Measuring Greekness: A novel computational methodology to analyze syntactical constructions and quantify the stylistic phenomenon of Attic oratory

Der Facultät für Mathematik und Informatik
der Universität Leipzig
eingereichte

DISSERTATION

zur Erlangung des akademischen Grades

DOCTOR Philosophiae
(Dr. Phil.)

im Fachgebiet
Digital Humanities with a focus on Computer Science

Vorgelegt

von Eleni Bozia, Ph.D.

geboren am 6.11.1981 in Ptolemaida, Greece

Die Annahme der Dissertation wurde empfohlen von

1. Prof. Dr. Gregory Crane, Universität Leipzig
2. Prof. Dr. Neel Smith, College of the Holy Cross

Die Verleihung des akademischen Grades erfolgt mit Bestehen

Der Verteidigung am 11 Juli 2018 mit dem Gesamtprädikat cum laude

To my husband Angelos
with profound appreciation for his unfailing support
and my daughters Iris and Julietta.

CONTENTS

ACKNOWLEDGMENTS

CHAPTER 1

Introduction

1.1 Focus of the Study

This study is the result of a compilation and interpretation of data that derive from Classical Studies, but are studied and analyzed using computational linguistics, Treebank annotation, and the development and post-processing of metrics. Language, whether it is human or machine, follows a particular structure and grammatical conventions (from usage of words to usage of commands in programming languages). The only way to examine it closely, determine particular attributes, along with its logic and rhetoric, which essentially is the result of its delivery, one needs to resort to quantification methods. Language may be generally considered a literary and social medium. However, should one consider solely this aspect, he/she misses its constructional framework as well as its multiple possible meanings and nuances, which in turn leads to misinterpretations and partial knowledge. Therefore, the purpose of this work is to employ computational methods so as to analyze a particular form of Ancient Greek language that is Attic Greek, "measure" its attributes, and explore the socio-political connotations that its usage had in the era of the High Roman Empire. I contend that such a concrete, minute, and scientific study of the language, which can be achieved by means beyond the simple philological analysis, can actually apprise us of its significance and explain the preponderance that Greek and proper diction had at the time.

Ultimately, I argue that this approach can elucidate perspectives and considerations of the most malleable human characteristic, namely identity. During the

first centuries CE, the landscape of the Roman Empire is polyvalent. It consists of native Romans who can be fluent in Latin and Greek, Greeks who are Roman citizens, other easterners who are potentially trilingual and have also assumed Roman citizenship, and even Christians, who identify themselves as Roman citizens but with a different religious identity. It comes as no surprise that identity, both individual and civic, are constantly reshaped.

My purpose in this work is twofold: 1. Develop computational techniques and metrics to effectively distinguish and analyze structural patterns and characteristics in Attic Greek. 2. Explore the connotations that this technical approach has on traditional philological readings and interpretations of language and identity. The common denominator behind my entire argument is that, since language plays a pivotal role and it is only through it that we can safely derive any conclusion regarding the socio-political *status quo* of an individual and a community, proper computational analysis will purvey us a more profound appreciation of and more concrete considerations about it.

The way that I approach the discussion is three-pronged. I begin with lexicographic and grammatical definitions of Hellenism, Atticism, and Latinity, exploring whether these terms pertain to language, social standing, or ethnic origin, and when they acquired this influential multi-natured agenda. My underlying argument is that language, being the most natural medium of expression and communication (hence persuasion) has always influenced inexorably the socio-political and historical *status quo*. This very affirmation and realization, though, burdens the language with an omnipresent and permeating power. Consequently, the exigency to study language and its metalanguage closely is pertinent. Hence I continue my analysis with a thorough study of the Attic

dialect, revived from the Classical Attic dialect of the 5th and 4th centuries BCE and once again preponderant at the time of the High Roman Empire, and develop computational techniques and linguistic metrics to quantify the Atticism and Greekness of the, what is now, Imperial Attic dialect. Greeks, Romans, and Easterners, such as Prusans, Smyrnaeans, and Syrians decide to reuse Attic. What we should determine is whether Attic is still the same, or we are dealing with a revived and reformed Atticism as well as how does people's choice of linguistic medium actually has also a bearing on their determination of their identity. Finally, I apply my observations and conclusions on certain authors and contemporary figures, both fictional and historical, and contend that language is a *sine qua non* for *paideia* (education and mental culture), which in turn is acquirable and the premier component of identity. I suggest that at the time of the High Roman Empire, people have realized the potential of *paideia* and their right as well as inherent *desideratum* to shape themselves through it.

1.2 Classical Studies and Digital Humanities

Notwithstanding my profound devotion to Classical Studies as a means of exploring not only the past but also the human condition in general, this study would not have been possible and could never have been realized to this extent were it not for computer-enhanced methods and computational analyses; in other words digital humanities and its collaborative work with corpus linguistics. Have recent evolutions necessitated the newly coined tern "Digital Humanities"? Is there a difference between Humanities and Digital Humanities, or is it simply a result of the corporate-based university that requires this diversification, or could it even be the reluctance of Humanities scholars to accept the change in methodology?

According to the National Endowment for the Humanities, the Humanities can be defined as follows:

The term 'humanities' includes, but is not limited to, the study and interpretation of the following: language, both modern and classical; linguistics; literature; history; jurisprudence; philosophy; archaeology; comparative religion; ethics; the history, criticism and theory of the arts; those aspects of social sciences which have humanistic content and employ humanistic methods; and the study and application of the humanities to the human environment with particular attention to reflecting our diverse heritage, traditions, and history and to the relevance of the humanities to the current conditions of national life.
--National Foundation on the Arts and the Humanities Act, 1965, as amended

There is no provision for Digital, but, on the other hand, there is no description of the methods of study and the perspectives from which Humanities are to be apprehended either. As a matter fact, in the Renaissance the Liberal Arts were divided into seven disciplines—logic, grammar, rhetoric, arithmetic, music, geometry, and astronomy. It seems that the above combination was considered a *sine qua non* for a thorough education. That was also the principle when Thomas Jefferson founded the University of Virginia as the first public institution that was offering medicine, law, mathematics, chemistry, ancient languages, modern languages, natural philosophy, and moral philosophy as the principles of a well-rounded education. It was Leopold von Ranke, the 18th-century German historian, who first stated the need for empirical research in History, thus suggesting the exigency for a more scientific approach of a humanistic field. Viewing things from the opposite perspective as well, in the United States it was also the realization of the need for the Humanities in society at large that led to the foundation of the National Endowment for the Humanities by the American Council of Learned Societies whose members were Clark Kerr, Professor of Economics and Administrator at

UC Berkeley, Thomas J. Watson, Chairman of IBM, Kingman Brewster, educator, President of Yale, and diplomat, and Theodore Hesburgh, President of Notre Dame.

Subsequently the history of these definitions and redefinitions of the Humanities that eventually led to the term "Digital Humanities" is replete with stories that showcase the need for an intertwining of the humanistic fields with other practical sciences so as to achieve a more profound comprehension of the discipline through various quantifiable methodological approaches.

Just to name a few: Stephen Mitchell in 1965, a professor at Syracuse University, was the first one to digitize at the time over 1150 periodicals and books from the Modern Language Association. The index Thomisticus, a project that was undertaken by the Jesuit priest Roberto Busa between 1951 and 1967, focused on the works of Thomas Aquinas and involved: 1. Transcription of the text, broken down into phrases, on to separate cards; 2. Multiplication of the cards (as many as there are words on each); 3. Indicating on each of the resulting cards the respective entry (lemma); 4. Selection and alphabetization of all cards purely by spelling; and 5. The typographical composition of the pages for publishing. Similarly, Reverend John Ellison created a digital concordance of the Bible in 1957.

This change in the landscape of scholarly inquiries and its impact is also reflected more widely, as in September 1964 literary scholars and computer scientists convened on IBM's research center in Yorktown Heights, New York, for one of the first conferences dedicated to computers and literature. The following year, IBM sponsored two more conferences, one at Yale University and another at Purdue University. Stephen Parrish, a professor at Cornell and the man behind the Yeats and Arnold concordances, urged

scholars to embrace the possibilities offered by "gods in black boxes", saying: "We have, as humanists, nothing to fear and everything to gain from coming to terms with the revolution which is the greatest single event of our time." In 1966, the first issue of Computers and the Humanities was published by Queens College, under the aegis of IBM and the United States Steel Foundation.

Responding to this call for new methodologies, the National Endowment for the Humanities proceeded to support this new approach to the Humanities. The first Call for Grants in 1967 was phrased as follows:

"The committee feels that the humanities lag behind the sciences in the use of new techniques for research, and that this lag should be overcome. All encouragement should be given to the application of modern techniques to scholarship in the humanities: the use of electronic data-processing systems in libraries; the teletype facsimile transmission of inaccessible items; the computer storage, retrieval, and analysis of bibliographies."

After all the aforementioned brushes with academic and social history, academics felt the need to coin a term to describe the newly molded perspective, i.e. what has been largely called "Digital Humanities." The reality is, though, that Humanities scholars are still fascinated and are still working on the traditional fields. There has not been a change in the core of the Humanities, but only in their *modus operandi*.[1]

One of the more descriptive definitions that encapsulates this perception is the following:

"Digital humanities is an area of research and teaching at the intersection of computing and the disciplines of the humanities. Developing from the fields of humanities computing, humanistic computing, and digital humanities praxis, digital humanities embraces a variety of topics, from curating online collections to data mining large cultural data sets. Digital humanities (often abbreviated DH) incorporates both digitized

---

[1] There has been extensive scholarly discussion on digital humanities as a field, method and methodology in the humanities, and discipline. For some of the major discussions and definitions of the field of digital humanities, see Burdick at al. (2012), Deegan (2011), McCarty (2014), Schreibman et al. (2004), Terras et al. 2014.

and born-digital materials and combines the methodologies from traditional humanities disciplines (such as history, philosophy, linguistics, literature, art, archaeology, music, and cultural studies) and social sciences, with tools provided by computing (such as Hypertext, Hypermedia, data visualisation, information retrieval, data mining, statistics, text mining, digital mapping), and digital publishing. The definition of the "digital humanities" is something that is being continually formulated by scholars and practitioners; they ask questions and demonstrate through projects and collaborations with others. Collaboration is a major part of DH, with not only scholars sharing their research with other scholars, but with ongoing DH projects, the public can share their ideas about different topics with each other and learn from each other's opinion."[2]

1.3 Corpus Linguistics

As Digital Humanities sprang from traditional Humanities disciplines, Corpus Linguistics had a pre-computer existence when data and corpora were accumulated manually, thus limiting the possibilities for further and enhanced research. Traditionally in the realm of linguistics the term "corpus" indicates a composite of authentic language data that can be used for research. The types of data could be written texts or spoken discourse or any combination thereof. 1961 can be considered a flagship year in Linguistics as the introduction of computer-assisted research was introduced and where lies the provenance of Corpus Linguistics (or Computer Corpus Linguistics). The first electronic corpus is known as the Brown corpus (named after Brown University).[3] It consisted of about one million words from 500 texts of about 2.000 words each. The technical virtuosity that allows us to collect texts electronically beyond the constraints of the paper world, which inevitably comes alongside limited accessibility and research possibilities, has led to the creation of several corpora. The significance of the written or oral word—the idea of a combination of letters that produces a sound and carries a certain meaning and is thereupon giving a particular object or act in everyday life a distinct name and meaning— is undeniable. "Accessibility" and profound apprehensions of remote nations, countries

---

[2] https://infogalactic.com/info/Digital_humanities (page visited October 30, 2016)
[3] For a synoptic history of corpus linguistics, see Teubert and Cermacova (2007) 50-8.

and eras through ancient languages as well as communication through people's ability to learn foreign languages are two of the main reasons behind the promotion of linguistics and their focus on dictionaries, bilingual dictionaries, and by definition on words. Corpora have also assisted in the accumulation of more complete dictionaries, or all-encompassing dictionaries—including etymologies, history of the words, idiomatic phrases and explications that further not only our understanding of each word, but also furnish the user with social connotations, particularly against the backdrop of special usages and phrases. What is the need that these products of linguistics attempt to fulfill, and how has corpus linguistics opened the window to a more advanced appreciation of languages? Teubert and Cermakova (2007, 37) state: "Corpus linguistics sees language as a social phenomenon. Meaning is, like language, a social phenomenon." The discipline studies language based on discourse, working with a number of texts collected for particular purposes. Of course one can never cover all extant texts or all occurrences of a word. So researchers try to accumulate representative samples that will be sufficient to enhance their understanding.

I believe that there is another pivotal distinction in the field of Corpus Linguistics that will also offer a different perspective of the discussions and results that will be presented later in this study. Research approaches can be distinguished between corpus-based and corpus-driven. The former relies heavily on the corpus; it validates and is validated by the information that the corpus purveys. The latter extracts information, which is then further processed, studied, and analyzed to get results and reach conclusions.[4] In the case of the present study, the corpus is being used as a linguistic medium, furnishing grammatical and syntactical information that is subsequently

---

[4] See Tognini-Bonelli (2001)

comparatively studied to determine not simply relations between words, but syntactical and grammatical constructions, thus unveiling the underlying structures of Ancient Greek *logos*.

1.4 Humanities corpus and Corpus Linguistics

The term "corpus" is widely used in Humanities fields as well, usually indicating the cumulative work of an author, or works that belong to the same literary genre. My intention, though, is not to discuss the existence of corpora as massive accumulations of knowledge. The purpose of this work is to showcase that the research principle for the field of linguistics seems to have been accommodated within Classical Studies as well.

