

Variety in “Righteousness” after Paul: a Word Co-occurrence Analysis

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In this paper

1. Righteousness in Paul
2. Righteousness in Polycarp's letter to the Philippians
3. Computer-assisted analysis using word co-occurrence with phylogenetics
4. Phylogenetic tree of righteousness (Paul to second century)

Righteousness in Paul

δικαιοσύνη: Gal x 4, Rom x 34

- ”...we know that a person is **justified** not by the works of the law but through faith in Jesus Christ. And we have come to believe in Christ Jesus, so that we might be **justified** by faith in Christ, and not by doing the works of the law, because no one will be **justified** by the works of the law.” (Gal. 2:16)

	δικαιος	δίκη	δικαιοσύνη
Pagan (8th c. BCE - 4th c. CE) (774 docs; 12965219 words)	5153	3484	1153
Pagan (1st - 4th c. CE) (411 docs; 8692448 words)	1885	1506	618
Septuagint (55 docs; 799083 words)	433	45	341
Philo of Alexandria (31 docs; 643011 words)	310	172	157
Titus Flavius Josephus (4 docs; 469580 words)	296	156	39
Paul of Tarsus (7 docs; 24066 words)	10	49	
New Testament (27 docs; 137787 words)	79	4	91
Christian (1st - 4th c. CE) (131 docs; 2975644 words)	1748	557	1095

*Kaše, Nikki, Glomb,
forthcoming 2021:
"Righteousness in Early
Christian Literature: Distant
Reading and Textual
Networks" in: Annali di Storia
dell'Esegesi 2021*

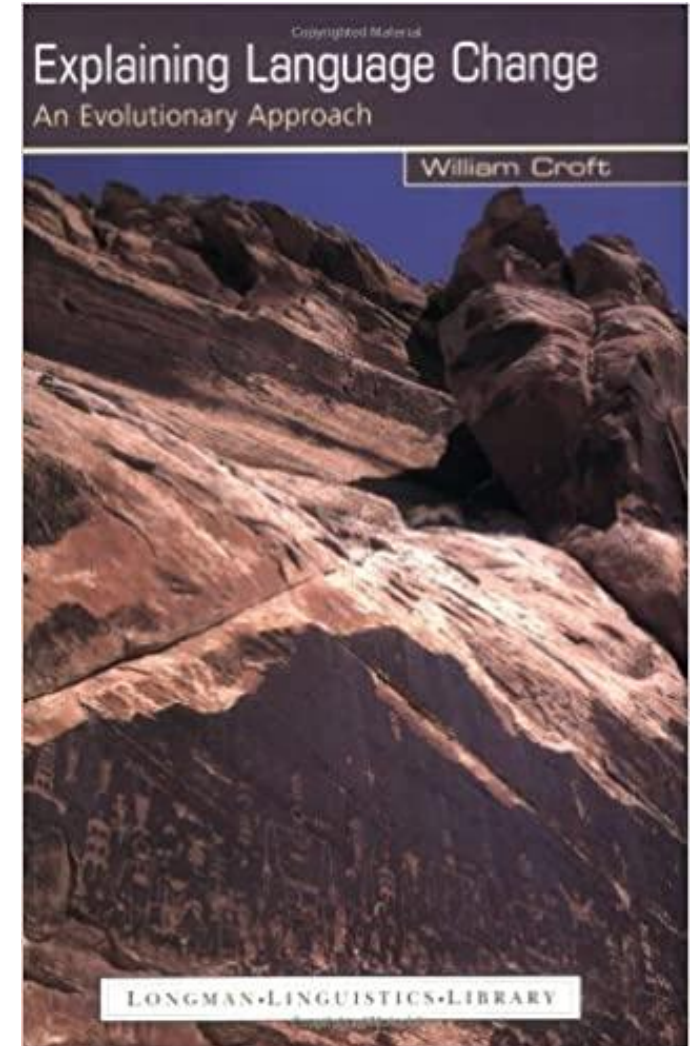
Righteousness in Polycarp (Pol. Phil.)

