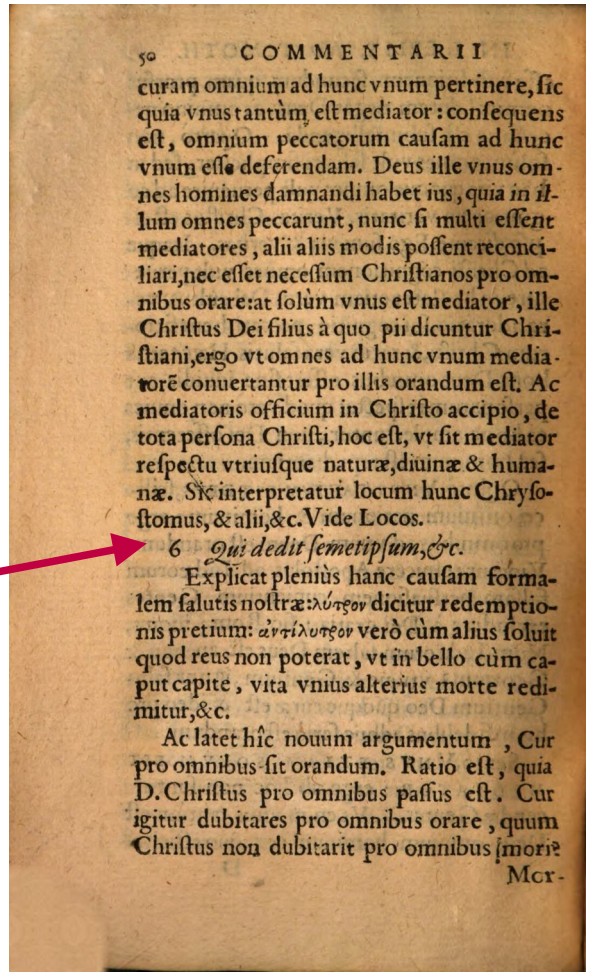
Ac latet hîc nouum argumentum, Cur pro omnibus ſit orandum. Ratio eſt, quia D. Chriſtus pro omnibus paſſus eſt. Cur igitur dubitares pro omnibus orare, quum Chriſtus non dubitarit pro omnibus [mori?

Mor-

From Images to Text : transcription

OCR for 16th-Century Latin Printed Texts :
Composition of the dataset (version of summer 2024)





50 COMMENTARII
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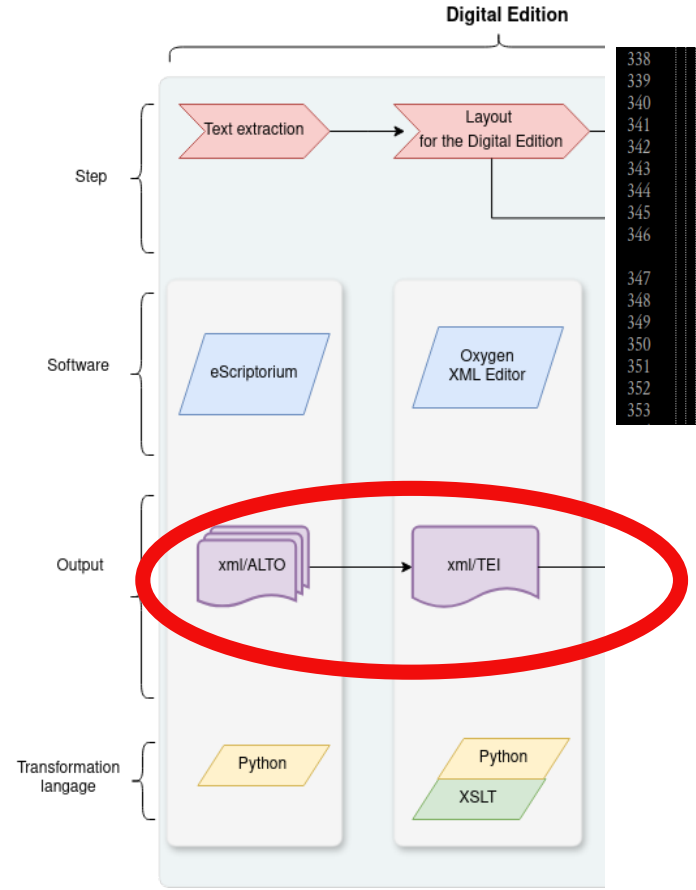

xml/alto

```
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339          <TextLine ID="line_19"
340                    TAGREFS="LT8"
341                    BASELINE="291 1000 829 999"
342                    HPOS="289"
343                    VPOS="963"
344                    WIDTH="538"
345                    HEIGHT="51">
346            <Shape><Polygon POINTS="714 963 700 963 685 963 670 963 656 963 641 963 626 963 612 963 597 963 582 963 568 963 553 963 538 963 523 963 509 963 494 963 479 963 465 963 450 963 435 963
               421 963 406 963 391 963 377 963 362 963 347 963 333 963 318 963 303 963 293 963 289 964 290 999 290 1014 826 1011 827 998 824 964 722 963 714 963"/></Shape>
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xml/tei

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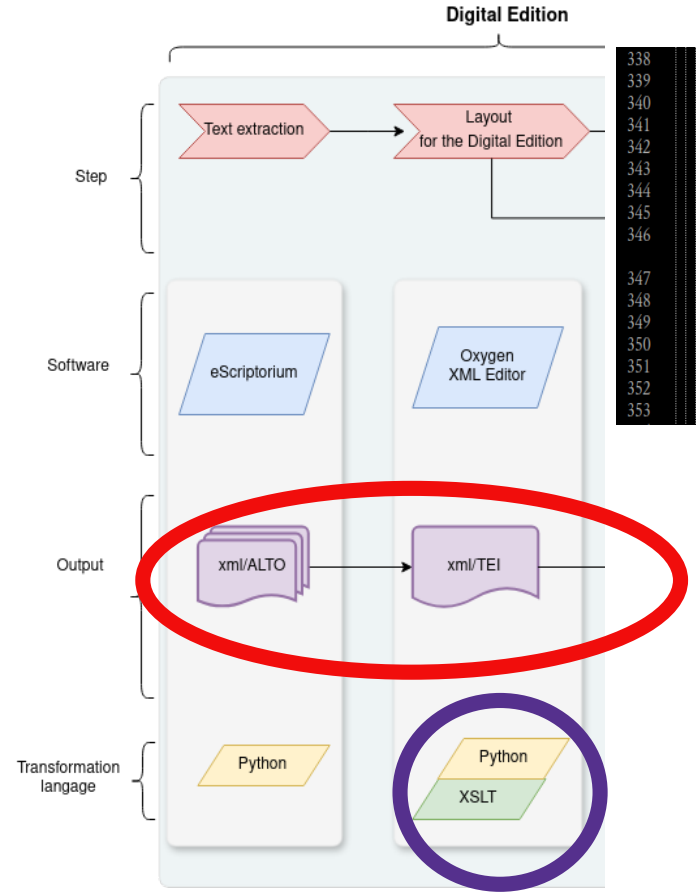

xml/alto