The collection and subsequent advanced analysis of language and along with it of cultural and societal norms is a seminal step toward the universalization of scholarly work and research process, as it opens the possibilities for enhanced linguistic research that thus far has not been possible in the field of Classics and other Humanities disciplines. After the initial excitement of compilations, the focus has turned to the internal structure and attributes of corpora and what research possibilities they afford. A principal aspect of corpora is their annotation that complements the texts with advanced grammatical information. The way this information is indicated is through grammatical tagging (word-class tagging, part-of-speech tagging, and POS tagging). The tagging is considered interpretative—which means that it relies on the human factor and each person's comprehension of parts of speech in the text and their function.

There are several principal aspects of corpus usability that rely on annotation. Advanced grammatical information and disambiguation of terms afford us the option to proceed not only with a more complex apprehension of the language and subsequently

the text, the author, the era, but also the option for more advanced analyses, such as study

of syntactical patterns, linguistic norms, study of expressions, and several other linguistic

attributes that reside within the language and can be clarified and preserved through

annotation. Leech and Fligelstone (1992) discuss the contribution of computer-enhanced

study of corpora in corpus linguistics. Leech (1991) also pursues the same topic

particularly for English corpora. Church and Mercer (1993) introduce an entire volume

dedicated to computational linguistics and its focus on studying and analyzing large

corpora, sentence aligning, and aligning of bilingual corpora. Kirk discusses the

introduction of the computers in corpus linguistics in the following statement:

"The methodology of corpus linguistics as a branch of linguistic enquiry is inseparable
from the computer's resources not only to store data but to sort, manipulate, calculate, and
transform them and to present them in a wide range of different output formats, all dumb
ways characteristic of the machine itself; moreover, the computer is increasingly being
used to store annotations of the data in the form of encodings representing analyses,
categorizations, and interpretations of the data and to manipulate those – and thus to
behave in a seemingly intelligent way."[5]

Finally, there are several collaborative projects that invoke upon the

concatenation and dependency relation between digital humanities and corpus linguistics.

The Index Thomisticus Project at the Università del Sacro Cuore, Milan, Italy,[6] the Dansk

Sprog-og Stilhistorik Database,[7] the Parsing Low-Resource Language and Domains,[8] and

several others that prove the inextricable relationships between what were until now

considered disparate disciplines.

---

[5] Kirk (1996) 252
[6] http://itreebank.marginalia.it/ Publications that describe the techniques and methodology, see Bamman et al. (2007), Passarotti (2011, 2012, 2014, 2015), Berta and Passarotti (2014), Scott et al. (2014).
[7] http://www.forskningsdatabasen.dk/catalog/2192988528 On the project, see Duncker (2009), Ruus (2000, 2007).
[8] http://ccc.ku.dk/research/lowlands/ For literature on the project, consult Fromheide et al. (2014), Hovy et al. (2014), Uryupina et al. (2014).

1.5 Synopsis of the project

In this project, I pursue a transdisciplinary approach of what is a traditional philological topic. I combine classical studies with linguistics and computational methods to analyze language and explore its influence on the socio-political *status quo* of the Roman Empire.

The period I am interested in is that of the High Empire and the literary phenomenon of the Second Sophistic, dating from the 1st century CE to the 3rd century CE. It is the time that people regardless of ethnic origin are Roman citizens and write primarily in Greek. The issue of identity, therefore, is pivotal, and albeit anachronistically stated, very current. Furthermore, these newly molded Greco-Romans from Syria, for instance, claim a revival of traditional Hellenic language and culture. So the research question that rose for me was: "How can one quantify Greekness and Romanness?"

The period of the Second Sophistic is the multi-faceted point *par excellence* in the history of literary genres. For one thing, in scholarly publications we tend to use the nomenclature of this literary circle of erudite individuals (the sophists-orators) instead of the century. The variegated nature of the phenomenon of the Second Sophistic has given rise to debates: Who belongs in this notional literary circle; Do we only consider rhetorical works; Should these works be construed/were they meant to be construed as literary creations with socio-political content or political propaganda veiled underneath a patina of literary dexterity?

Language of course—the preponderance of Greek—has been extensively furnished in modern scholarship, contending Hellenic propaganda and literary espionage

against Roman political supremacy. The renaissance of Atticism and authors' insistence on Attic purity has fueled the aforementioned thesis even more.

In this study I begin a discussion that revolves around Philostratus's (a Greek sophist of the 3rd century CE) statement about Favorinus "*Γαλάτης ὢν ἑλληνίζειν*" (even though he is from Gaul, he speaks/behaves as a Greek). I suggest a different reading of Greekness and Latinity, one that encompasses a world of heterogeneity and ethnic multifocality even when it comes to *Hellenismos* and *Latinitas*. This study argues that, starting with Dionysius's of Halicarnassus (a Greek historian of the age of Augustus) *Antiquitates Romanae*, a work on Roman Antiquities claiming Greek ancestry for the Roman population while also suggesting openness in the latter's ethnic considerations, orators and authors forego the bowdlerization of ethnicity. Linguistic correctness does matter, but it lies closer to *paideia* than to ethnicity as birthright. Chapter two examines lexicographic and grammarians' definitions of ἑλληνισμός (Hellenism), ἀττικισμός (Atticism), *Latinitas* (Latinity) so as to determine the initial point when these terms became synonymous with social and political agenda. Do they refer to γλῶσσα (language) or παιδεία (*paideia*—education and mental culture)? Upon studying closely the usage of the terms ἀττικίζω (speak in Attic dialect) and ἑλληνίζω (speak Greek), it becomes apparent that, even though ἀττικίζειν was initially a from of speaking Greek, it gradually evolved into a legitimized and linguistically most appropriate way to express oneself. Atticism's appropriation of authority can be explained when we consider the literary works crafted in this dialect. Subsequently under the Empire, Atticism became the *nonpareil* identity marker of educational pedigree along with ἑλληνίζειν, which in turn indicated behavioral correctness. This imperialistic role of Atticism and its revival

has prompted long conversations. Discussions have mostly focused on Attic being used as literary propaganda, undermining Roman authority. However, this argument does not account for the eulogy of Atticism by Cicero and Quintilian. Another issue that has not been considered is the following: Should we be talking about the revival of Atticism, or is there a reformulated Atticism in place, an amalgamation of Classical Attic with an Imperial panache that could also be in accordance with the newly molded Hellenes and Attics and the multi-ethnic claims to Greekness?

Chapter three, therefore, considers the philological dilemma from a different perspective and furnishes a syntactical analysis of Classical alongside Imperial Atticism. To this end, I examine Dionysius's of Halicarnassus appreciations of orators and their attributes— particularly Lysias, Isocrates, and Demosthenes—as well as orators of the Imperial era— Dio of Prusa, Lucian, and Aelius Aristides—and then proceed with Treebank annotation and machine learning algorithms in order to parameterize quantifiably philological and stylistic attributes, purporting to specify rhetorical *leitmotifs* throughout Classical Attic orators and orators of the Imperial era. This study employs a unified node-based metric formulation for implementing various syntactical construction metrics, indicative of the syntactical attributes of the sentences.

Chapter four presents the way the developed metrics were applied to syntactically annotated texts of several authors, which were then comparatively examined using Principal Component Analysis, considering structural attributes in Attic oratory. Additionally, I calculated topological metric wavelets for syntactical quantification. A weighting scheme is defined using Haar Wavelets in order to generate a set of features that can capture both the linear topology of a sentence, and the tree network topology of

the corresponding syntactical tree. The aforementioned set of metrics that rely on the particularities of Ancient Greek language was utilized to examine the localized variations of the syntactical features, which were subsequently processed using PCA to analyze and visualize the data. More specifically, Haar wavelets of various orders are used as a basis for capturing the linear variations of the syntactical features. By applying the wavelet bases functions as the weights of individual tree-nodes, various node-based metrics can be defined, which can capture both the linear and tree network morphological features of a sentence.

My analysis indicates that there are indeed common denominators between Classical Attic and Imperial Attic writing styles. However, one cannot talk about revived Attic oratory with the implication of simple repetition. Instead there are structures that emanate from the first Atticism but which are modulated and reformulated into a more elusive, complex, and stylistically evasive style that is in accordance with the very nature of the Second Sophistic.

Chapter five recontextualizes the numerical results, transfers the aforementioned linguistic and metrical parameters to a socio-political context, and studies the variegated nature of the citizens within the Empire through contemporary literary works. My intention is to "translate" the numbers to the language of the Classicist and give them a philological reading. More specifically, moving beyond grammatical definitions, when an individual is described whose ethnic origins are Eastern but his behavioral stance is not, how are we to quantify his Greekness, Latinity, or otherness? To this end, I study texts by Diogenes Laertius, particularly the *Letters of Anacharsis*, Lucian of Samosata, Dionysius of Halicarnassus, and certain speeches of Dio Chrysostom and contend that there is an

underlying reality of concatenated political, social, and ethnic existences of every individual. Citizens of the Empire claim Greekness and Atticism regardless of ethnic origins. It is then under these circumstances that the idea of *paideutic* upbringing is fostered and enhanced, a *paideusis* that involves *hellenizein* in verbal and behavioral expression.

In conclusion this study contends that computational analysis of the language is pertinent for the profound understanding and apprehension of both its surface meaning and its metalinguistic socio-political connotations. It is only through numerical results that we are in a position to evaluate that Hellenism and Atticism reappear under the Empire, and, although they retain a patina of tradition and classicizing attitudes of the past in order to legitimize their nature and reappearance, their authors and creators have blown fresh air of cultural, intellectual, and social hybridity that also accounts for the multiethnic and manifold substance of the Imperial era.

CHAPTER 2

Linguistic Purity as ethnic and educational marker, or Greek and Roman Grammarians on Greek and Latin.

There are five languages of the Greeks, Ionic, Doric, Attic, Aeolic, and Koine. Amidst these five languages the Latin words are included as well and joined in this manner. (Diomedes, the Grammarian, G.L. 1.440-5.26)

2.1 Introduction

The purpose of this study, as I stated in the introduction, is to quantifiably parameterize Atticism as a linguistic and then by extension socio-political phenomenon. The premise lies on the foundational concept that we are indeed exploring an aspect of language that was identified as such, unique and with its own attributes, by the people who were actually speaking and writing that language, and that this is not just a product of modern scholarly interpretations. Therefore, before proceeding to record particular characteristics and attributing them to certain authors and styles, one needs to closely study the terms ἑλληνίζειν (hellenizein), ἀττικίζειν (attikizein), βαρβαρισμός (barbarism), and *Latinitas* (Latinity) and their initial occurences as well as their evolution within the context of Greco-Roman culture. Consequently, we will be apprised of the connotations of the Greek language as a unified whole and then its derivative dialects, thus noting properties of Atticism. This chapter is meant to establish a philological framework for this linguistic phenomenon that will be then parameterized and quantified through the developed metrics in the following chapters.

More specifically, this chapter furnishes a close examination of the terms ἑλληνίζειν (hellenizein), ἀττικίζειν (attikizein), βαρβαρισμός (barbarism), and *Latinitas* (Latinity) through the technical writings of Greek and Roman grammarians and

lexicographers so as to determine the initial point when these terms became synonymous with social and political agenda. The first section provides the definitions of ἑλληνίζειν and *Latinitas* in Greek and Latin literature, showcasing that initially they were terms of linguistic propriety. The second section furnishes the meanings of *Hellenismos*, Atticism, and *Latinitas* in Greek and Latin grammarians and then delves into Greek lexicographers of the second century CE who provide us with examples of a social evolution of Attic. Against this backdrop, two issues that are considered are the following: the relationship between Greek and Latin according to the grammarians and the observation that references to Greek, Greekness, Atticism, and Latinity are indicative of both grammatical and socio-political hybridity.

2.2 Grammatical and Lexicographic Definitions

2.2.1 Greek and Latin languages

Before we delve into details regarding the socio-political connotations as well as rebirth of Atticism and the contradictory and/or supplementary relationship between *hellenizein* and *Latinitas*, we first need to pinpoint the occurrences of those terms and then parameterize their initial definitions.

ἑλληνίζειν is used to denote linguistic correctness. Aristotle in *Rhetorica* states that using proper Greek is a prerequisite for eloquence.

Ὁ μὲν οὖν λόγος συντίθεται ἐκ τούτων, ἔστι δ' ἀρχὴ τῆς λέξεως τὸ ἑλληνίζειν· Ὁ μὲν οὖν λόγος συντίθεται ἐκ τούτων, ἔστι δ' ἀρχὴ τῆς λέξεως τὸ ἑλληνίζειν· τοῦτο δ' ἐστὶν ἐν πέντε, πρῶτον μὲν ἐν τοῖς συνδέσμοις, ἂν ἀποδιδῷ τις ὡς πεφύκασι πρότεροι καὶ ὕστεροι γίγνεσθαι ἀλλήλων, οἷον ἔνιοι ἀπαιτοῦσιν, ὥσπερ ὁ μέν καὶ ὁ ἐγὼ μέν ἀπαιτεῖ τὸν δέ καὶ τὸν ὁ δέ. δεῖ δὲ ἕως μέμνηται ἀνταποδιδόναι ἀλήλλοις, καὶ μήτε μακρὰν ἀπαρτᾶν μήτε

σύνδεσμον πρὸ συνδέσμου ἀποδιδόναι τοῦ ἀναγκαίου· ὀλιγαχοῦ γὰρ ἁρμόττει. "ἐγὼ μέν, ἐπεί μοι εἶπεν (ἦλθε γὰρ Κλέων δεόμενός τε καὶ ἀξιῶν), ἐπορευόμην παραλαβὼν αὐτούς". ἐν τούτοις γὰρ πολλοὶ πρὸ τοῦ ἀποδοθησομένου συνδέσμου προεμβέβληνται σύνδεσμοι· ἐὰν δὲ πολὺ τὸ μεταξὺ γένηται τοῦ ἐπορευόμην, ἀσαφές. ἐν μὲν δὴ τὸ εὖ ἐν τοῖς συνδέσμοις, δεύτερον δὲ τὸ τοῖς ἰδίοις ὀνόμασι λέγειν καὶ μὴ τοῖς περιέχουσιν. τρίτον μὴ ἀμφιβόλοις. τοῦτο δ' ἂν μὴ τἀναντία προαιρῆται, ὅπερ ποιοῦσιν ὅταν μηδὲν μὲν ἔχωσι λέγειν, προσποιῶνται δέ τι λέγειν· οἱ γὰρ τοι- …τέταρτον, ὡς Πρωταγόρας τὰ γένη τῶν ὀνομάτων διῄρει, ἄρρενα καὶ θήλεα καὶ σκεύη· δεῖ γὰρ ἀποδιδόναι καὶ ταῦτα ὀρθῶς· "ἡ δ' ἐλθοῦσα καὶ διαλεχθεῖσα ᾤχετο". πέμπτον ἐν τῷ τὰ πολλὰ καὶ ὀλίγα καὶ ἓν ὀρθῶς ὀνομάζειν· "οἱ δ' ἐλθόντες ἔτυπτόν με". ὅλως δὲ δεῖ εὐανάγνωστον εἶναι τὸ γεγραμμένον καὶ εὔφραστον· ἔστιν δὲ τὸ αὐτό· ὅπερ οἱ πολλοὶ σύνδεσμοι οὐκ ἔχουσιν, οὐδ' ἃ μὴ ῥᾴδιον διαστίξαι, ὥσπερ τὰ Ἡρακλείτου… (Arist. *Rhet*. 1407a.19-1407a.20).