δικαιοσύνη x 8
ἀδικία x 1

- 3:1 Ταῦτα, ἀδελφοί, οὐκ ἑμαυτῶ ἐπτρέψας γράφω ὑμῖν περὶ τῆς δικαιοσύνης, ἀλλ' ἐπεὶ ὑμεῖς προεπεκαλέσασθέ με.
- 3:2 οὔτε γὰρ ἐγὼ οὔτε ἄλλος ὅμοιος ἐμοὶ δύναται κατακολουθῆσαι τῇ σοφίᾳ τοῦ μακαρίου καὶ ἐνδόξου Παύλου...
- 3:1 These things, brethren, I write to you concerning righteousness, not because I take anything upon myself, but because ye have invited me to do so.
- 3:2 For neither I, nor any other such one, can come up to the wisdom of the blessed and glorified Paul...

William Croft: Explaining Language Change

Generalized theory of selection	Selection in biology	Selection in language
replicator	gene	lingueme
replicators in a population	gene pool	lingueme pool
structured set of replicators	string of DNA	utterance
altered replication	mutation, recombination	innovation
alternative replicators	alleles	variants
interactor	organism	speaker (speaker's grammar=cognitive faculty)
environment	ecological environment	social-communicative context



Word co-occurrence

- Which words occur together in a specific textual context
- The most often used words by Paul in relation to righteousness: δικαιοσ and δικαιοσυνη
 - Question: which words co-occur with δικαιοσ and δικαιοσυνη?
- Problems with purely computational approaches
- Ἀγαλλιᾶσεται ἡ γλῶσσά μου τὴν δικαιοσύνην σου. (1. Clem. 18:15)
 - Question: to whom the text are referring?
 - ➔ Manually mapping the texts

Word co-occurrence table

	δικαιος-πιστις	δικαιος-ζαω	δικαιος-πιστις	δικαιος-ιησου	δικαιος-νομος	δικαιος-ποιεω
ROM.	1	1	1	1	1	1
COR.(A)	0	0	0	0	0	0
COR.(B)	0	0	0	0	0	0
GAL.	1	1	0	0	0	0
EPH.	0	0	0	0	0	0
PHIL.	0	0	0	0	0	0
COL.	0	0	0	0	0	0
THESS.(A)	0	0	0	0	0	0
THESS.(B)	0	0	0	0	0	0
TIM.(A)	0	0	0	0	1	0
TIM.(B)	0	0	0	0	0	0
TIT.	0	0	0	0	0	0
PHILEM.	0	0	0	0	0	0
ADV.HAER.	0	0	0	0	0	0
APOL.(A)	0	0	0	1	0	1
POL.PHIL.	0	0	0	0	0	0
CLEM.(A)	0	0	0	1	0	0
CLEM.(B)	1	0	0	1	0	0
IGN.	0	0	0	1	0	0
MPOLY.	0	0	0	0	0	0
ACTS	0	0	0	1	0	0
ACTA P.	0	0	0	0	0	0