```
338        <Shape><Polygon POINTS="232.772 961.945 853.8 961.945 853.8 1018.18 232.772 1018.18 232.772 961.945"/></Shape>
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343                  VPOS="963"
344                  WIDTH="538"
345                  HEIGHT="51">
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             421 963 406 963 391 963 377 963 362 963 347 963 333 963 318 963 303 963 293 963 289 964 290 999 290 1014 826 1011 827 998 824 964 722 963 714 963"/></Shape>
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351                  HEIGHT="51"></String>
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353      </TextBlock>
```

xml/tei

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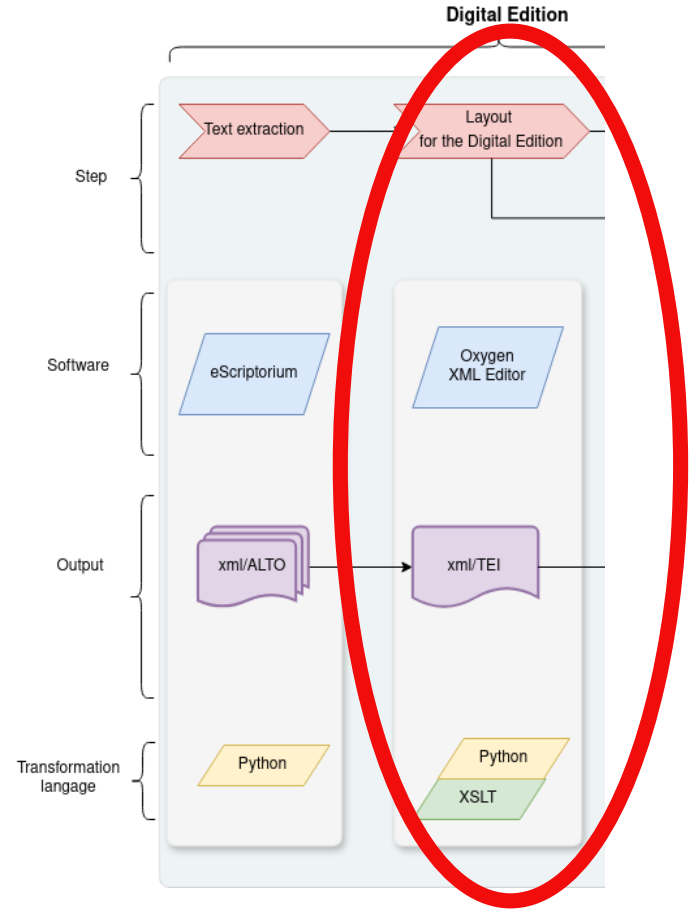
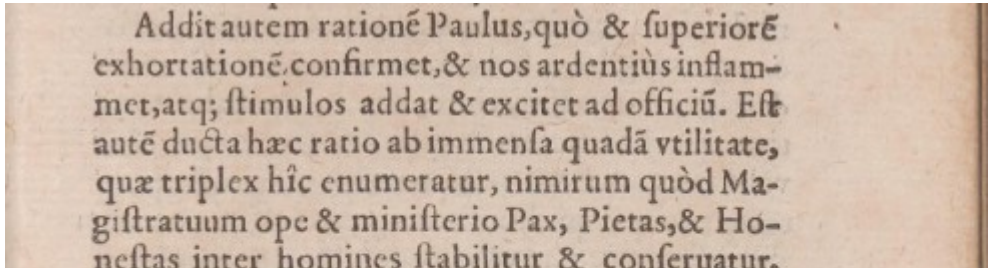
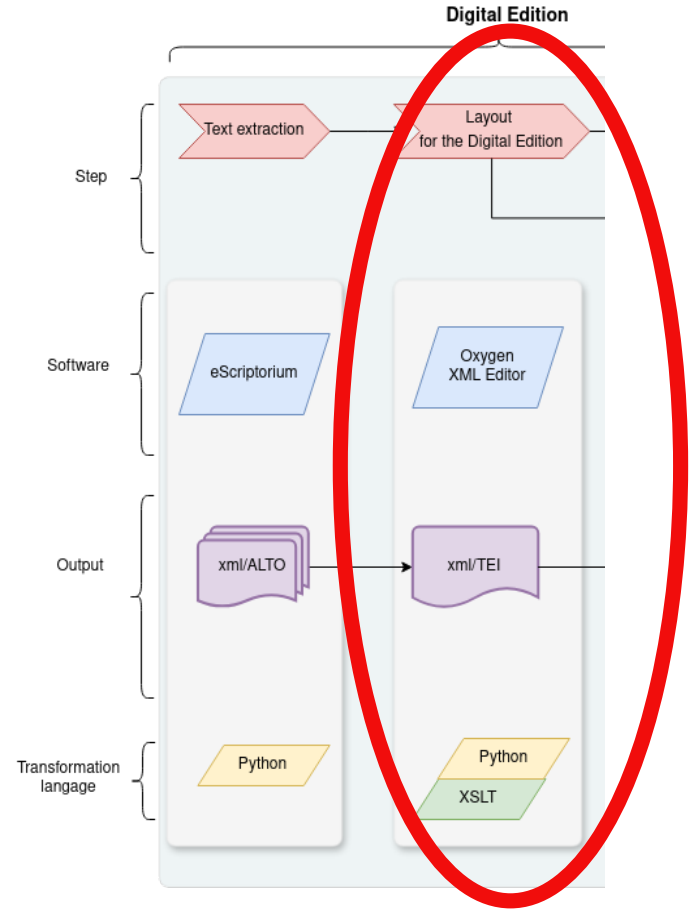


Normalisation :