Therefore, while spoken language in general is composed from those elements, hellenizein is a guiding principle of speaking with style. This faculty of eloquence lies in five categories: First, in connectives [syndesmois]: if a connective introduces the kind of clause[9] some of them demand (as some connectives naturally come earlier than others, and others later), just as men and ego men expect de and ho de. It is necessary that they respond[10] to one another while the listener still remembers [the first one], and that they not be separated by a long interval, nor that [another] connective respond before the one [the first] requires.   For in few instances [are such interruptions] fitting. "I [ego men], when [epei] he spoke to me (for [gar] Cleon arrived, both entreating and   requesting), went, having received them." For, in these instances, many connectives have been inserted[11] before the one that will respond [to the first].   Furthermore, if the intervening space is great, [as in the above example] before "went" [eporeuomēn], [the meaning] is unclear. Good usage of connectives, then, is one [aspect of good style]; A second is to speak with words specific to their context and not with general ones. A third is not to speak in ambiguous or contradictory terms [amphibolois]. This is the very thing that [speakers] do if the terms of a comparison have not been chosen ahead of time, whenever they are unable to think of anything to say[12] and are merely pretending to be saying something. For they... -...[the] fourth, as Protagoras distinguishes the genders of nouns: masculine and feminine and inanimate.[13] For it is necessary that these [parameters] correspond correctly: "She, who had arrived and had been chosen, departed." A fifth [aspect of style] is in correctly naming a plurality of [objects] [ta polla], few [objects],

---

[9] LSJ: II. intr., return, recur, Id.GA722a8, HA585b32.
2. Rhet. and Gramm., introduce a clause answering to the πρότασις, Id.Rh.1407a20; "διὰ μακροῦ ἀ." D.H.Dem.9, etc.; cf. "ἀπόδοσις" 11.2; οὐκ ἀποδίδωσι τὸ ἐπεί has no apodosis, Sch.Od.3.103; esp. in similes, complete the comparison, Arist.Rh.1413a11.

[10] b. Gramm., make to correspond, of correlatives (e.g. τοιοῦτος, οἷος), in Pass., A.D.Conj.254.19, Synt.54.5, al.; so of μέν . . δέ, Arist.Rh.1407a23, Demetr.Eloc.53, cf. Hermog.Id.1.4, al.

[11] A.put in or insert before, "ἄμμον εἰς βαλανοδόκην" Aen.Tact.18.3; "ἐς τὴν ὀπὴν τοὺς πόδας" Paus. 9.39.11: metaph., "π. τινὶ κατελπισμόν" Plb.3.82.8:—Pass., Thphr. Od.18; of words, Arist.Rh.1407a28; to be applied previously, of bandages, Gal.18(1).801.

[12] [lit. "to say anything"]

[13] 2. inanimate object, thing, opp. ζῷον, σῶμα, Pl.R.601d, Grg.506d; opp. ὄργανον, Democr. 159; Protagoras gave the name of σκεύη to neut. nouns, "ἄρρενα καὶ θήλεα καὶ σκεύη" Arist.Rh.1407b8; ὑπηρετικὸν ς. a subordinate person, a mere tool or chattel, Plb.13.5.7; "ς. ἀγχίνουν καὶ πολυχρόνιον" Id.15.25.1: in NT, in good sense, ς. ἐκλογῆς a chosen instrument, of Paul, Act.Ap.9.15.

and a single [object]: "The men, who had arrived, were beating me." Finally, in sum, it is necessary that what has been written be easy to read and to make intelligible by punctuation.[14] It is the same thing: [a text whose] many connectives do not hold it together, and [lit., "nor"] those that are not very easy to punctuate,[15] like those of Heraclitus...

The first definition of *Latinitas* appears in the *Rhetorica ad Herrenium* that was initially attributed to Cicero. The work dates around 80 BCE and defines Latinity along the same parameters that Hellenism was contextualized earlier.

Quoniam, quibus in generibus elocutio versari debeat, dictum est, videamus nunc, quas res debeat habere elocutio commoda et perfecta. Quae maxime admodum oratori adcommodata est, tres res in se debet habere: elegantiam, conpositionem, dignitatem.

Elegantia est, quae facit, ut locus unus quisque pure et aperte dici videatur. Haec tribuitur in Latinitatem, explanationem.

Latinitas est, quae sermonem purum conservat, ab omni vitio remotum. Vitia in sermone, quo minus is Latinus sit, duo possunt esse: soloecismus et barbarismus.

Soloecismus est, cum in verbis pluribus consequens verbum superius non adcommodatur.

Barbarismus est, cum verbis aliquid vitiose efferatur.

Haec qua ratione vitare possumus, in arte grammatica dilucide dicemus. (Cic. *Rhetorica ad Herennium* 4.17)

Since it has already been said what genres elocution belongs to, let us now consider what qualities agreeable and polished elocution should have. The kind of elocution that is especially suited to an orator must have three things: elegance, a sense of proper composition, and dignity. "Elegance" is what causes each and every passage to seem to be said clearly and honestly. These qualities make possible an explanation for what Latinity is: namely, that mode of speaking which preserves a pure diction, removed from every fault. There are two possible faults in diction, by which it becomes less Latin: solecism, and barbarism. Solecism happens when, among many words, a following word does not fit the preceding one. Barbarism happens whenever something is expressed in a

---

[14] εὔφραστος , ον, (φράζω)
A. easy to make intelligible, Arist.Rh.1407b12; distinct, "ὀπωπή" D.P.171.
(The text is left to readers to punctuate/mark - like musical scores. see first chapter, Cambr. Latin History)
[15] δια-στίζω ,
A. distinguish by a mark, punctuate, "[οὐ] ῥᾴδιον διαστίξαι τὰ Ἡρακλείτου" Arist.Rh.1407b13: generally, distinguish, Stob.2.7.3c.

way that is full of mistakes. In a treatise on the art of grammar, I will explain with lucid distinctions a method by which we can avoid these faults.

Quintilian continues this demarcation of *Latinitas* as grammatical propriety:

Ea quae de ratione Latine atque emendate loquendi fuerunt dicenda,…cum de grammatice loqueremur, executi sumus (Quint. *Inst.* 8.1.2)

As to what had to be said about a method for speaking Latin impeccably, we have already pursued it while we were discussing a method for speaking grammatically.

Sulpicius Victor then positions himself alongside Aristotle when he declares that *Latinitas* is the beginning of elocution.

Latinitas primo loco rectissime posita est; quid enim prius est quam in Latine, hoc est ut emendate loquamur? (Sulp. Vict. 15)

Latinity has most rightly been considered of the utmost importance; for what is more important than to use proper Latin, so that we may speak impeccably?

Latinitas becomes the *de facto* definition of proper diction as we see that *elocutio* is divided into four *virtutes*, *perspicuitas*, *ornatus*, *aptum*—pertaining to style—and *Latinitas* that refers to grammar.

Other references to *Latinitas* contextualized as such are found throughout rhetorical and grammatical writings.

Latinitas (Sulp. Vict. 15), *elocutio Latina* (Vict. 20), *oratio emendata* (Quint. *Inst.* 1.5.1), *emendate loquendi regula* (Quint. *Inst.* 1.5.1), *ratio Latine atque emendate loquendi* (Quint. *Inst.* 8.1.2), *oratio Romana* (Quint. Inst. 8.1.3), *sermo purus* (Quint. Inst. 5.14.33; 11.1.53), *puritas sermonis* (Hier. Ep. 57.2)

Thus far it seems that the initial conception of the terms ἑλληνίζειν and *Latinitas* was grammatical and devoid of socio-political bearing, simply denoting linguistic

propriety in the respective languages. The next step is to examine how the languages correspond with one another, or at least the grammarians' perception of the issue. Establishing an underlying network of connectivity will better elucidate the subsequent adoption of Atticism by the Romans as rhetorical dexterity.

Varro first commented that the two languages share similar grammatical constructions.

> An non vides, ut Graeci habeant eam quadripertitam, unam in qua sint casus, alteram in qua tempora, tertiam in qua neutrum, quartum in qua utrumque, sic nos habere? Ecquid verba nescis ut apud illos sint alia finita, alia non, sic utraque esse apud nos?
>
> Equidem non dubito, quin animadverteris item in ea innumerabilem similitudinum numerum, ut trium temporum verbi aut trium personarum. (*L.L.* 9.24)
>
> Or do you not observe that we also, just as the Greeks, have this fourfold scheme (in one category of which there are cases, in another tenses, a third in which there is a neuter gender, and a fourth in which there are the other two genders)? Do you not know that, just as in their language some words are refined and others not, in the same way there are both kinds of words in our language? Indeed, I do not doubt that, in this matter, you will have likewise noticed an innumerable number of similarities, such as a verb having three tenses or three persons.

Much later Macrobius made the same point.

> Cum vel natura vel usus loquendi linguas gentium multiplici diversitate variasset, ceteris aut anhelitu aut sibilo explicantibus loqui suum. Solis graecae latinaeque et soni leporem et artis disciplinam atque in ipsa loquendi mansuetudine simile cultum et coniuctissimam cognationem dedit. Nam et isdem orationis partibus absque articulo, quem Graecia sola sortita est, et isdem penes singulas partes observationibus sermo uterque distinguitur, pares fere in utroque conponendi figurae, ut propermodum qui utramvis artem didicerit ambas noverit. Sed quia ita natura fert, ne quid sic esse alteri simile possit, ut idem illi sit (necesse est enim omne quod simile est aliqua differentia ab eo cui confertur recedat), ideo, cum partes orationis in utraque lingua arta inter se similitudine vincirentur, quasdam tamen proprietates, quibus seorsum insignirentur, habuerunt, quae graeco nomine idiomata vocantur. (*G.L.* 5.631)

Although either nature or the habit of speaking once colored the languages of the nations with a manifold diversity, it has caused all but two of these nations to speak their own by panting and hissing, as they set their words in order.   To Greek and Latin alone has it given both the charm of a pleasing sound and the discipline of craft, and, in the very gentleness of its manner of speech, a similar cultivation and very close natural affinity. For each of these two languages is distinguished by the same parts of speech (apart from the article, which only Greece has obtained), and by the same rules[16] governing the individual parts of speech; there are nearly the same figures[17] of syntax[18] in each, with the result that nearly everyone who has learned one of the two arts has become acquainted with them both.   But because it is a law of nature that nothing should possibly be so similar to something else that it be exactly the same as it (for it is necessary that every thing that is similar withdraw by some distinction from that to which it is compared),[19] therefore, whenever parts of speech in each language were mutually overwhelmed by some close similarity, they nevertheless retained some properties by which they were separately distinguished, which are called by the Greek word "idioms."

The noted equivalency in grammar and syntactical construction implies the same parity in improprieties. Language apprehension seems to have transcended the limitations of individuality and instead has morphed into an ideal "language," canonized by the same rules. That can explain the Greek and Roman discussions on σολοικισμός-soloecismus, βαρβαρισμός-barbarismus, and μεταπλασμός-metaplasmus.

---

[16] observatio: B. An observation, remark; a precept, rule (post-Aug.), Plin. 17, 21, 35, § 163: "dare observationes aliquas coquendi," id. 22, 23, 47, § 99: "sermonis antiqui," Suet. Gram. 24.

[17] 1. Gram. t. t., form of a word, inflection: "alia nomina, quod quinque habent figuras, habere quinque casus," Varr. L. L. 9, § 52; cf.: "non debuisse ex singulis vocibus ternas vocabulorum figuras fieri, ut albus, alba, album," id. ib. 9, § "55: quaedam (verba) tertiae demum personae figura dicuntur, ut licet, piget," Quint. 1, 4, 29; 8, 2, 15 Spald.
2. Rhet. t. t., a figure of speech, σχῆμα, Cic. de Or. 3, 53 sq.; id. Or. 39 sq.; Quint. 9, 1 sq. et saep.
b. Esp., one which contains hints or allusions, Suet. Vesp. 13; id. Dom. 10; cf. Quint. 9, 2, 82.

[18] compono 3. Of the order of words in language: quam lepide λέξεις compostae! ut tesserulae omnes Arte pavimento atque emblemate vermiculato, Lucil. ap. Cic. de Or. 3, 43, 171; id. ap. Cic. Or. 44, 149; cf. id. ib. sq.: "ut aptior sit oratio, ipsa verba compone," id. Brut. 17, 68.