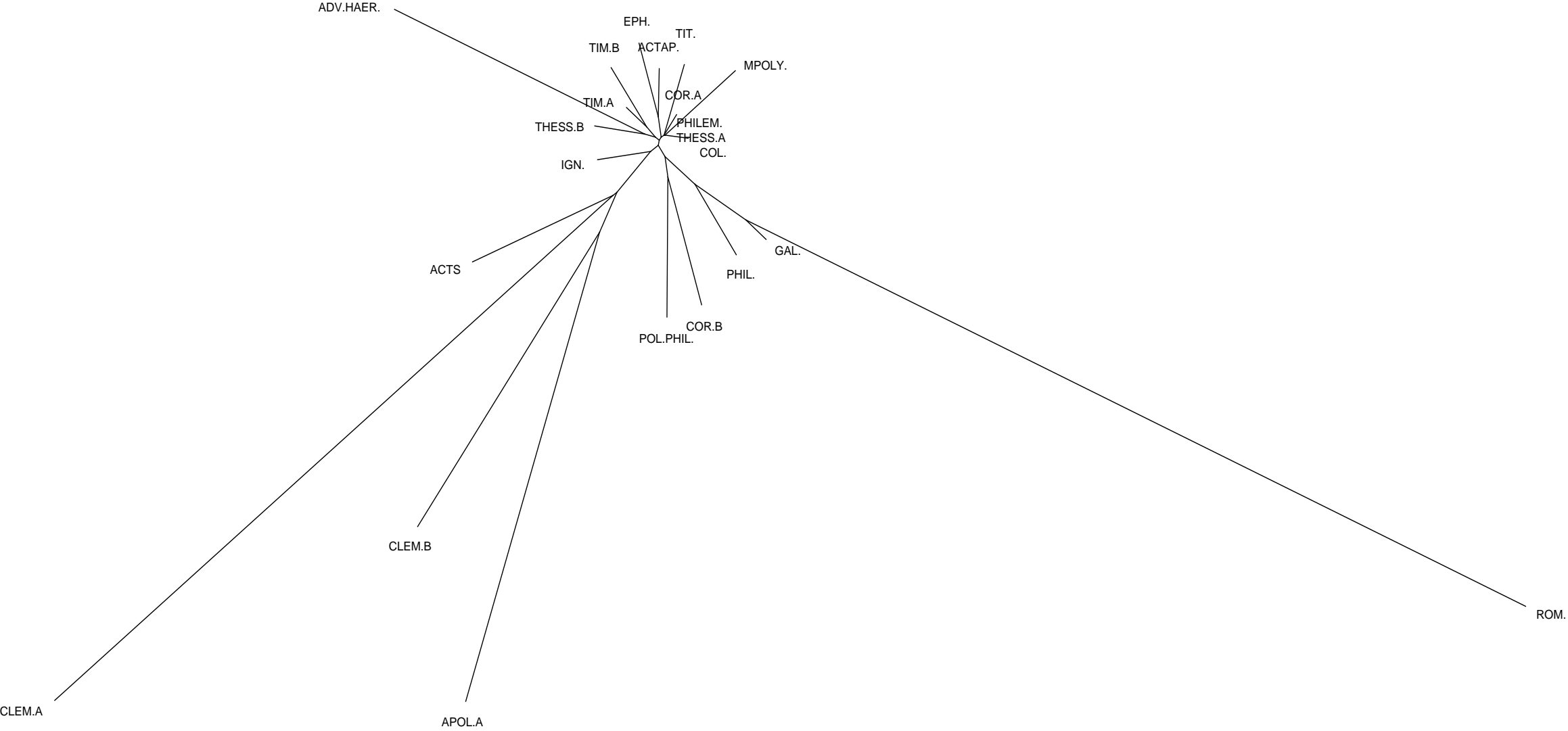
Frequently
occurring words
with δικαιος and
δικαιοσυνη

δικαιος	ιησους, κρισις, οδος, οι, εργον, πιστις
δικαιοσυνη	πιστις, θεος, διωκω, εργον, ποιεω