```
<choice>
  <orig>Addit autem rationẽ Paulus, quò &amp; ſuperiorẽ</orig>
  <reg type="contemporary">Addit autem rationem Paulus, quo et superiorem</reg>
</choice>
<lb corresp="#f2012961_eSc_line_9cf7ed46_ligne_8"/>
<choice>
  <orig>exhortationẽ, confirmet, &amp; nos ardentiùs inflam¬</orig>
  <reg type="contemporary">exhortationem, confirmet, et nos ardentius inflam-</reg>
</choice>
<lb corresp="#f2012961_eSc_line_576853c4_ligne_9"/>
<choice>
  <orig>met, atq; ſtimulos addat &amp; excitet ad officiũ. Eſt</orig>
  <reg type="contemporary">met, atque stimulos addat et excitet ad officium. Est</reg>
</choice>
```


Addit autem rationẽ Paulus,quò & ſuperiorẽ
exhortationẽ,confirmet,& nos ardentiùs inflam-
met,atq; ſtimulos addat & excitet ad officiũ. Eſt
autẽ ducta hæc ratio ab immenſa quadã vtilitate,
quæ triplex hîc enumeratur, nimirum quòd Ma-
giſtratuum ope & miniſterio Pax, Pietas,& Ho-
neſtas inter homines ſtabilitur & conſeruatur.



Normalisation :

Python script