[19] A reference to an ancient version of the "identity of indiscernibles" principle, which inspired an important debate between Stoic and Sceptic philosophers. (Cleanthes - Carneades - - the problem of the "graspable presentation" - kataleptike phantasia. the "two eggs" thought experiment, one fake and one real). Macrobius' philosophical interests coming through here.

2.2.2 Grammatici Graeci.

Terms ἑλληνίζω, ἀττικίζω, as well as *graecor* and *graecisco* admittedly carry ensconced socio-political innuendos. Dubuisson has argued that verbs, such as *graecisco* and *graecari* are not meant to be derisive, albeit occasionally construed as such.[20] These sections furnish the occurences of these terms in the works of *Grammatici Graeci* and *Grammatici Latini* so as to establish connections between the two languages and determine the status of Greek dialects with regards to Latin.

First the terms βαρβαρισμός and σολοικισμός in every context bear the meaning of grammatical and syntactical impropriety respectively. In *Artis Dionysianae* in *Scholia Vaticana* the simple definition τὸ γὰρ περὶ μίαν ἁμαρτάνειν βαρβαρισμός ἐστι, τὸ δὲ περὶ πλείονας σολοικισμός (*GG* 170.23) (To make a mistake once is a "barbarism," but to do it more than once is a "solecism.") Later βαρβαρισμός is described as ἁμάρτημα προφορᾶς ἐν λέξει γινόμενον (*GG* 447.18) (barbarism": a mistake of usage, occurring in speech.) [21] Another important differentation between solecism and barbarism is encountered in *In Artis Dionysiae* in *Scholia Londinensia*. The grammarian construes a twofold nature in solecism; One is committed willingly and consciously, and that includes poetic and authorial constructions through artistry, usage of strange words, or ornaments in speech. The other type is because of illiteracy (*GG* 1.1/3456.23).

References to Ἕλλην occur usually as examples in the usage of words, adjectives, compounds, and other grammatical occurences.[22] In a list of ethnic nomenclatures, we

---

[20] Dubuisson (1991). See also Petrochilos (1974) for such terminology during the Roman Republic.
[21] Cf. 304.18, 446.34, 170.23. See also Apollonius if Alexandria GG 2.2/3.198.7 (barbarism); 199.14; 201.10 (solecize); 7.1; 195.28; 196.15; 198.8,9,26; 199.2; 200.8; 201.14; 217.1 (solecism)
[22] See *GG* 1.1/3.148.5; 238.25; 393.10,15; 543.35. The same references occur with the related verb— ἑλληνίζω. See 96.25;28, 428.2;6, 446.33. See also reference to the adjective ἑλληνικός, 370.36

29

read about a Thessalian, a Sicilian, a Phrygian, an Ionian, and an Hellen (*GG* 1.1/3.542.30-31).

Grammarians seem to take a stance when it is stated that ἑλληνισμός is the ultimate goal of grammar, contesting solecism and barbarism. Therefore, hellenizein seems to be construed as the proper usage of the language, an umbrella term to define propriety under which dialectical differences can be subcategorized. Reading more closely the *Scholia Londinensia* on Περί ἑλληνισμοῦ, Περί σολοικισμοῦ καὶ βαρβαρισμοῦ, ἑλληνισμός (Hellenismos) is defined as the quintessential virtue in speech and writing, contesting vice (κακία). The point to be made here is that there is no particular dialect that appropriates the right of correctness, but it is a transcendent linguistic propriety that is described as Hellenismos. As a matter of fact, it is stated that barbarism is also the case in which someone would opt for Attic, but will nonetheless insert other words without any analogy. It is palpable, therefore, that up to a certain point correctness did not necessarily assume the usage of Atticism. Further study into the text shows that solecism's provenance is described as being Solon and other compatriots who went to Cilicia to found a colony. The group, however, upon their repatriation to Athens seemed to have been unable to safeguard their native speech, with reference not only to grammar and syntax, but interestingly enough to pronunciation.

ὠνόμασται δὲ ἀπὸ Σόλωνος καὶ τῶν μετ᾽ἐκείνου εἰς Κιλικίαν ἐλθόντων καὶ κτισάντων τοὺς Σόλους, οἳ χρόνῳ ὕστερον Ἀθήναζε οὐκέτι τὸ πατρῷον τῆς ὁμιλίας ἐφύλασσον. Οἱ δέ φασι σολοικισμὸν προφορὰν σεσαλευμένην τοῦ οἰκείου σώου λόγου αἰκισμόν.[23]

It was named after Solon and those who came with him into Cilicia and founded "Soloi," who later on (after their repatriation to Athens) no longer kept their native conversational language.   And, by "solecism," they mean a distorted alteration of solid usage, an embarrassing one, at that.

---

[23] *GG* 1.1/3 446-447

Aelius Herodianus, the second-century grammarian, furnishes examples of adjectives, paronyms, modifications in forms of words, modifications of syntactical structures, declensions of nouns, and orthography. The occurences of ἀττικός,[24] βάρβαρος, Ἕλλην, Δωριστί, Αἰολίς and every other derivative of the above words are simply used as an example in a minute examination of language. In Περί καθολικῆς προσῳδίας, Herodianus in a list of examples relating words over two-syllables uses βάρβαρος as an example. He then proceeds to explicate that he is not referencing nationality, but speech, similarly to Homer when he calls the Carians βαρβαροφώνους. However, he also points out that younger authors use it to describe nationality as well (*GG* 3.1.194.26).

Apollonius of Alexandria in his book *On Syntax* (Περί συντάξεως) includes several references to Atticism and the forms of pronouns,[25] adverbs[26] as well as syntactical constructions,[27] and case usage.[28] In the latter cases, Apollonius references the "Attic form" and more importantly he presents the selection of Attic as the writer's choice, while he also collocates it with Macedonian and Thessalian forms. He also mentions constructions as being more Attic (Ἀττικώτερος) [29] or more Doric (Δωρικότερος)[30], but without any nuances as to their respective correctness.

Philoxenus of Alexandria, the first-century CE grammarian, in his work Περὶ τῆς Ῥωμαίων διαλέκτου expresses the view that Latin is a Greek dialect. He discusses dual

---

[24] *GG* 3.1 309.24; 506.11; 152.14. *GG* 3.2 375.4; 872.7.
[25] *GG* 2.2/3.8.5; 13.9; 21.25; 36.25, 39.2; 49.9; 50.4; 54.4; 55.26; 56.4; 86.8,10,16,18,19; 87.9,12,20,21,23; 93.1; 96.21; 99.22.
[26] *GG* 2.2/3.144.12,19; 145.1,4; 146.16,23; 160.21; 166.17,18,25,27,31; 181.30; 185.6; 187.7,14,26; 190.23; 191.2; 194.7,20.
[27] *GG* 2.2/3.51.5; 59.20; 221.25; 281.7
[28] GG 2.2/3.214.2; 221.25
[29] GG 2.2/3 132.30; 214.2; 221.25
[30] GG 2.2/3 159.16. Cf. also the reference to more Aeolian forms (Αἰολικώτερον) GG 2.2/3 194.8

number and explains that this is a recent construction that not every dialect has adopted, such as the Aeolians or the Romans who are their descendants, as well as the Koine Greek (323). He also expands on his theory by providing examples with etymological similarities between either the two languages or between Latin and other Greek dialects, such as Aeolic, thus corroborating his thesis. He claims linguistic relevance between *mors* and the Greek μάρνασθαι (327), sex and ἕξ (317), and the privative νε/νη (328).

2.2.3 Grammatici Latini

Later there seems to be a notable shift in the appreciation of Attic. Diomedes, the fourth-century CE Latin grammarian, in *Ars Grammatica* discusses comparatively Greek dialects and the Latin language as well as their grammatical and syntactical costructions. He criticizes the painstaking structure and convoluted nature of Attic. He goes as far as to state that were it not for any other dialect or for the less enlightened, several forms would have been considered barbarisms.

More specifically, in his consideration of the numbers, singular, plural, and dual, he argues against dual, as he fails to understand its usage and practicality. Attic, of course, appears predominant in his derisive viewpoint.

In a section titled *De Qualitate Locutionum*, he notes similarities between the Greek dialects and Latin. He claims that Doric due to its persistence on brevity commits barbarisms that are called *metaplasmi*. Attic, however, admits solecisms, which, according to Diomedes are considered "schemata logou", i.e. figures of speech.

Quinque sunt linguae Graecorum, Ias Doris Atthis Aeolis coene. Iuxta has igitur quinque linguas et Latina verba conprehensa colliguntur hoc modo…Doris in singulis partibus oraitonis adiectioni nunc brevitati studens barbarismos facit [qui barbarism metaplasmi

appellantur]…Atthis, quae brevitati studet, admittit soloecismos, quos cum docti fecerint, non soloecismi sed schemata logu appellantur…(*GL* 1.440.5-26)

There are five languages among the Greeks: Ionic, Doric, Attic, Aeolic, and koine. And so, next to these five languages also Latin verbs, once included, are collected in this way... Doric, in individual parts of speech, sometimes tending towards repetition and sometimes to brevity, makes barbarisms [which are called "metaplasms"]... Attic, which strives after brevity, allows solecisms which, when the learned make them, are not called "solecisms" but rather *schemata logou* [i.e., "figures of speech"].

Furthermore, in his discussion on the numbers—singular, plural, dual—he questions the

need for the latter, referencing its inexistence in archaic Latin. However, he proceeds to

say that later they started using more of the ignorant language of the Greeks.

Numerus praeterea accidit verbis prorsus uterque, singularis et pluralis. Dualis apud Graecos dumtaxat valet, a nobis excluditur, eodem modo quo et in nominibus…sero autem supervenientibus saeculis scrupulosae curiositatis observationibus captus quasi intercalaris inrepsit, et had de causa apud veteres raro reperitur, quoniam erroribus inlaqueatus multiplicatur. Adeo per huius modi omnes usus Graecorum linguae nesciae declarantur. (Diomedes, *De Arte Grammatica GL* 1.334.25)

Besides this, verbs have exactly each of two "numbers": singular and plural. Although* the dual is used in Greek, we exclude it in the same way in which also in nouns....but at a late time, with much passing time, a fit of scrupulous curiosity for grammatical rules crept in ("intercalary," as it were), and for this reason it is in rare instances found among older writers, since it multiplies itself, although ensnared with mistakes. Therefore, in this way, all adoption of usages from the Greeks' language are revealed to be ignorant.

It is also interesting to note that Latin grammarians discuss barbarisms and

solecisms. The description pertains to mistakes in grammar, diction, word order, and

pronunciation.[31]

Priscian, the 6th-century Latin grammarian, in the introduction of the *Institutiones*

Grammaticae states his intention to produce a work of art that will draw from both Greek

and Latin, since, as he says, the science of all eloquence shines forward from the fountain

---

[31] Diomedes *GL* 1. 265.2,23; 452.21. barbaros lexis 265.8, 451.31. soloecismus 265.8, 266.15, 267.23, 453.20.

of the Greeks. So his intention is to gather the most elegant of expressions and constructions from both languages and compile them into one complete work.

Cum omnis eloquentiae doctrinam et omne studiorum genus sapientiae luce praefulgens a Graecorum fontibus derivatum Latinos... *GL* 2.1.2

Since the teaching of every form of eloquence and every kind of study, shining forth by the light of wisdom, derived from the sources of the Greeks, Latin...

...quod gratum fore credidi temperamentum, si ex utriusque linguaemoderatoribus elegantiora in unum coeant corpus meo labore faciente...*GL* 2.2.6

...which I have believed would be a pleasing synthesis, if, from the arbitrators [?] of each language, the more elegant words should come together into one collection, with my efforts crafting the result...

More specifically, he suggests connections between Greek and Latin, which he calls "*translationes,*"[32] as well as comparative discussions on letter sounds, which provide insights into Greek dialects. The first sixteen books deal mainly with sounds, word-formation, and inflexions;[33] the last two deal with syntax. In Book 1 he presents letter changes at which point he references the Attic usage of double ττ instead of σσ and compares them with similar Roman practices, such as "Aiax," similarly to "Αἴας."[34] Furthermore, he provides examples of early Latin which share distinct semblances with the Greek, as is the case of the strong G sound. Previously in this chapter, I quoted Varro and Macrobius who were the first to note the associations between the two languages. Priscian emphasizes the same, citing Varro as well, and claims that the adaptation was due to euphonia.

---

[32] *GL* 2.25.6

[33] For letter comparison between Latin and Greek, see for instance *GL* 2.7.27; 9.14; 10.8; 11.9, 21 and passim. In all occasions, Priscian makes sure to note that a phenomenon appears in Greek as much as in Latin, which signifies notable equivalency. In the case of X, he says that in Latin it used to be a combination of C and S or G and S until X was adopted according to the Greek consonant (*GL* 2.12.3). Another parity appears in the masculine nominative ending –ος and –us (*GL* 2.26.23).

[34] *GL* 2. 24.11; 2.71.10; 255.13;

Sequente g vel, pro ea g scribunt Graeci et quidam tamen vetustissimi auctores Romanorum euphoniae causa bene hoc facientes, ut 'Agchises', et 'agceps', 'aggulus', 'aggens', quod ostendit Varro in primo de origine linguae Latinae his verbis: ut Ion scribit, quinta vicesima est littera, quam vocant agma, cuius forma nulla est et vox communis est Graecis et Latinis, ut his verbis: 'aggulus', 'aggens', 'agguila', 'iggerunt'. In eiusomid Graeci et Accius noster bina g scribunt, alii n et g, quod in hoc veritatem videre facile non est. Similiter 'agceps', 'agcora'. (GL 2.30.12)

When a *g* follows, instead of this the Greeks write *g,* and so do some Roman authors (although only very ancient ones), achieving a pleasant result [?] for the sake of euphony; for example: *Agchises*, and *agceps*, and *aggulus* ["angle"], *aggens*. Varro shows that this happened early, from the beginning of the Latin language, with these words: as Ion writes, it is the twenty-fifth letter, which they call *agma*, for which there is no *forma* and whose sound is shared between Greek and Latin, as in this words: *aggulus, aggens, agguila, iggereunt*. In this way, the Greeks and our own Accius write a double *g*, others *n* and *g*, which in this case it is not easy to see the truth. Similarly, *agceps*, *agcora*.