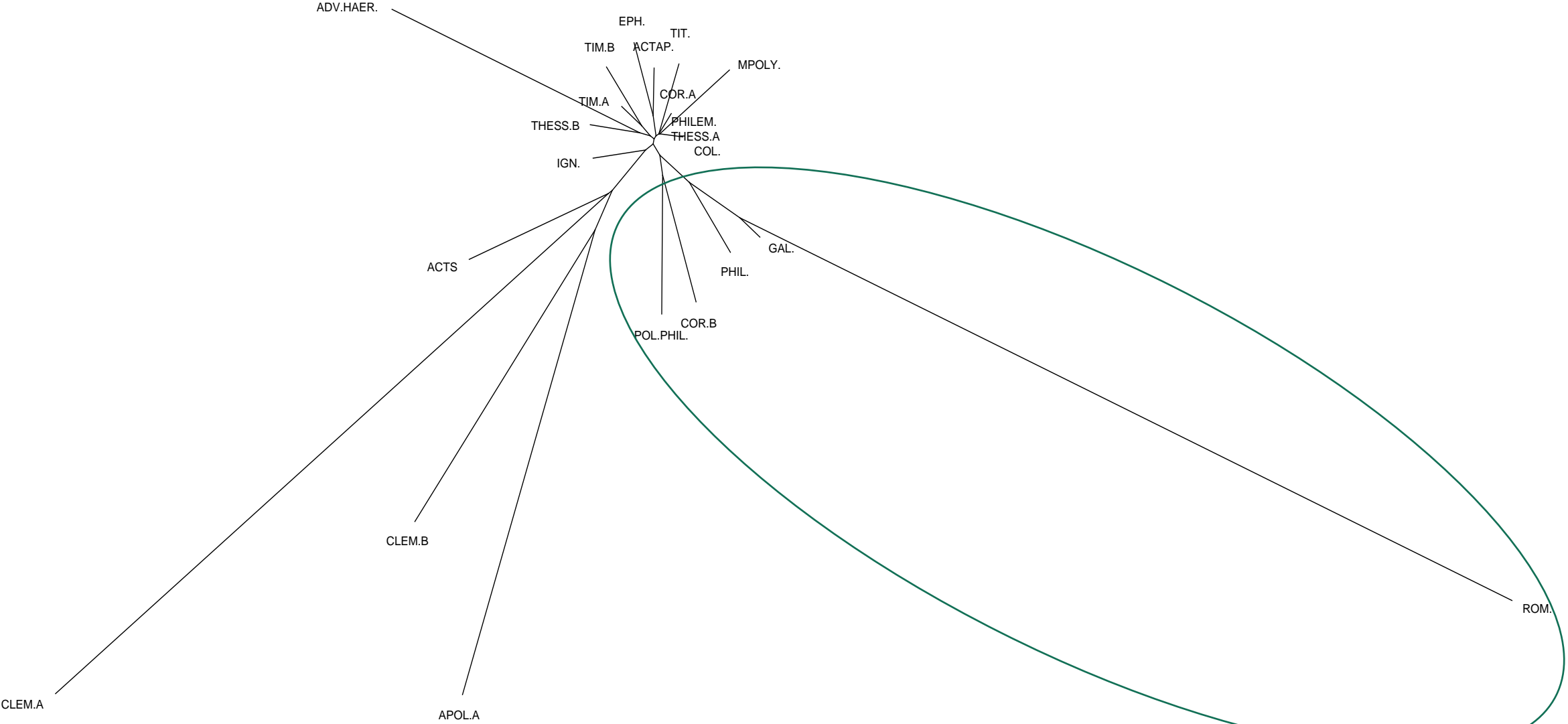
Phylogenetic methods

- Developed for the analysis of biological evolution
- Uses trees or networks to describe the relations between species
- SplitsTree software