```
<choice>
  <orig>Addit autem rationẽ Paulus, quò &amp; ſuperiorẽ</orig>
  <reg type="contemporary">Addit autem rationem Paulus, quo et superiorem</reg>
</choice>
<lb corresp="#f2012961_eSc_line_9cf7ed46_ligne_8"/>
<choice>
  <orig>exhortationẽ, confirmet, &amp; nos ardentiùs inflam¬</orig>
  <reg type="contemporary">exhortationem, confirmet, et nos ardentius inflam-</reg>
</choice>
<lb corresp="#f2012961_eSc_line_576853c4_ligne_9"/>
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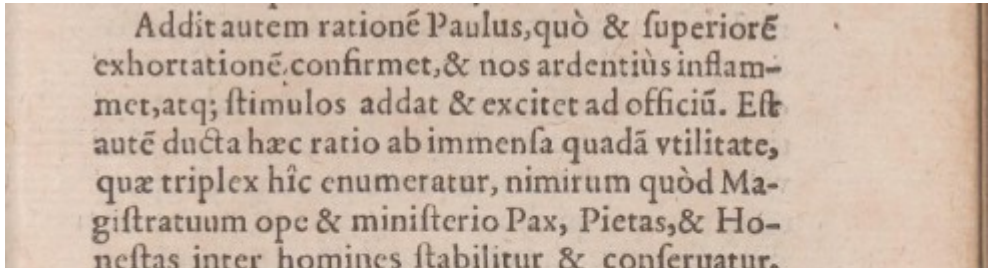
  <orig>met, atq; ſtimulos addat &amp; excitet ad officiũ. Eſt</orig>
  <reg type="contemporary">met, atque stimulos addat et excitet ad officium. Est</reg>
</choice>
```


Addit autem rationẽ Paulus,quò & ſuperiorẽ
exhortationẽ,confirmet,& nos ardentiùs inflam-
met,atq; ſtimulos addat & excitet ad officiũ. Eſt
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quæ triplex hîc enumeratur, nimirum quòd Ma-
giſtratuum ope & miniſterio Pax, Pietas,& Ho-
neſtas inter homines ſtabilitur & conſeruatur.

Web interface :

Web interface :

☰ Navigation

[↓] XML-TEI [↓] PDF

COMMENTARII IN EPISTOLAS D. PAVLI AD TIMOTHEUM : [ARETIUS, BENEDICTUS], [1580]

COMMENTARII

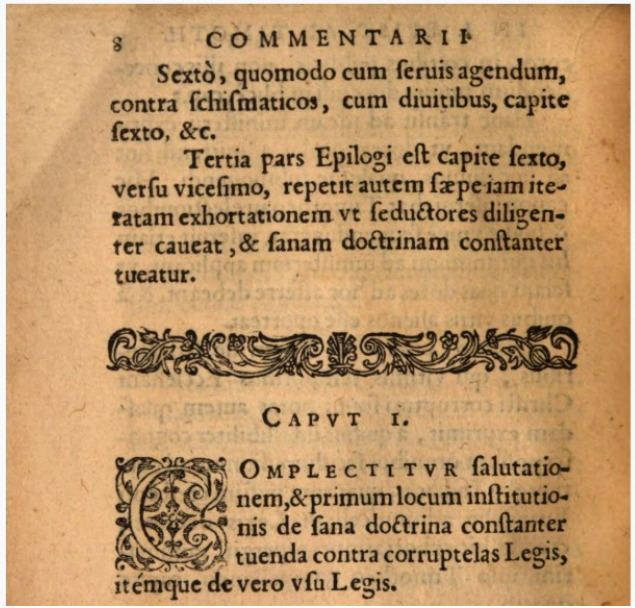
8

Sexto, quomodo cum seruis agendum, contra schismaticos, cum diuitibus, capite sexto, etc.

Tertia pars Epilogi est capite sexto, versu vicesimo, repetit autem saepe iam iteratam exhortationem vt seductores diligenter caueat, et sanam doctrinam constanter tueatur.

CAPVT I.

COMPLECTITVR salutationem, et primum locum institutionis de sana doctrina constanter tuenda contra corruptelas Legis, itemque de vero vsu Legis.



8 COMMENTARII

Sextò, quomodo cum ſeruis agendum, contra ſchiſmaticos, cum diuitibus, capite ſexto, &c.

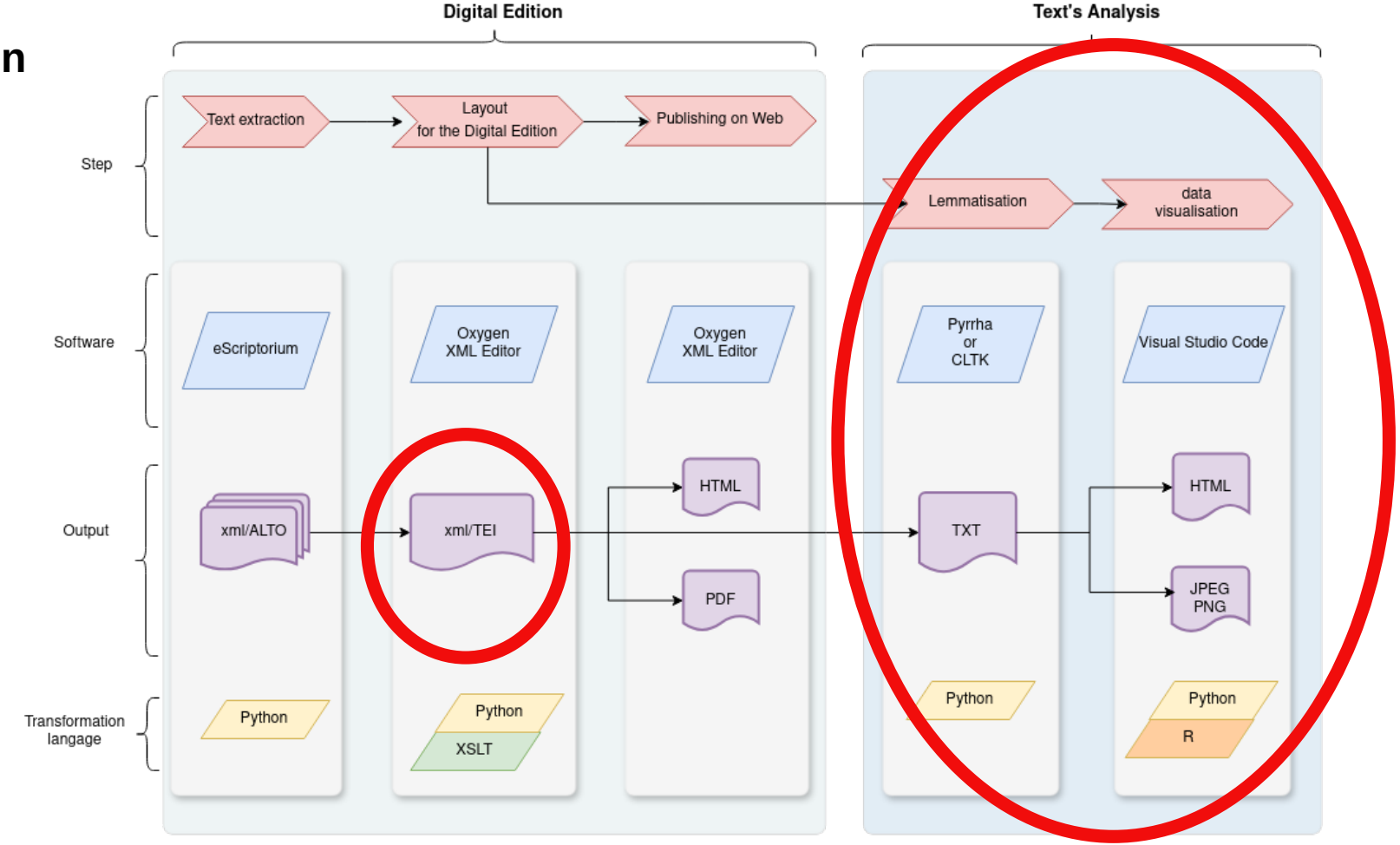
Tertia pars Epilogi eſt capite ſexto, verſu viceſimo, repetit autem ſæpe iam iteratam exhortationem vt ſeductores diligenter caueat, & ſanam doctrinam conſtanter tueatur.

CAPVT I.

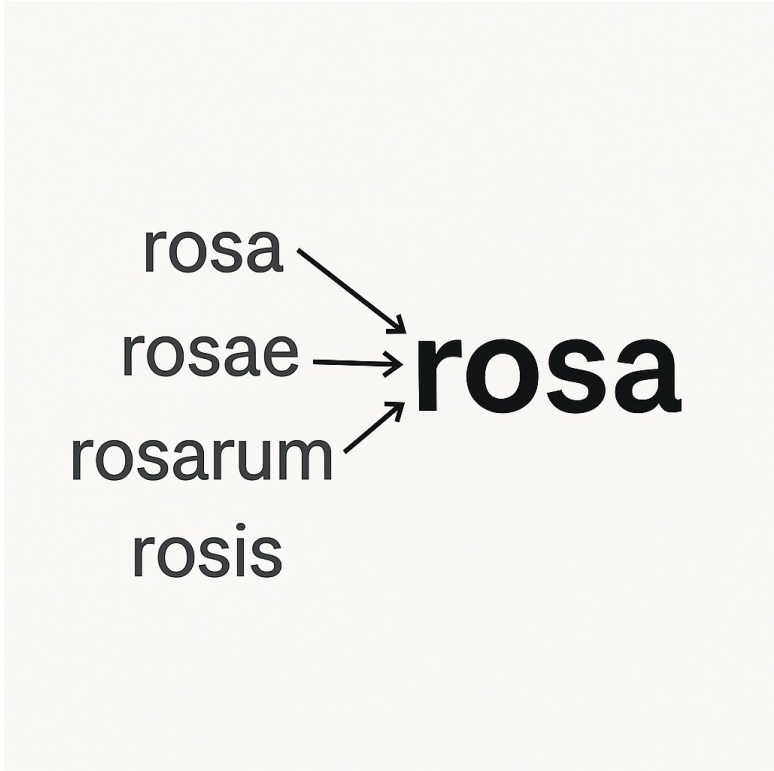
COMPLECTITVR ſalutationem, & primum locum inſtitutionis de ſana doctrina conſtanter tuenda contra corruptelas Legis, itémque de vero vſu Legis.

https://16thexegesisdh.github.io/ReformingPaul/

Lemmatisation



lemmatization



form/token	lemma	POS
rosae	rosa	NOM

≠

lemmatization

Pyrrha

Classic texts from LASLA

https://dh.chartes.psl.eu/pyrrha/

software

The Classical Language Toolkit