He furnishes several examples to document the practice that Latin language was influenced by Greek, such as the retention of the Greek long syllables in words such as ποιητὴς that has also been retained in the Latin poēta (*GL* 2.40). Priscian consistently compares Latin either with Greek or Attic. The references to other Greek dialects are scanty. He furnishes examples where there are parallels between Latin and Greek, but not with Attic dialect. For instance, he discusses the usage of genitive possessive versus the third person possessive pronoun, demonstrating that the latter is preferred, and then provides an example in Greek where the same practice is preferred, except in Attic dialect contrary to simplicity.

Si ipsa tamen possessio in possessorem faciat transitionem, non est congruum uti primitivo genitive pro possessive, quia vim habet composite Graeci, ut 'Ciceronii reddit suus filius' non satis commode pro hoc dicitur 'Ciceroni reddit sui filius, nex 'Ciceronem laudat sui filius pro 'suus filius', et similia, quia nec apud Graecos bene dicitur Κικέρωνα φιλεῖ ὁ ἑαυτοῦ υίός, nisi more Attico pro simplici accipiatur. (GL 3. 171.4)

Nevertheless, if possession itself [i.e., the possessive adjective or pronoun] should make a change in inflection to modify the possessor, it is not fitting to use the root word in the genitive case instead of in its possessive form, since it suitably has the force of the Greek word: as, for example, "his own son [*suus filius*] returns it to Cicero," is not sufficiently

agreeable in place of this: "his own son [*sui filius*] returns it to Cicero," nor "the his own son [*sui filius*] praises Cicero" in place of "his own son [*suus filius*]," and similar instances; since it is also not not good in Greek to say "his own son [*ho heautou huios*] loves Cicero," except where it should be allowed by Attic usage, contrary to simplicity.

An engaging point regarding the differentiation between the Greek dialects and their relationship or points of reference with Greek as a language appears when Priscian discusses resourcefully usages of the verb's mood. He mentions the usage of the infinitive instead as a substitute of regular imperative, imperative instead of optative and other alternations. He concludes that section, stating that such changes constitute also differences noticed in Atticisms and are also used by Romans. The point is that this simple statement affords us another glimpse into the embattlement of the dialects, and indicates that several of the discrepancies are found on the grammatical level.

Graeci quoque frequenter hoc utuntur, modos verborum pro modis ponentes, de quibus in Atticismis, quibus Romani quoque utuntur, post ostendetur. GL 3.229.17

The Greeks also frequently use this, i.e., applying some moods of verbs in place of others; concerning those, which exist among Atticisms, which the Romans also use, this will be demonstrated later.

In his examination of the moods, he discusses the conjunction εἰ that is to be found among the Greeks followed by the indicative but also optative and that particularly among the Attics is associated with the subjunctive.

Cum vero εἰ coniunctionem Graecam significat…invenitur autem ea coniunctio apud Graecos [id est εἰ] non solum indicativo, sed etiam optativo et maxime apud Atticos et subiunctivo sociata. *GL* 3.241.27[35]

But when it means the Greek conjunction *ei*... yet this conjunction [i.e., *ei*] is found in Greek not only with the indicative, but also with the optative and, in Attic, it is especially associated with the subjunctive.

---

[35] For more parallelisms between verbal moods in Greek and Latin, see also GL 3.237.6; 238.13, 239.5.16; 242.14; 243.1; 244.18; 246.12; 249.13; 251.1; 257.5

Interestingly enough, despite Priscian's occasional differentiations between Attic, Aeolian, and Greek forms, the unified way to refer to the entire lexical system is ἑλληνισμός. So when he discusses the usage of prepositional cases—genitive, dative, and accusative in Greek, albeit only accusative and ablative in Latin—he references Vergil who opts for the Hellenic trend (*nisi ἑλληνισμῷ utatur auctoritas, ut Virgilius in III georgicon: Et crurum tenus a mento palearia pendent*[36], *GL* 3.32.12).[37] On the same note, he quotes Terence who follows the Greek manner in the case of impersonal verbs (*GL* 3.230.28).[38]

As for the number of the possessor in the above case, Priscian states that it can be either singular or plural and provides examples in which this is the case in both Latin, citing Vergil, and Attic, citing Xenophon and Demosthenes. (*GL* 3. 171.11) The parallelisms between the Latin, Greek, and Attic continue throughout the work. They pertain to the preponderance of nominative instead of vocative (*GL* 3.208.2) and the usage of the substantive (*GL* 3.239.5). An observation that, albeit chronologically late, is still indicative of the independence and preponderance of Attic apparent in the repeated references, parallelisms as well as diversifications between Greeks and Attics. For instance, in the references to the optative, Priscian states that the Greeks and most of all the Attics opt for its usage (*et Graeci quidem, maxime Attici…GL* 3.239. 77). Such grammatical occurences run throughout the treatise (*GL* 3.241.27; 242.1).[39] Attic constructions are classified occasionally as Greek (*GL* 3.264.18; 265). They are also listed in the comparisons independently from references to Greek in which Attic

---

[36] Except where authority [i.e., authoritative writers] should use the Hellenism, as Virgil does in *Georgics* III: "and the ox's skin will hang from its chin to its shins."
[37] Cf. *GL* 3.33.1ff.
[38] Cf. *GL* 3.231.23; 233.7
[39] Cf. *GL* 3.252.14

constructions are paralleled with Latin. The authors to whom Priscian customarily resorts are Plato, Thucydides, Xenophon, Demosthenes, and Homer for the Attic, and Vergil, Terence, Lucan, and Juvenal for the Latin. His quotations support the argument that Latin was primarily influenced by Attic.[40] Furthermore, there are cases where he explicitly references Roman preference for the Attic style (…de quibus in Atticismis, quibus Romani quoque utuntur… *GL* 3.229.18).[41]

Priscian also discusses numbers where he interestingly contends that old Attic was using letters instead of numbers; hence the Latin descendants of numerals (*una per I scribitur antique more Atticorum*, *GL* 3.406.8).[42] What makes his observations even more compelling is that he does not ignore the other Greek dialects, which indicates that Attic was simply one of the dialects. He mentions that Latin does not use the diphthong *ei*, following the linguistic custom of the Aeolians (*et in priore sequimur Aeolis[43]*, *GL* 2.40.11).[44] The suggestions of analogies between the two languages go so far as to proclaim that, whenever Latin grammarians do not question the correctness of Greek grammarians, Apollonius and Herodianus should be perused as paradigms, as they have cleansed mistakes of earlier grammarians (*nos Apollonii et Herodiani, qui omnes antiquorum errors grammaticorum purgaverunt*, *GL* 2.61.18).[45] Additionally, he introduces cases where the old custom of Greek was also preferred (*more antiquo*

---

[40] *GL* 3.278.8; 280.12; 281.7; 285.15; 293.12; 297.18; 300.5; 301.13,23; 302.13; 303.11; 307.10,18; 308.14; 309.6,19; 310.14; 314.5,8, 20; 316.10; 317.7,17; 319.9,18; 320.4,14,19; 321.7,11,13; 324.13; 325.13; 326.9; 327.7,22; 328.13; 329.20; 330.6,12,16; 331.11,18; 332.14,21; 333.15; 334.11; 335.3; 336.5,18; 337.5,10; 338.10,21,23; 339.8; 340.15; 342.14; 343.19,25; 344.3,9; 345.9,14; 346.3,7,21; 347.8,16; 348.14,20; 349.1; 350.3,16,20; 351.13.22; 352.22; 353.6,13; 354.3,9,15,17; 355.9; 356.3,13; 357.3,4,16; 358.8,15,18; 359.1,22; 360,17; 361.5; 362.17; 363.4,12; 364.17; 365.11,14,20; 368.8; 369.6,14; 370.2,15; 371.3,7,12; 372.3; 373.4,20; 374.1,11; 375.11,14,25; 407.7; 408.5; 416.14
[41] There are of course cases where Latin adopts a practice contrary to Greek custom. See *GL* 2.33.22
[42] *una* is written instead of I, in the ancient custom of the Attic speakers.
[43] ...and in the former we follow the Aeolic speakers...
[44] Another reference to the Aeolian custom regarding prepositions, cf. *GL* 3.27.17.
[45] ...we... of Apollonius and Herodian, who purged all the mistakes of the ancient grammarians.

Graecorum, *GL* 2.37.11)[46] and similarly the old Attic style (*antiquo more Atticorum*, *GL* 3.406.6).[47] He also differentiates between Greek and Attic in the formation of the future (*quamvis Graeci futurum quoque diviserunt in quibsdam verbis in futurum infinitum, ut τύψομαι, et paulo post futurum, quod et Atticum dicunt, ut τετύψομαι, GL* 2.391.12).[48]

This consideration is the equivalent of Moeriss, the second-century lexicographer, distinction between primary and secondary Attic, as I present later in the chapter. The discussion on the future also involves Latin when Priscian prefers the latter's usage of the tense and mood, as he declares that future may envelope uncertain meanings.

Melius tamen Romani considerate futuri natura, quae omnino incerta est… (*GL* 2.405.18)

Nevertheless, the nature of the Roman future is better, which is altogether uncertain...

Apud Graecos etiam praeteriti temporis sunt imperativa, quamvis ipsa quoque ad future temporis sensum pertineant, ut 'ἠνεῴχθω ἡ πύλη', 'aperta sit porta'; videmur enim imperare, ut in future tempore sit praeteritum, ut si dicam 'aperi nunc portam, ut crostino sit aperta'. (*GL* 2.406.20)

In Greek there are also imperatives of past tense, although these same forms are associated* with a sense of future tense as well, as in, "let the gate be opened": for we seem to command that a past action occur in a future time (as if I should say: "open the gate now, so that it be open tomorrow").

Also, similarly to Moeris, Priscian references the old-ancient Greeks when discussing their usage of letters as numerals.

Quinquaginta per L, quia apud antiquos Graecos L pro N. (*GL* 3.406.25)

---

[46] In the ancient manner of the Greeks.
[47] In the ancient manner of the Attics.
[48] Although, among some verbs, the Greeks also differentiated the future tense: into the "infinite future" (e.g., tupsomai, "I will strike myself" / "I will mourn"), and into the paulo post futurum, which also is called the "Attic" future (e.g., tetupsomai).

The number "fifty" [is expressed] by the letter *L*, since among the ancient Greeks *L* was used in place of *N*.

Furthermore, he differentiates between Atticism and older Greek dialects in Book 18 of his Grammar.[49]

Attici Ὅταν ἔλθῃ de futuro dicunt. Isaeus etiam de praeterito: Ὅταν ἔλθῃ, εἰώθει παρ' ἐμοί κατάγεσθαι, et iterum: Ὅταν ἔλθω, παρ' εκείνῳ κατηγόμην. Antiquiores tamen Ὅτε ἔλθοι de praeterito dicunt. (*GL* 3.335.3)

Attic speakers say "Whenever he comes" [*hotan elthe*] about a future event. Isaeus also uses [this phrase], about the past tense: "Whenever he came, he was accustomed to stay at my house"; and, in another instance: "Whenever I came, I stayed at that man's house." Yet the more ancient writers say *hote elthoi* to refer to a past event.

There are also instances when his statements are not only observations. For instance, regarding usage of the cases of the object, he mentions the "authority of the ancients" and cites Homer.

Auctoritas tamen veterum est, quando pro genetivo plurali nominativum praeponit, quamvis ad sequentes res, id est divisas, singulariter verba redduntur, ut Homerus:
Οἱ δὲ δύο σκόπελοι ὁ μὲν οὐρανὸν εὐρὺν ἱκάνει (*GL* 3.126.8)

Nevertheless, on the "authority of the ancients," there are cases where the nominative is preferred to genitive plural, even though the verbs refer to the following things as singular (i.e., as differentiated), as Homer says:

"There are two rocky peaks, one [of the them] reaches to broad heaven."

Priscian also dedicates an extensive section of Book 18 on affinities or lack thereof between Latin and Attic constructions. He abandons the reference to Greek and specifies that the usages he parallels with Latin equivalents appear in Attic dialect. He also references passages from Attic authors and their Roman counterparts that run through *GL* 3.300 to 376. This part of the treatise purveys both grammatical information

---

[49] On a similar note, he also references younger Greeks (*GL* 3.15.24).

and syntactical constructions. It should be noted that amidst the references to the Atticists, one finds interspersed particulars about Greek forms. The instances, however, mostly relate grammatical occurences, such as meanings of adverbs.[50]

He also notices consonance in the creation of nouns in which both genders have the same form with the difference being signified in the article, and quotes Juvenal as an example (*GL* 2.146.6). Parallelisms, such as the above, are noted in the noun endings (*GL* 2.161.16; 162.1; 163.9; 167.12; 168.4;). The discussion involves the usage of the genitive when paternity is declared and the parallel existence of patronymics, for instance in *GL* 2.185.17.[51] Priscian makes sure to note the supremacy of Latin over Greek when it comes to combination in the usage of the cases, such as in prepositional phrases that furnish further meanings without the exigency for more cases (*GL* 2.190.14). He even discusses the rare occurrence of the –*as* ending that predominantly survives in the word *paterfamilias*, and attributes that to the archaic Latin's adoption of the Greek ending.