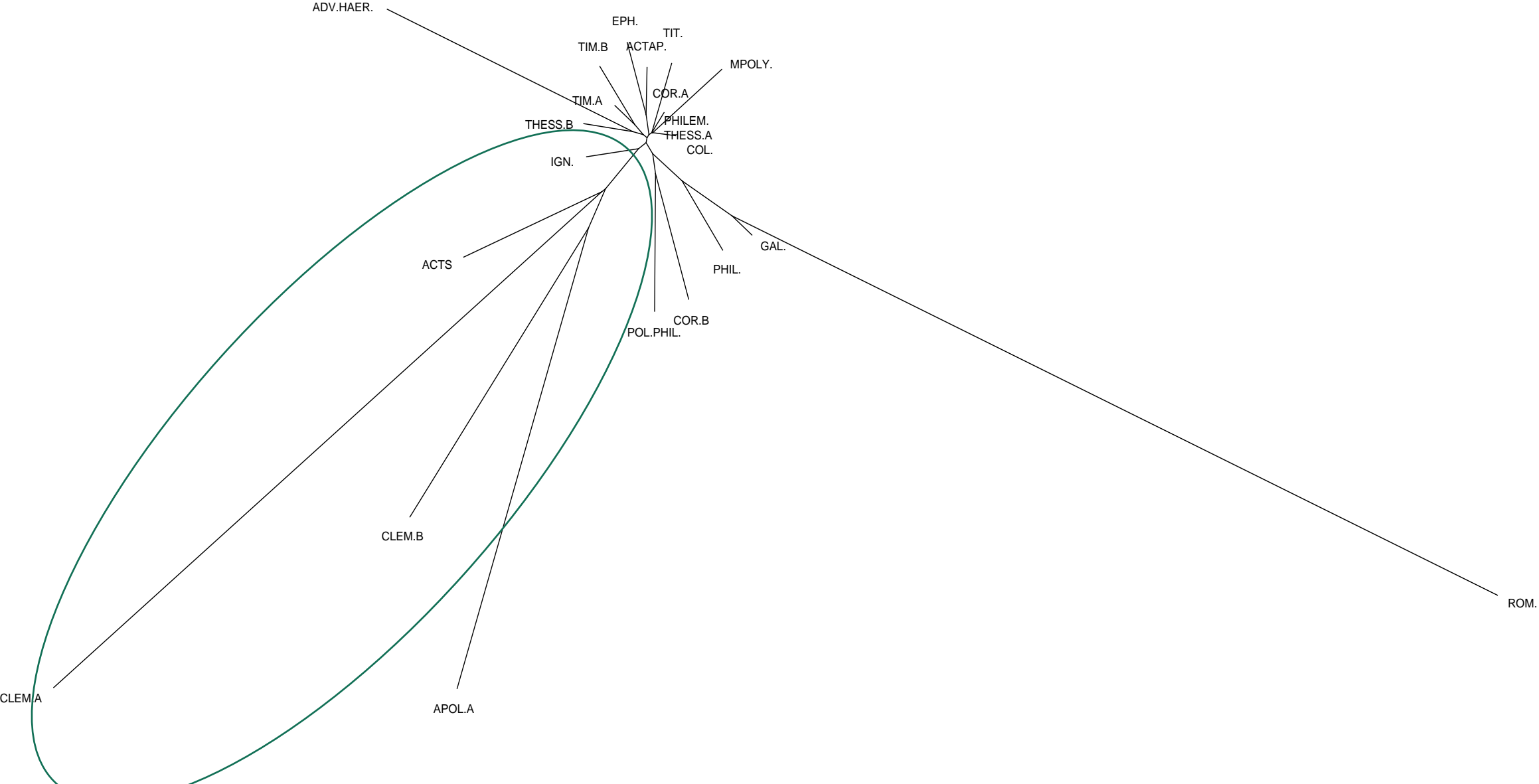
Phylogenetic tree of righteousness



Phylogenetic tree of righteousness



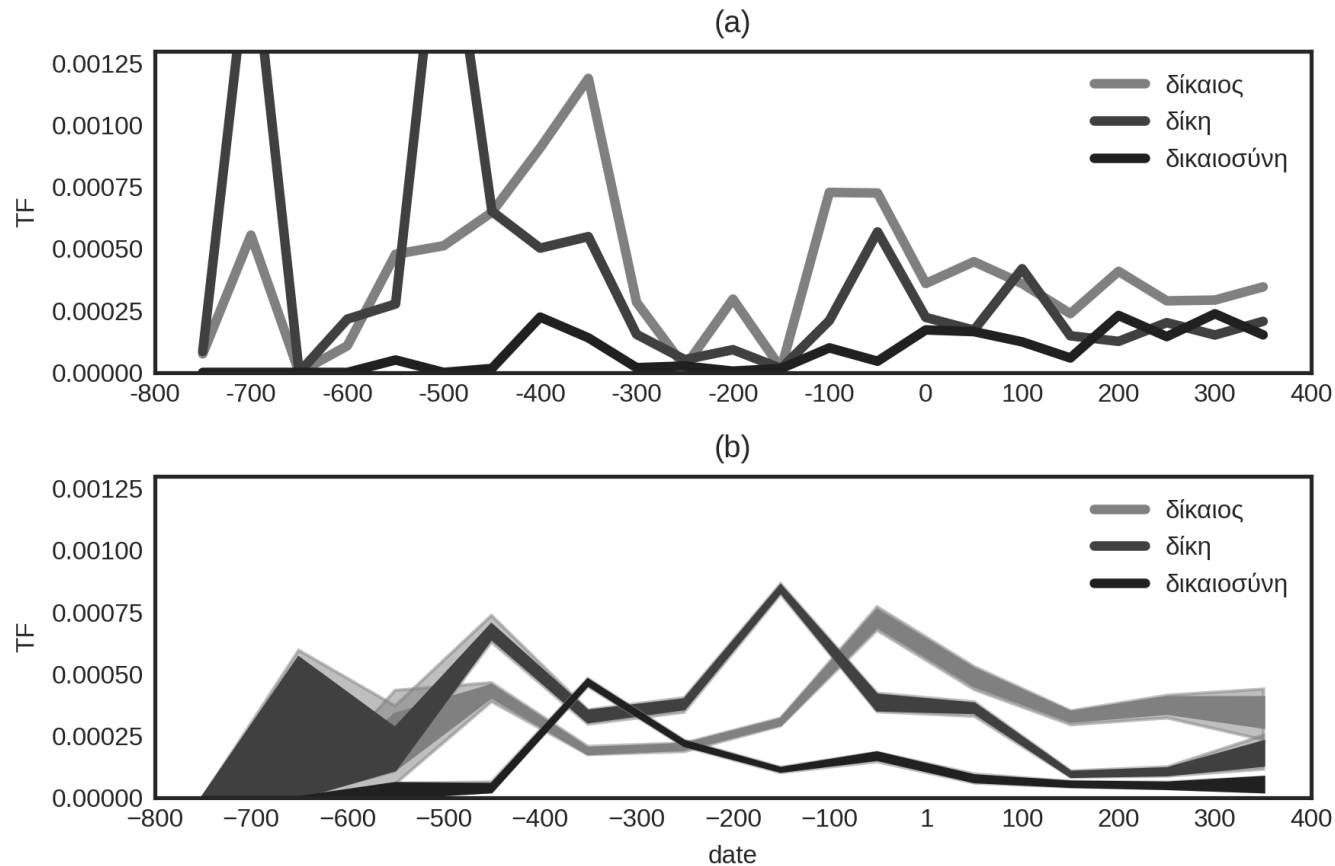
Phylogenetic tree of righteousness



Conclusions

- Significant differences between early Christian writers
- The historical context of Paul's letters needs to be taken seriously
 - After Paul, social-historical context changed
 - Questions concerning the law of the Jews and Christians became insignificant
 - Texts and the used language reflects these changes
- Luther introduced the theme again in a new historical context
 - Jewish Christians → Catholic Church
 - The questions concerning righteousness became significant once again
 - *Exaptation*

Term frequencies (TF) of *δίκαιος*, *δίκη* and *δικαιοσύνη* (Kaše, Nikki, Glomb, forthcoming 2021)



Term frequencies (TF) of δίκαιος, δίκη and δικαιοσύνη across corpora and subcorpora. (a) LAGT; (b) PHI.