STANZA model (classical, medieval and modern latin)

http://cltk.org/

Python library

lemmatization with Pyrrha

« Duo sunt fidelium officia in publicis coetibus:

audire sanam doctrinam ex verbo Dei,

et cum toto coetu preces ad Dominum fundere. »

form	lemma	POS	morph
Dvo	duo	ADJcar	Case=Nom|Numb=Plur|Gend=MascNeut
sunt	sum1	VER	Numb=Plur|Mood=Ind|Tense=Pres|Voice=Act|Person=3
fidelium	fidelis2	NOMcom	Case=Gen|Numb=Plur
officia	officium	NOMcom	Case=Nom|Numb=Plur
in	in	PRE	MORPH=empty
publicis	publicus2	ADJqua	Case=Abl|Numb=Plur|Gend=Com|Deg=Pos
coetibus	coetus	NOMcom	Case=Abl|Numb=Plur
:	:	PUNC	MORPH=empty

form	lemma	POS	morph
audire	audio	VER	Mood=Inf|Tense=Pres|Voice=Act
sanam	sanus	ADJqua	Case=Acc|Numb=Sing|Gend=Fem|Deg=Pos
doctrinam	doctrina	NOMcom	Case=Acc|Numb=Sing
ex	ex	PRE	MORPH=empty
verbo	uerbum	NOMcom	Case=Abl|Numb=Sing
Dei	deus	NOMcom	Case=Gen|Numb=Sing
et	et2	CONcoo	MORPH=empty
cum	cum2	PRE	MORPH=empty
toto	totus	PROind	Case=Abl|Numb=Sing|Gend=MascNeut
coetu	coetus	NOMcom	Case=Abl|Numb=Sing
preces	prex	NOMcom	Case=Acc|Numb=Plur
ad	ad2	PRE	MORPH=empty
Dominum	dominus	NOMcom	Case=Acc|Numb=Sing
fundere	fundo2	VER	Mood=Inf|Tense=Pres|Voice=Act

Digressiunculam continuat etiam sui muneris annexa mentione.

Pyrrha

Digressiunculam	digressiuncula	NOMcom	Case=Acc|Numb=Sing
continuat	continuo1	VER	Numb=Sing|Mood=Ind| Tense=Pres|Voice=Act| Person=3
etiam	etiam	ADV	Deg=Pos
sui	sui2	PROpos.ref	Case=Gen|Numb=Sing| Gend=MascNeut
muneris	munus	NOMcom	Case=Gen|Numb=Sing
annexa	annecto	VER	Case=Abl|Numb=Sing| Gend=Fem|Mood=Par| Tense=Perf|Voice=Pass
mentione	mentio1	NOMcom	Case=Abl|Numb=Sing
.	.	PUNC	MORPH=empty

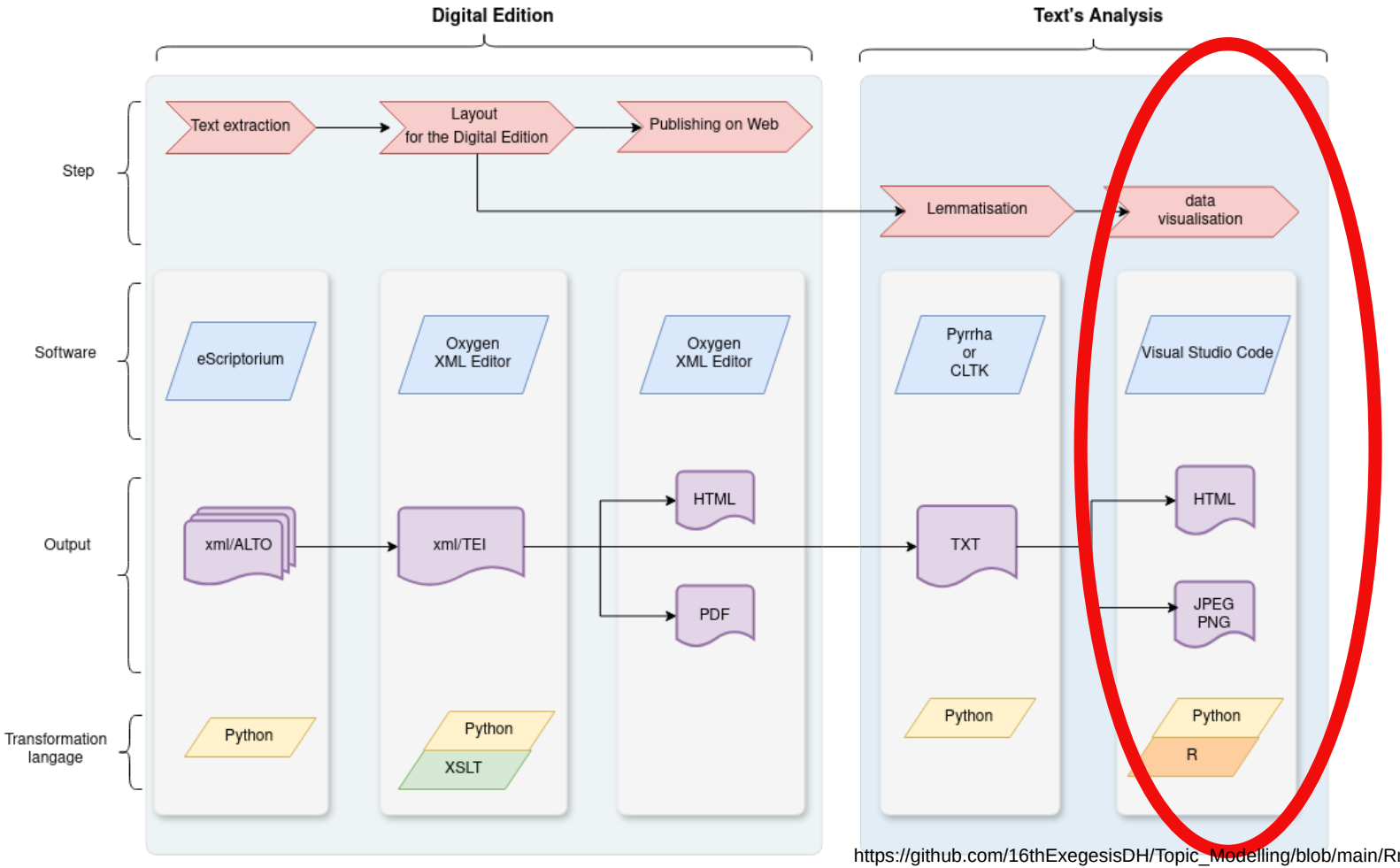
cltk

digressi**unulus**
continuo
etiam
suus
munus
annecto
mentio.

To sum up :

Tool	Ease of Use	Accuracy	Vocabulary Coverage	Annotation Time	Required Skills
Pyrrha	✔️ Intuitive	✔️ Very Accurate	❌ Limited to Classical Latin	❌ Slow	None (Graphical Interface)
CLTK	❌ Technical (Python)	❌ Less Accurate	✔️ Wide (Classical to Modern)	✔️ Automatic	Programming (Python) + Resources

II. Text Analysis



https://github.com/16thExegesisDH/Topic_Modelling/blob/main/Rmd/Lambertus_Network.html

Timothy 1. chaptre 2

Lambert Daneau's (c. 1530–c. 1590)
Commentary

Benedictus Aretius' (1505–1574)
Commentary

https://github.com/16thExegesisDH/Topic_Modelling/blob/main/Rmd/Lambertus_Network.html

Visualizing Key Themes in Daneau's Commentary on 1 Tim : chaptre 2.

Data lemmatize with CLTK, visualisation in R