Eiusdem [id est primae] declinationis femininorum genetivum etiam in 'as' more Graeco solebant antiquissimi terminare, unde adhuc 'paterfamilias' et 'materfamilias' solemus dicere et frequens hoc habet usus.[52] (*GL* 2.198.6)

The most ancient writers also used to terminate the genitive of the same declension of feminine nouns (i.e., the first) in -*as,* in the Greek manner: it is from this custom that we are still accustomed to saying *paterfamilias* and *materfamilias*, and frequent usage preserves this [form].

Similarly he references double accusatives:

Nec mirum duplicem declinationem haec habuisse apud Latinos, cum apud Graecos quoque multa inveniuntur huiuscemodi ancipitem habentia declinationem teste

---

[50] See *GL* 3. 347.6; 348.17; 345.23; 355.6; 362.16; 366.9

[51] Similar references found pertain to the Greek vocative (*GL* 2.186.20). Cf. also 2.191.7; 2.217.1; 2.234.4; 2.244.15;

[52] Similarly he references declensions of nouns in "us" that resemble the Greek υς (*GL* 2. 265.3). Other parallelisms are to be noted in Greek nouns in ος that have been consistently turned into the Latin "us" as well as the Greek nouns in "ρος" that are to be found in the Latin in "er" (*GL* 2. 271.15). Analogous examples are also furnished in noun endings and declensions, such as *GL* 2.272.12; 273.5; 277.1; 280.3; 283.13; 327. 7

Herodiano: Γύγης nomen Gigantis] Γύγου et Γύγητος, Κόμης [proprium] Κόμου et Κόμητος...unde Virgilius duplicem accusativum Graecum protulit in V: Dareta et Daren, illos secutus…(GL 2.244.15; 245.6)

And it is no wonder that these nouns had a double declension in Latin, since in Greek one finds many nouns of this kind, having a twofold declension, as Herodian attests: *Gyges* [the name of the Giant], *Gygou* and *Gygytos*, *Komes* [a proper name], *Komou* and *Kometos*...whence Virgil used the alternate Greek accusative forms in [*Aeneid*] 5: *Dareta* and *Daren*,[53] having followed those [Greek writers' example]...

Homologous parallelisms are also to be found in noun declension in the case of genitives. Priscian, however, details that there are other types of nouns in which the Greek "os" has been transformed in Latin to an "is." He still makes a point, though, when he notices that Syracusans opt for the Latinized "is" in their Greek dialectism.

Sin apud Graecos in εις dipthongum terminant 'nt' habent in genetivo: 'Σιμόεις Σιμόεντος, hic Simois huius Simoentis' (GL 2.252.14)

But if nouns end in the diphthong *-eis* in Greek, they then have *-nt* in the genitive form: *Simoeis, Simoentos*, *hic Simois, huius Simoentis*.

Graeca eiusdem terminationis genetivum Graecum sequuntur 'os' finali in 'is' conversa: 'Χρυσέρως Χρυσέρωτος, Chryseros Chryserotis'; 'Ἥρως Ἥρωος, heros herois; 'Μίνως Μίνωος, Minos Minois'…nec tamen hoc sine exemplo apud Graecos quoque invento. Syracusii enim ἥρων pro ἥρως dicunt. (GL 2.254.16)

Greek nouns of this ending follow the Greek genitive, with a final *-os* changed into *-is*: *Chyseros, Chryserotos, Chryseros Chryserotis*; *Heros Heroos, heros herois*; *Minos Minoos, Minos Minois*...nevertheless, some examples of this are also found in Greek[54]: for the Syracusans say *heron* instead of *heros*.

---

[53] tum pudor incendit viris et conscia virtus,   455
praecipitemque Daren ardens agit aequore toto
nunc dextra ingeminans ictus, nunc ille sinistra.
nec mora nec requies: quam multa grandine nimbi
culminibus crepitant, sic densis ictibus heros
creber utraque manu pulsat versatque Dareta.   460

        - *Aeneid* 5.455-60

[54] lit. "this is also not without example found in Greek"

Regarding prepositions, Priscian also notes that Latin has more prepositions than Greek, something that gives the advantage of more detailed phrasing.

Sunt autem apud nos multo plures quam apud Graecos. Apud illos enim cum sint decem et octo praepositiones, diversas singulae habent significationes, quae complent multarum apud nos demonstrationem, ut περί pro 'circum' et 'circa' et 'erga' et 'de' et 'super', quando memoriae est, ponitur. *GL* 3.28.19 [55]

But there are many more of them in our language than in Greek. For whereas their language has eighteen prepositions, each of them has its own unique meaning; these meanings are expressed with finer distinctions among the many propositions in our language: as, e.g., *peri* is used to translate *circum, circa, erga, de,* and *super* (when it refers to recollection).[56]

Furthermore, Priscian purveys the notion of an even more profound underlying connection between the two languages when he presents the readers with examples of verbs that have then turned into nouns in both languages. As a matter of fact, he does not leave room for any other interpretation when he concludes that the similarities are not surprising as the Latins consistently imitate the Greek grammatical rules.

'remigo remix remigis', lego lex legis', 'rego rex regis'…λέγω Λέλεξ Λέλεγος... (*GL* 2.278.7;12)
nec mirum: Graecos enim in omnibus fere imitati Latini in hac quoque regula sequuntur. (*GL* 2.278.9)

And no wonder: for since Latin writers have imitated the Greeks in nearly every usage, they follow [their] rules in this instance too.

Similarly, under the subsection *De Figuris* he discusses the idea of the Greek παρασύνθετα that is also a Latin practice, such as *efficio* and its derivative *efficiens* (*GL*

---

[55] Cf. *GL* 3.29.29. Priscian also makes similar points regarding adverbs. See *GL* 3.30.7; 25. 31.21.
[56] Here I referred to an obscure source: ed., Meyer, K., Stern L. Chr. Zeitschrift für celtische Philologie, II Band. (1889). Stokes, W. "Notes on the St. Gallen Glosses," p. 479:
(quando memoriae est, ponitue: "when super implies recollection"). From notes on Old-Irish glosses on the St. Gallen Priscian manuscript.

2.568.15). He also cites nouns and adjectives that produce their adverbs in both languages in a similar manner (*GL* 3.88.5).

He references verbs that appear as both active and passive in Latin as following a similar Greek grammatical function (*GL* 2.379.15). Similarities in tenses are noted elsewhere, as is in the usage of present and imperfect in both languages *GL* 2.407.22. He notes, though, discrepancies in the usage of subjunctive (*GL* 2.408.18). What is particularly interesting is the account of aorist, perfect, and pluperfect—explicating the notion of completed action and the usage of temporal adverbs in both languages (*GL* 2.415.23-416.20), deponent verbs which exist in scarcity in Latin (*GL* 2. 419.22), impersonal verbs (*GL* 2.420.14), and nouns that derive from verbs (*GL* 2.432.18; 434.2,7). Priscian also correlates the changes to baryton syllables noticed in the aorist and perfect tenses in Greek and Latin respectively and provides examples, such as λείπω ἔλειψα and scribe scripsi (*GL* 2.445.17).[57]

The parallelisms reach the point of a comparative discussion of the Greek and Latin pronunciation and accent (*GL* 2.202.19), usage of long and short syllables in noun declension (*GL* 2.220.10; 287.19; 290.22), pronunciation of city names (*GL* 2.287.1), γάρ and its Latin equivalent *enim* (*GL* 3.285.3)[58], ἐπέκτασις (*GL* 2.590.26), even though he later notes that Atticists would only resort to ἐπέκτασις in nominative and dative—ἔγωγε, ἔμοιγε—while in archaic Latin this practice was extended to all cases indiscriminately (*GL* 2.592.10). The discussion involves the transliteration of the Aeolian rough breathing into the Latin s (*GL* 3.16.18), parallelisms in prounouns (*GL* 3.18.12), the formation of

---

[57] Cf. *GL* 2.507.19
[58] See also δή-nam, enim, ergo *GL* 3.287.7

adverbs from nouns (*GL* 3.25.16), lemmas that can work either as adverbs or as prepositions and for which Roman authors resort to the authority of the Greeks.

> Quia interpretatio eorum apud Graecos modo praepositionis modo adverbii vim obtinet, ut:
> Ante ora patrum;
> Hic 'ante' τὸ 'πρό' significant, quod est praepositio Graeca. At vero:
> Ante leves ergo pascentur in aethere cervi
> Et:
> Ante pererratis amborum finibus exul,
> Hic 'ante' τὸ 'πρότερον' significant et est sine dubio adverbium. Similiter 'contra', quando κατά significant, loco praepositionis est accipiendum…*GL* 3.26.7[59]

Since their translation in Greek sometimes takes on the force of a preposition, sometimes of an adverb, as in:

> "before their fathers faces" (*ante ora patrum*)   [*Aen.* 1.95]

Here, *ante* means *pro*, which is a Greek preposition. But, on the other hand:

> "Before [that happens], swift deer will graze in the aether."

> (*Ante, leves ergo pascentur in aethere cervi*.)

And:

> "Before that, as an exile, when both nations' territories have been wandered through..."[60]

> (or) "when he/she has wandered across both nation's countries..."

> (*Ante pererratis amborum finibus exul...*)

---

[59] Cf. 3.34.6; 35.14; 36.23; 39.26; 42.7; 56.4, 17. See also his comprehensive proclamation regarding prepositions in both languages in GL 3.194.5. There are also significant differences that are being noted, as is the case of preposition "ἐν" and its equivalent "in" that is privative in Latin (*GL* 3.53.21).

[60] I've referred to an old commentary on these lines: P. Vergili Maronis Opera, with a commentary by John Conington, M.A. London: Whittaker and Co.: 1858.

Ante leves ergo pascentur in aethere cervi
et freta destituent nudos in litore pisces,   60
ante pererratis amborum finibus exsul
aut Ararim Parthus bibet aut Germania Tigrim,
quam nostro illius labatur pectore vultus.

- *Eclogues* 1.59-63

45

Here, *ante* means *proteron*, and it is undoubtedly an adverb. Similarly, *contra*, when it means *kata*, must be used in place of a preposition.

He also references letter changes when prepositions become parts of compound verbs, a phenomenon that Latins have taken from Greeks and suggests that, since Romans espouse the Greek techniques, they should be advised to follow them in their practices.

Sed cum Graecorum auctoritatem in omnibus paene sequi sollemus, in hoc quoque imitari debemus (*GL* 3.51.2)

But since we are accustomed to following the authority of the Greeks in nearly all instances, in this, also, should we imitate them.

Furthermore, he affords us examples from *conversio* and the Greek equivalent in the form of ἀποστροφή. In Latin it shows itself with the addition of –ne, as in the case of tune, and in Greek with –ι, as in ἐκεινοσί (*GL* 3.143. 23). Both languages also display a similar vagueness in meaning when third person and possessive pronouns are involved (*GL* 3.168.18 ff.)

Finally, Priscian expands his discussion on sentence structure. He talks about the relative clause introduced with qui and Ὅς respectively and how it requires a secondary clause to complete the meaning. He also expands his survey on most frequently used forms and how eacn language corresponds with the other. For instance, even in cases when both languages could use genitive case, Latin opts for ablative. Priscian ventures to provide literary examples to make his point (*GL* 3.214.14ff.)[61]

Hoc idem, id est qui', quotiens subiungitur nomini, quomodo ὅς apud Graecos, necesse est non solum ad nomen praepositum, sed etiam ad id subiunctum alterum verbum proferri, ut 'virum cano, qui venit'. *GL* 3.127.12

---

[61] Cf. *GL* 3.221.9,11

Whenever this same [pronoun] (i.d., *qui*) modifies a noun, just like *hos* in Greek, it is not only necessary that it be placed after [before?] the noun, but also that another verb (subjoined to it) precede it, as in "a man I sing, who came..." (*virum cano, qui venit...*)

In one of his last works, *De Figuris Numerorum*, numerical similarities are noted between the two languages (*GL* 3.406.24; 407.11; 412.22; 413.23) as well as discrepancies (*GL* 3. 413.7).

In *De Metris Fabularum Terentii*, he delves into more complex linguistic structures and discusses metrical constituencies that are to be found both in Greek pots and are adopted by Terentius.[62] The grammarian makes detailed distinctions between old and new Greek poets (*apud Graecos comicos vetustissimos*, *GL* 3.418.19),[63] and he makes sure to note the rarity of some of the metrical forms (*similiter impersonalia a paucis Graecis accepta*,[64] *GL* 3.418.24),[65] thus showcasing an intricate metrical system and thereupon his familiarity with the full spectrum of Greco-Roman literature.

Finally, in *Praeexercitamina* Priscian lists various forms of speech and literary creations and cites them alongside their Greeks equivalents. He mentions De Usu-χρείαν (*GL* 3.431.30), commemorations-ἀπομνημονεύματα (*GL* 3.432.3), refutation-ἀνασκευή (*GL* 3.434.1), allocutio-προσωποποιία (*GL* 3.437.33).

In his *Institutio de Nomine et Pronomine et Verbo*, he furnishes multiple examples of cases and endings. One of the most interesting references, however, is when he discusses patronymics. He notes that there are several cases in which the patronymic has modified the accent to be more Latin. He suggests that this practice should be retained, as such words may not seem foreign to the Romans.

---

[62] *GL* 3.419.33
[63] In the most ancient of Greek comic poets
[64] Similarly impersonals having been received by a few Greeks.
[65] Cf. *GL* 3.418.26

Licet tamen etiam in illis accentum servare Latinum, quae cum sint Graeca, non tamen aliena videntur formulis terminationum Latinarum, ut Creusa Arethusa. (*GL* 3.476.18)

Yet it is also possible to preserve the Latin accent in those words, which, although they are Greek, nevertheless do not seem foreign to the forms of Latin endings, such as *Creusa* and *Arethusa*.   [i.e., Κρέουσα, vs. Creúsa].