Article "Righteousness in Early Christian Literature: Distant Reading and Textual Networks" to appear in: Annali di Storia dell'Esegesi 2021

*LAGT: Lemmatized Ancient Greek Text, Kaše 2021
PHI: a comprehensive dataset of ancient Greek inscriptions*

Terms occurring together with *δικαιοσύνη*

(Kaše, Nikki, Glomb, forthcoming 2021)

author	10 terms with highest TFIDF
Septuagint	κρίμα, ποιέω, κύριος, ἀλήθεια, θεός, ἀδικία, ὁδός, κρίνω, ἀνομία, λαός
Philo	φρόνησις, ἀρετή, σωφροσύνη, ἀνδρεία, ισότης, ἀδικία, εἰμί, ὁσιότης, ἄλλος, ἀγαθός
Josephus	εὐσέβεια, θεός, εἰμί, ἀρετή, δόξα, πολὺς, ἀμάνου, ἄλλος, οὗτος, ἀνήρ
author	10 terms with highest TFIDF
Paul of Tarsus	πίστις, ἁμαρτία, νόμος, λογίζομαι, θεός, βασιλεύω, δοῦλος, παρίστημι, πιστεύω, Χριστός

TFIDF: Term frequency weighted by its distribution over the whole corpus (inverse document frequency), which eliminates the most common, noninformative words)