```
library(quanteda.textplots)
textplot_wordcloud(text_dfm, max_words = 50)
```

```
textplot_wordcloud(
  text_dfm,
  max_words = 50,
  color = c("#6f7f81", "#2081f0", "darkblue"),  # Custom color gradient
  random_order = FALSE,                         # Disable random placement
  rotation = 0.25,                              # 25% of words rotated (for aesthetics)
  font = "sans"                                 # Change font (try "sans", "serif", "mono")
)
```

https://github.com/16thExegesisDH/Topic_Modelling/blob/main/Rmd/Lambertus_Network.html

Visualizing Key Themes in Daneau's Commentary on 1 Tim : chaptre 2.

Data lemmatize with CLTK, visualisation in R

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library(quanteda.textplots)
textplot_wordcloud(text_dfm, max_words = 50)
```

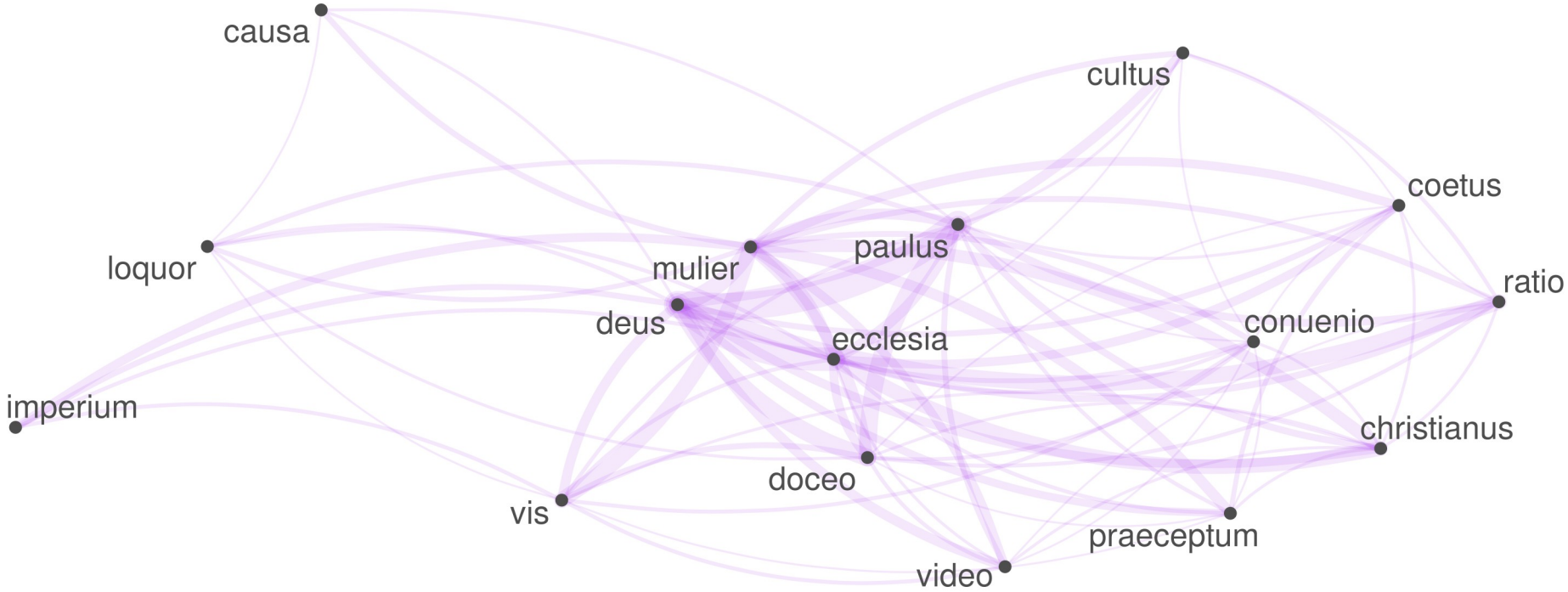
```
textplot_wordcloud(
  text_dfm,
  max_words = 50,
  color = c("#6f7f81", "#2081f0", "darkblue"),  # Custom color gradient
  random_order = FALSE,                          # Disable random placement
  rotation = 0.25,                               # 25% of words rotated (for ae
  font = "sans"                                  # Change font (try "sans", "ser
)
```

https://github.com/16thExegesisDH/Topic_Modelling/blob/main/Rmd/Lambertus_Network.html

Network of co-occurences of mulier in Daneau's Commentary on 1 Tim : chaptre 2.