The above references in Greek and Latin grammarians indicate that there was close communication between the two languages, but Attic did not always appropriate general and long-standing validity as well as grammatical and socio-political correctness. The next section showcases the noteworthy shift that took place during the period of the High Empire and particularly under the aegis of the Second Sophistic. It is then and in later grammarians too that we notice the unassailability of Atticism's preponderance.

2.3 Greek and Attic in Greek lexicographers

The issues that I explore in this section are the following: What does the distinction between ἑλληνίζω and ἀττικίζω signify? How do these terms evolve from being linguistic parameters to atticizing morphing into the legitimate form of Hellenization? Also, through the citations on the usage of barbarism and solecism it becomes apparent that, even though these terms were clearly conceived as signifiers of linguistic improprieties, in the 2nd century CE they were also used alongside attributes of particular dialects. Therefore, it seems that the interdependence of language and socio-political stance consolidates its power and the terms acquire a gravitas that can either legitimize people socially or marginalize them.

More specifically, in the Scholia ad Aristophanem 1A *De Comoedia* we read about the juxtaposition between Hellenism and Atticism. The distinctions listed are ten—analogy, etymology, figures, formation of nouns, allegory, numbers, genders, breathings,

tenses, and accents. One needs to pinpoint that there is no evaluation of Hellenism and Atticism, or any remark regarding their respective potency or refinement. However, the differences mentioned, such as differences in the gender of words, resemble the characteristics of barbarism. Would than indicate that initially the evolution from the Classical, typical Greek to Attic entailed alterations to the degree of language debasement or in the case of Atticism over refinement?

ὅτι κατὰ τρόπους δέκα διαφέρει τὸ ἑλληνίζειν τοῦ ἀττικίζειν· κατὰ ἀναλογίαν,
παρὰ τὴν ἐτυμολογίαν, παρὰ τὰ σχήματα, παρὰ τὸν σχηματισμὸν τῶν ὀνομάτων,
παρὰ τὴν ἀλληγορίαν, παρὰ τοὺς ἀριθμούς, παρὰ τὰ γένη, παρὰ τὰ πνεύματα,
παρὰ τοὺς χρόνους, παρὰ τοὺς τόνους. παρὰ μὲν τὴν ἀναλογίαν καὶ ἐτυμολογίαν,
ὅτι οἱ μὲν ἑλληνίζοντες τούτοις μάλιστα χρῶνται, οἱ δὲ ἀττικίζοντες οὐδ᾽
ὅλως. παρὰ τὰ σχήματα, ἐπειδὴ πάλιν ἔθος ἐστὶ τοῖς ἀττικοῖς χρῆσθαι σχήμασι,
τοῖς δὲ ἑλληνίζουσιν οὐκέτι. παρὰ δὲ τὸν σχηματισμόν, ἐπειδὴ κατὰ πολλοὺς
τρόπους ἐκ τῆς ἑλληνικῆς συνηθείας μετασχηματίζεται τὰ ὀνόματα. παρὰ δὲ τοὺς
χρόνους, ὅτι συστελλόντων τινὰ τῶν ἑλληνιζόντων αὐτοὶ ἐκτείνουσι μᾶλλον ἢ
συστέλλουσι. παρὰ δὲ τὰ πνεύματα, ἐπεὶ δασύνουσιν ἔνια ψιλούντων, ἢ ψιλοῦσι
δασυνόντων. παρὰ δὲ τὰ γένη, ἐπειδὴ θηλυκῶς τινα λεγόντων <ἀρσενικῶς> ἢ
οὐδετέρως αὐτοὶ προφέρονται, ἢ ἀνάπαλιν ἀρσενικῶς ἢ οὐδετέρως <τινὰ λεγόν-
των θηλυκῶς> ἐκφέρουσι. παρὰ τοὺς ἀριθμούς, ἐπειδὴ ἑνικῶς τινα λεγόντων
πληθυντικῶς λέγουσιν, ἢ καὶ ἀνάπαλιν.

Hellenism differs from Atticism in ten ways: in "analogy," in etymology, in it figures of speech, in the forming of nouns, in figurative language, in its numbers, in its genders, in the breathings, in its verbal tenses, in its accents. With respect to analogy and etymology, the Hellenizers use those features especially, while the Atticizers do not do so at all. With respect to figures of speech, whereas it is recurrently customary for Attic [writers] to use them, it no longer usual is for the Hellenizers. In the forming of nouns, in many ways nouns are changed from the Hellenic usage. But, in verbal tenses, while the Hellenizers pronounce them as short, they [the Atticizers] pronounce them as long rather than short. And in breathings, they make rough some of the smooth breathings, and smooth some of the rough breathings. And in genders, they [the Atticizers] transfer some [nouns] with a feminine designation to masculine or neuter, or, vice versa, they transfer some with a feminine designation to masculine or neuter. In number, they treat some nouns of plural meaning as singular, or vice versa.

In a fragment of Posidippus, there is a blatant contradistinction between Atticism and Hellenism in favor of the latter. The author strongly criticizes a user of Atticism as

pretentious and too ornate. The point is rather interesting especially if we consider that

the same oppositional thesis rose later between Atticism and Asianism.

Ἑλλὰς μέν ἐστι μία, πόλεις δὲ πλείονες·
σὺ μὲν ἀττικίζεις, ἡνίκ᾿ ἂν φωνὴν λέγῃς
αὑτοῦ τινές, οἱ δ᾿ Ἕλληνες ἑλληνίζομεν.
τί προσδιατρίβων συλλαβαῖς καὶ γράμμασιν
τὴν εὐτραπελίαν εἰς ἀηδίαν ἄγεις;
(Posidipp. 28)

There is one Hellas, but many cities:
you speak Attic, whenever you utter a phrase,
†some of you there [autou tines]†, but we Hellenes speak Hellenic.
Why do you, occupying yourself with syllables
and letters,[66] drag your lively wit[67] into unpleasantness?

Diomedes, though, furnishes a different view of Greek, stating that there are five

languages of Greek, Ionic, Doric, Attic, Aeolic, and Koine, and then Latin. Hence,

contrary to the minute paradigms and extensive presentation of barbarism and solecism,

Diomedes perceives the dialects as justifiable derivatives of the same language.

Quinque sunt linguae Graecorum, Ias Doris Atthis Aeolis coene. Iuxta has igitur quinque linguas et Latina verba comprehensa colliguntur hoc modo…Doris in singulis partibus orationis nunc adiectioni nunc brevitati studens barbarismos facit [qui barbarismi metaplasmi appellantur]…Aeolis ultra modum copiosa est et amat per circuitum verba protendere et periphrasi res explicare ac per hoc πλεονάζει. (*G.L.* 1.440).

There are five languages among the Greeks: Ionic, Doric, Attic, Aeolic, and koine. And so, next to these five languages also Latin verbs, once included, are collected in this way... Doric, in individual parts of speech, sometimes striving after repetition and sometimes after brevity, makes barbarisms [which are called "metaplasms"]...Aeolic is copious beyond measure and loves to prolong its expressions in a roundabout way and to explain things by periphrasis and, in this way, to engage in "pleonasm."

It seems that Atticism, the most popular of the dialects, assumes an even more

independent role that especially in the Empire transcends the boundaries of linguistic

---

[66] LSJ diaprotribo 3. refs this line
[67] LSJ eutrapelia - refs this line

usage. Also linguistic propriety shifts the paradigm when Greek is diversified from Attic, and Atticism becomes the promontory of edification and refined elocution. Paramount literary works are written in Attic dialect, and Attica is the geographical area that through its history embodies Hellenism. Therefore, it is only reasonable that during the Empire Atticism becomes the flagship promontory against Romans and Romanness. Furthermore, the appearance of Asianism, albeit succinct, needed a counterpart, and Atticism had literary creations in its record that provided a balanced and structurally formulated style to which authors could resort. Another significant turn in Atticism's history is its modulation into a writing style beyond language. Cicero and Quintilian among others espouse Atticism, theorize upon its construction, characteristics, and merits and wish to teach it for the benefit of Roman oratory.

Consequently, Atticism effectively appropriates legitimacy, encompassing linguistic propriety, *paideutic* standing, and social status. Setting the paradigm, lexicographers start compiling forms and examples of usages. The distinction, though, is not between Attic, Doric, Ionic, and Aeolic. Instead it is between Attic, Hellenic, and Koine. More specifically, Moeris sets the tone from the title "Μοίριδος ἀττικιστοῦ λέξεις ἀττικῶν καί ἑλλήνων κατά στοιχεῖον." Moeris differentiates between usages of the Hellenes, the Attics, and rarely the ancients. More specifically, he differentiates between Attic versus Hellenic and common usage.[68] Another contradistinction is between Hellenic versus common and common versus Attic.[69] However, the point, which intensely furnishes the spirit of the era, is the opposition between primary Attic and secondary Attic.

---

[68] See 189.32, 193.35, 204.15, 204.17, 205.14, 196.4, 202.11, 205.3, 208.33, and 209.17.
[69] See 197.5, 198.2.

δεικνῦσι προπερισπωμένως Ἀττικοί, δεικνύεσιν Ἕλληνες. Δεικνύασι δὲ οἱ δεύτεροι Ἀττικοί (194.29).

ζευγνῦσιν Ἀττικοί πληθυντικῶς κ προπερισπωμένως, ζευγνύεσιν Ἕλληνες. τὸ δὲ ζευγνύασιν τῆς δευτέρας Ἀτθίθος (197.28).

πλυνεῖς κατὰ τὴν πρώτην Ἀτθίδα, κναφεῖς κατὰ τὴν δευτέραν Ἀτθίδα (208.15).

194.29: Attic writers [write] deiknusi ["they demonstrate"] with a contraction; Hellenes deiknuesin. And the "secondary Attic" writers [write] deinuasi.

197.28: Attic speakers [write] zeugnusin ["they join"] in the plural with a contraction; Hellenes [write] zeugnuesin. And it is zeugnuasin in "secondary Attic."

208.15: pluneis ["clothes-cleaners"] in "primary Attic," knapheis in "secondary Attic."

There is in fact a third occurrence in which Moeris references a middle Atticism:

χολάδας οἱ πρῶτοι Ἀττικοί, χόλικας θηλυκῶς οἱ μέσοι.

"χόλικας ἑφθάς." τὰς χόλικας ἀρσενικῶς Ἕλληνες (213.2)[70]

The primary Attic writers [write] choladas ["intestines"], the "middle Attic" writers use the feminine cholikas. cholikas hephthas ["boiled intestines"]. Hellenes write tas cholikas in the masculine gender.

On a similar note, Phrynichus in the *Eclogae* sets the tone from the introduction. He addresses his work to Cornelianus, and states that it is meant for anyone who wishes to speak correctly and according to the ancient custom. It is interesting to note, though, that throughout his lemmas, he associates both Ἕλληνες and Ἀθηναῖοι with Attic hence with proper usage of the language. We read "Τάχιον Ἕλληνες οὐ λέγουσιν, θᾶττον δέ." (52) (Hellenes do not say tachion ["swifter"], but rather thatton.), and then later Κακοδαιμονεῖν· οὕτως οἱ νόθως ἀττικίζοντες, Ἀθηναῖοι γὰρ διὰ τοῦ α κακοδαιμονᾶν λέγουσιν." (54) (kakodaimonein ["to be unhappy"]: this is how speakers who use a bastardized form of Attic say the word, for Athenians says

---

[70] The references follow Boeker's edition of Moeris.

kakodaimonan, on account of the alpha.) Au contraire, Moeris usually groups Hellenic

with common usage clearly diverging from Attic. Phrynichus, though, creates another

category of speakers, the fake Atticizers (ψευδαττικοί and οἱ νόθως ἀττικίζοντες,

ἀνάττικος), a phrasing that confirms peoples' appropriateness of linguistic correctness—

which at the time was synonymous with Atticism.[71] Similarly he repudiates a form for

being ἀνελλήνιστον (299), and suggests the old usage of the language:

Ὅστις ἀρχαίως καὶ δοκίμως ἐθέλει διαλέγεσθαι, τάδε αὐτῷ φυλακτέα (Whoever wishes

to speak in an old and distinguished way, he must watch out for these things.)[72] He also

furnishes examples of ancient Attics (177).[73] His minute examination of the language

becomes even more fastidious, as he does not promote one model of correctness, or favor

one author. He does resort to Classical Attic writers consistently, though.[74]

Ἀπελεύσομαι παντάπασι φυλάττου· οὔτε γὰρ οἱ δόκιμοι
ῥήτορες οὔτε ἡ ἀρχαία κωμῳδία οὔτε Πλάτων κέχρηται τῇ φωνῇ· ἀντὶ
δὲ αὐτοῦ τῷ ἄπειμι χρῶ καὶ τοῖς ὁμοιοειδέσιν ὡσαύτως[75]. (24)

Be on your guard, in every instance, against apeleusomai ("I shall go away"): for neither
have the distinguished rhetors nor Old Comedy nor Plato used the expression; instead of
it, use apeimi and similar forms likewise.

Interestingly enough he concurrently considers forms that are in use in Sicilian

Greek dialect: Ἡ πηλὸς Συρακούσιοι (Gloss.Ital. 36 Kaibel) λέγουσιν ἁμαρτάνοντες (34)

(Syracusans make a mistake, when they say *he pelos* ("clay"). References to other

---

[71] (45)Υἱέως οἱ ψευδαττικοί φασιν οἰόμενοι ὅμοιον εἶναι τῷ Θησέως καὶ τῷ Πηλέως. (54)Κακοδαιμονεῖν· ο ὕτως οἱ νόθως ἀττικίζοντες, Ἀθηναῖοι. γὰρ διὰ τοῦ α κακοδαιμονᾶν λέγουσιν. δεινῶς ἑκάτερον ἀνάττικον (217). Cf. also 224.