Data set prepared with cltk

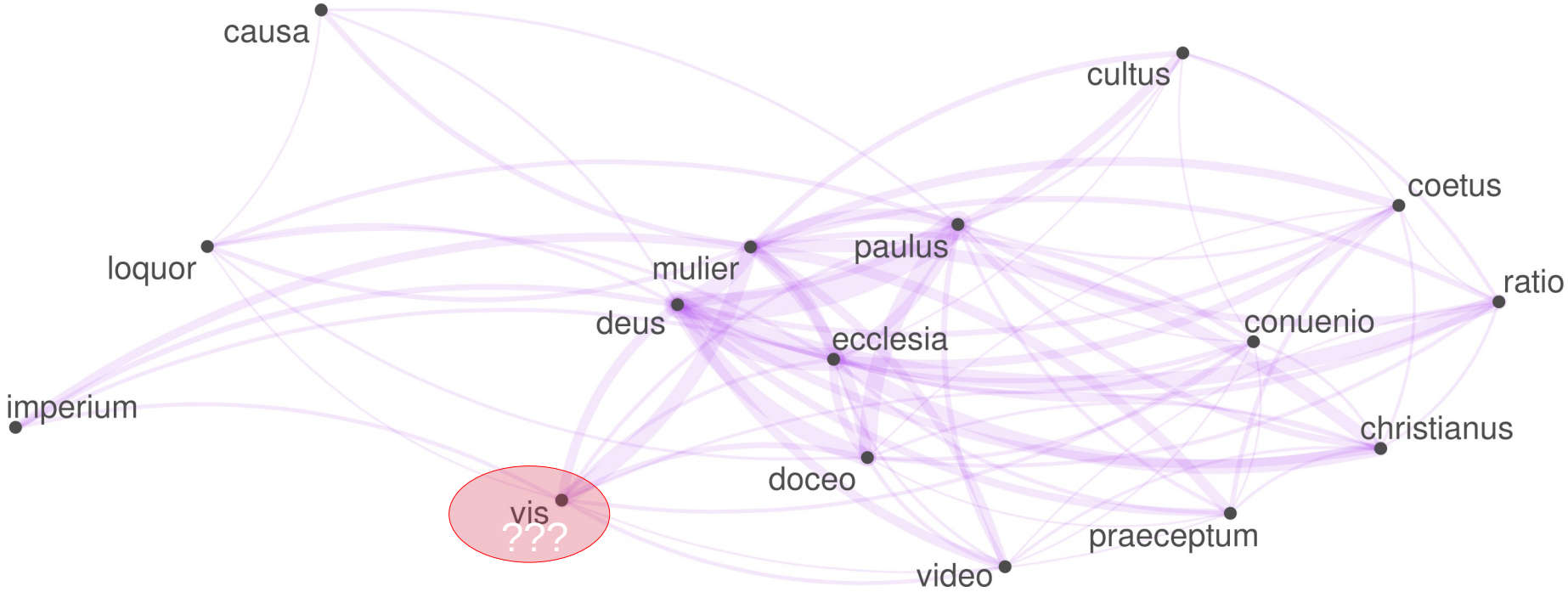
mulier



Network of co-occurences of mulier in Daneau's Commentary on 1 Tim : chaptre 2.

Data set prepared with cltk

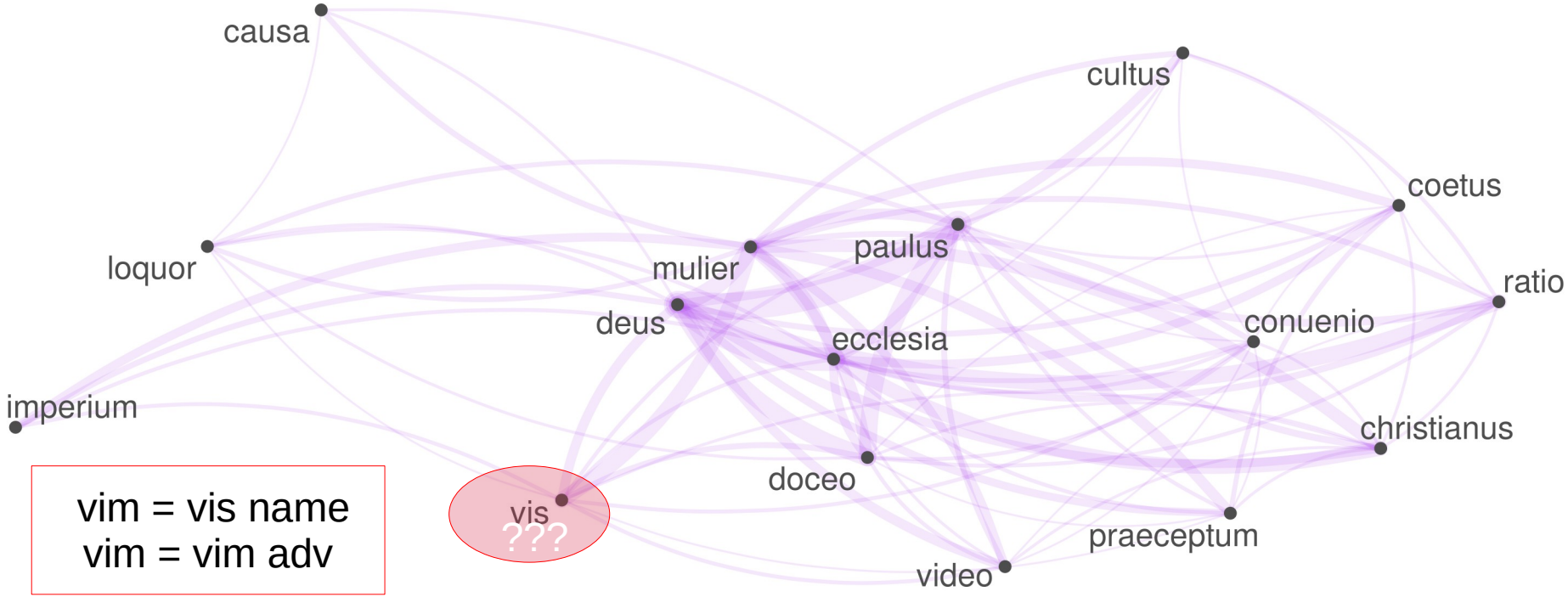
mulier



Network of co-occurences of mulier in Daneau's Commentary on 1 Tim : chaptre 2.

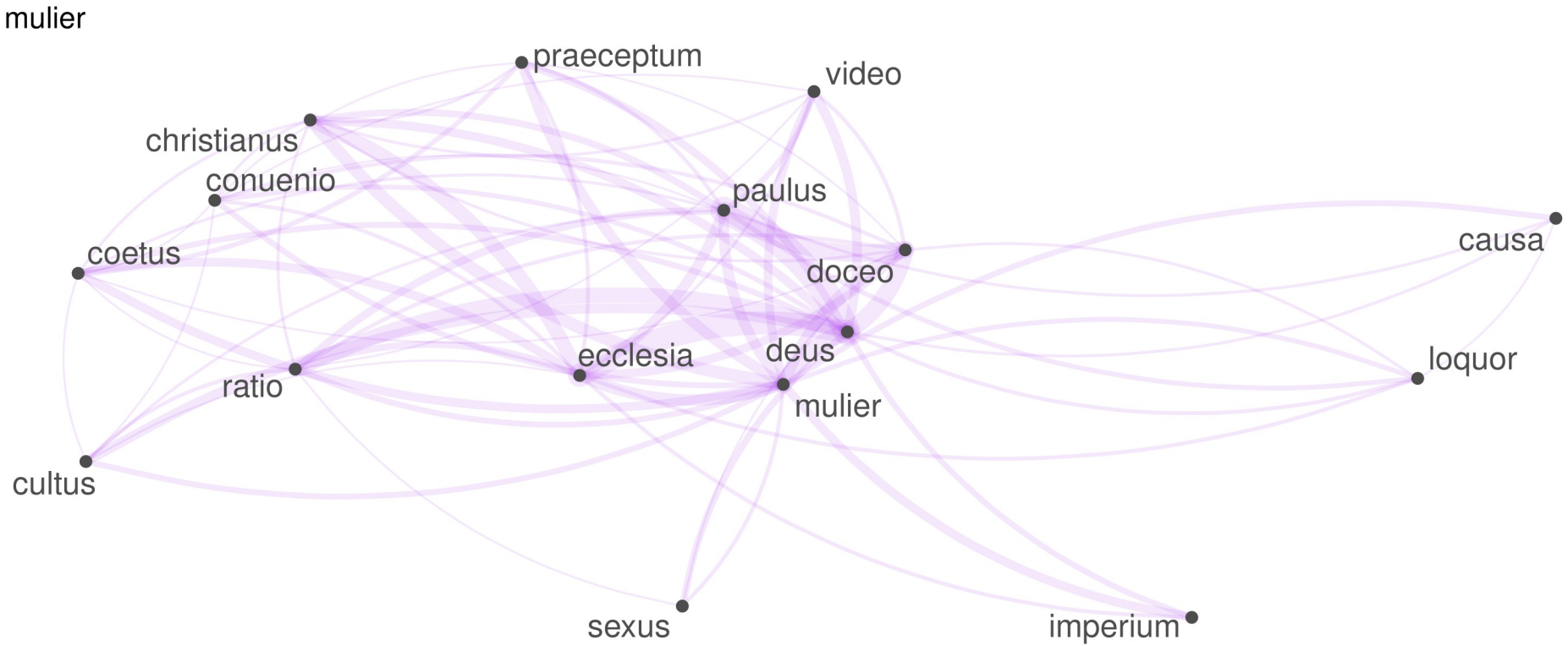
Data set prepared with cltk

mulier



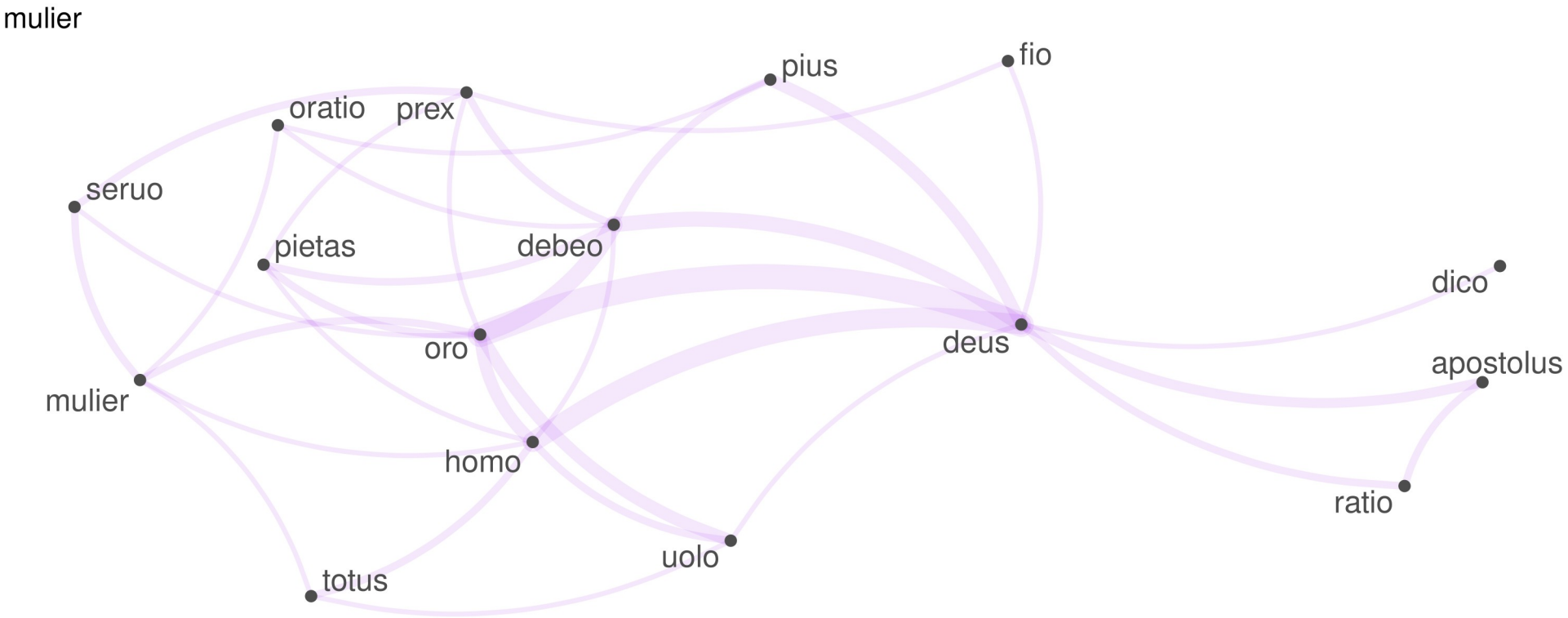
vim = vis name
vim = vim adv

Network of co-occurences of mulier in Daneau's Commentary on 1 Tim : chaptre 2.
Corrected !



Network of co-occurences of mulier in Aretius Commentary on 1 Tim : chaptre 2.

Data set prepared with Pyrrha



Thanks for your attention !