[72] Cf. 98, 100, 109, 153, 170, 171, 200 (παλαιοί), 206, 208, 210, 229, 234, 238, 239, 242, 245, 247, 259, 267, 276, 278, 306, 320, 359, 369, 375, 377, 380, 384, 397,

[73] See 390, 391, It should be noted, though that there are cases when he opts for the contemporary form of the word. See 190

[74] Cf. 47, 56, 62, 64, 231, 318

[75] Phrynichus is very selective with the forms he approves. Elsewhere he opts for Plato's and Thucydides's linguistic choices. See 71.

dialects are usually meant to be corrected and not as models.[76] Similarly he references

Doric choices, such as γενηθῆναι (79), of which he disapproves.

The first reference to a particular dialect as a model of correctness is when

Phrynichus suggests that there has been a common way of the perfect tense of ἀλείφω

and κατορύσσω, but the way of the Athenians who double it should be followed.

Ἤλειπται καὶ κατώρυκται οὐ χρή, ἀλλὰ διπλασίαζε
τὴν φωνὴν ὥσπερ οἱ Ἀθηναῖοι, ἀλήλειπται καὶ κατορώρυκται (23).[77]

hleiptai ("has been anointed") and *katoruktai* ("has been dug") must not be said; instead,
reduplicate the sound just as the Athenians do: *aleleiptai* and *katororuktai*.

Later he does associate correctness with Ἕλληνες: Τάχιον Ἕλληνες οὐ λέγουσιν,

θᾶττον δέ (52) (The Hellenes do not say τάχιον, but rather θᾶττον.) His insistence,

though, remains on the old forms.[78] He also records mistakes independently of dialect,

registering them as barbarisms or solecisms.[79] Another distinction is between educated

and vulgar.[80] Phrynichus's appreciation of correctness seems to be formulated

independently of dialect and old and new usages of the language. In 246 he states that

two noun forms are incorrect and declares that he is unaware of how they infiltrated the

Greek language. He then proceeds to provide the unerring forms. Attic, however, does

appropriate linguistic correctness, and purity for Phrynichus can be achieved only

through consistent usage of unadulterated Attic. Even though he acknowledges that all

dialects are part of one Greek language, nonetheless he states that when Atticism wishes

---

[76] 62, 117, 189, 401, 423,
[77] 67, 164, 174, 198, 222, 235, 252, 261, 325, 370, 371, 373, 379, 383, 385, 401, 404, 405, 423
[78] Βασκάνιον λέγουσιν οἱ ἀρχαῖοι, οὐ προβασκάνιον μετὰ τῆς προ· ἀδόκιμον γάρ. (60) Cf. 61.
[79] See 99, 128, 131, 140, 219, 298, 300, 306, 316, 347
[80] See 176

to remain untainted, it does not approach foreign speech, listing the other dialects as

foreign.

ἀλλ' οὐ προσίεται ὁ Ἀττικισμός, περὶ οὗ ἀγωνιζόμεθα, τὴν ἀλλοδαπὴν διάλεξιν· ὅπου γὰ
ρ ἀνεπίμικτος καὶ ἄχραντος βούλεται μένειν τῆς ἄλλης Ἑλλάδος, Αἰολέων λέγω καὶ Δωρι
έων καὶ Ἰώνων, τούτων μὲν καὶ συγγενῶν ὄντων, σχολῇ γ' ἂν ἀδόκιμον καὶ μιξοβάρβαρο
ν προσεῖτο φωνήν. (332)

But Atticism, about which we are arguing, does not approach foreign speech: for, seeing
that it wishes to remain pure and undefiled from the rest of Greece (I mean, from the
Aeolians, Dorians and Ionians, although those peoples are related to them), it hardly
would have approached a phrase that is disreputable and partly Greek, partly barbarian.[81]

Phrynichus's analysis of Atticism transcends the linguistic parameter, when he

epitomizes Demosthenes for bringing the entire oratory back to the ancient and notable

form.

Τὰ πρόσωπα ἀμφότερα παρῆν"· οἱ ἀμφὶ τὰς δίκας
ῥήτορες οὕτω λέγουσιν παραπαίοντες. ἀλλὰ σὺ καθαρὸς καὶ ἀρχαῖος ὢν ῥήτωρ καὶ μόνος
 μετά γ' ἐκείνους, τοὺς ἀμφὶ τὸν Δημοσθένην λέγω,ἐπανάγων εἰς τὸ ἀρχαῖον σχῆμα καὶ δ
όκιμον τὴν ῥητορικήν, οὐ μόνον αὐτὸςδυσχεραίνων οὐδεπώποτε ἐχρήσω τῷ ὀνόματι, ἀλλ
ὰ καὶ τοὺς ἄλλους ἐκώλυσας χρήσασθαι, ἐξελληνίζων καὶ ἐξαττικίζων τὸ βασιλικὸν δικα
στήριον καὶ διδάσκαλος καθιστάμενος οὐ μόνον αὐτῶν τῶν λόγων, οἵους χρὴ λέγειν, <ἀλ
λὰ καὶ> σχήματος καὶ βλέμματος καὶ φωνῆς καὶ στάσεως. τοιγαροῦν σε τῶν μεγίστων
ἀξιώσαντες οἱ Ῥωμαίων βασιλεῖς ἀνέθεσαν τὰ Ἑλλήνων ἅπαντα πράγματα διοικεῖν,
παριδρυσάμενοι σύμβουλον ἑαυτοῖς, λόγῳ μὲν ἐπιστολέα ἀποφήναντες, ἔργῳ δὲ συνεργὸ
ν ἑλόμενοι τῆς βασιλείας. ἀλλὰ ταῦτα μὲν καὶ αὖθις. τὰ δὲ πρόσωπα, ὡς πρόκειται, οὐκ ἐ
ροῦμεν, ἀλλὰ καθάπερ οἱ παλαιοί, οἷον „καλὸν ἔχει πρόσωπον". (357)

"*Ta prosopa* (his persons/faces [*sic*]) were present, both of them": the rhetors are making
a mistake when they say it that way in their court speeches. But you, rather, being a pure
and traditional rhetor, you alone after those men, I mean those who follow Demosthenes'
example) who bring rhetoric back to its ancient and notable form, you alone have never
yet clumsily used the expression. Furthermore, you also prevented all other writers from
using it, at the time when you were conforming the court of law [*basilikon*] to proper
Greek and Attic usage and had established yourself as an instructor not only of the words
themselves (i.e., the sort that should be used) but also of maintaining a dignified presence
in speaking, appearance, vocal expression, and posture.* Therefore, having deemed you
worthy of the greatest respect, the Roman rulers set you up as an example for

---

[81] μιξο-βάρβαρος, ον,
A.halfbarbarian half Greek, E.Ph.138, X.HG2.1.15, Pl.Mx.245d.

administering all the affairs of the Greeks: they have appointed you as their counselor, declared you their elected secretary, and chosen you as their colleague in the business of managing the empire. But we will return to those points later. *ta prosopa*, as it is, we will not use, but rather, just like the speakers of old, something like: "he has a beautiful face [*prosopon*]."

The points on which we need to focus are the politicization of the language along with the variegated identity of the language. First of all, Phrynichus seems to be conversing with Dionysius of Halicarnassus and his introduction to the treatises on the orators, both contending that ancient oratory has been revived. Furtermore, Demosthenes is the orator *par excellence* furnished by both of them as the quintessential Atticist. The lexicographer, though, makes a social statement when he claims that Cornelianus, following the example of Demosthenes, asserted the power of Hellenizing and Atticizing the Roman in the court, teaching the Romans not only the proper way to express themselves orally, but also how to appear, glance, sound, and stand. We should also consider the reference to the position of *ab epistulis* for Greek correspondence. This position also opened the possibilities for other advancements in the Roman echelons, as in some cases sophists climbed to the equestrian or senatorial ranks.[82] Based on all the occurences of the verb ἑλληνίζω and ἀττικίζω, one could state with a certain degree of certainty that Phrynichus preaches a combination of Attic dialect and a Greek social stance and behavior. We could even take it further and interpret it as an indication that Atticizing and Hellenizing can be taught.

---

[82] Bowersock (1969) 43-58. Lightfoot (2000) 260 asserts that non-Romans who were in administrative positions and "the Philhellene Romans could understand each other because they aspired to a similar cultural ideal, that of polite learning or *paideia.*" On the orators or, according to Philostratus, the sophists of the time, see Philostratus, *VS* 537.

In cases when a solecism has admittedly infiltrated even the Attic dialect, Phrynichus exclaims at its inexplicable invasion without castigating the Atticizers, as he customarily does in the case of other dialects[83].

2.4 Conclusion

Thorough study of the occurences of ἑλληνίζειν (hellenizein), ἀττικίζειν (attikizein), βαρβαρισμός (barbarism), σολοικισμός (solecism), and *Latinitas* (Latinity) through the Greek and Roman grammarians and lexicographers indicates that, even though initially all Greek dialects were treated as derivatives of the same language, in the 2nd century CE speaking Attic became synonymous with speaking Greek. Consequently linguistic blanders, such as solecisms and barbarisms, shifted the meaning from improper diction to improper Attic hence improper Greek diction. Interestingly, Latin and Greek are being treated as comparable languages, with Latin originating from Greek. Therefore, it is reasonable to suggest that the politicization of Greek and Latin and the social dimensions that they acquired during the High Empire evolved against the backdrop of concurrent socio-political changes as well as Atticism's overwhelming preponderance. Consequently, it would be safe to deduce that Atticism was developed and perceived as a linguistic notion, signifier of proper diction. The next step, therefore, is to determine what Attic diction is, what it entails, and by extension whether Atticism was simply replicated or reformulated through its revival within the, what is essentially an entirely disparate from 5th- and 4th-century circumstances, society and literary culture of the High Empire.

---

[83] See 362 and 366.

CHAPTER 3
Attic Oratory and its Imperial Revival: Quantifying Theory and Practice

Therefore anyone who demands to learn what this quality is should start straight away by seeking definitions of many other fine qualities which are difficult to express in words. In regard to physical beauty, what in the world is that quality which we call "youth?" In the movement of any song and the texture of vocal sounds, what constitutes good melody? In verse composition, what constitutes good arrangement and good rhythm? In short, in every field of activity, how are we to define what is called "timeliness?" And where do we find the mean?
Dionysius of Halicarnassus, *Lysias* 11

3.1 Introduction

In Chapter two, grammar and lexicography were used to determine the nuances and gravity of terms, such as ἑλληνίζειν, ἀττικίζειν, βαρβαρισμός, and *Latinitas*. As discussed previously, it is palpable that Atticism claimed a seminal role in the modulation of proper Greek and Latin diction. Therefore, this chapter considers the possibilities to define Atticism and quantify its inherent characteristics. Having established constructional and syntactical patterns, we will be in a position to examine variability in Attic diction and consequently determine whether an author Atticizes. More specifically, this chapter presents a novel computational method to comparatively explore Atticism as it first appeared in the 5th- and 4th-century Greek oratory and was later revived by Imperial Greek authors in the 1st-2nd centuries CE. Using Dionysius's of Halicarnassus, the 1st-century BCE grammarian, and his appreciations of oratory and orators as a frame of reference and then expanding his inferences on works of Imperial era, I attempt to parameterize Atticism as a phenomenon. Ultimately this study could apprise us of the usage of Atticism in Imperial Roman oratory as well, as it then becomes obvious that Atticism has transcended the boundaries of language and has transformed into a

constructional rhetorical system. This study employs a unified node-based metric formulation for implementing various syntactical construction metrics, indicative of the syntactical attributes of the sentences. Section 2 presents Atticism as a philological phenomenon to set the backdrop against which the metric system will be set. Section 3 discusses linguistic and computational practices that can apprise us of the underlying character of language and focuses on the Prague mark-up language and the Perseids project and why they are the most adept at granulating linguistic and syntactical phenomena. Section 4 presents Dionysius's of Halicarnassus theoretical framework regarding Atticism against the backdrop of which the proposed theoretical framework was set. Finally, section 5 furnishes the reader with the analytic presentation of the node-based metric system that was developed as well as its computer implementation.

3.2 Atticism: definition and redefinitions

Atticism as a literary and rhetorical style has been the focus of considerations and debates since the first century BCE up to our era. The appearance of the so-called Asianism prompted further discussions of the proper way of expression, always in favor or Atticism. Another significant turn in Atticism's history is its modulation into a writing style beyond language. Roman orators and theoreticians espouse Atticism, theorize upon its construction, characteristics, and merits and wish to teach it for the benefit of Roman oratory.

Revisiting the sources, Cicero and Quintilian, espouse this stylistic existentialism, self-consciously describe themselves as Attics or advocates of Atticism, and offer their appreciations of other literary men. This signifies a turn in Atticism's history, as it is modulated into a writing style beyond language. Cicero (*Brutus* 27ff; 284-285; *De*

Oratore 3.28) and Quintilian (*Institutio Oratoriae* 10.1.76-80; 12.10.21-24) among others espouse Atticism, theorize upon its construction, characteristics, and merits and wish to teach it for the benefit of Roman oratory. The fact that no representative works of Asiatic oratory have come down to us in addition to the different canons of Attic orators further complicate the issue of what the attributes of Attic style are and who should be considered Attic. This does not change the fact that Roman orators, starting with C. Licinius Calvus, mentioned by Cicero in *De Oratore*, revive Atticism, something that indicates that there are denominators far beyond language itself that define this stylistic phenomenon.

What makes the conversation more provoking is Dionysius's of Halicarnassus account of rhetoric that corresponds to the aforementioned Roman considerations and practices. His apprehension of the revival of Atticism, albeit succinct at least in the introduction of this treatise, comprehensively summarizes the life of Classical rhetoric and its subsequent reception in Roman times.[84] The key point in our apprehension of Atticism as a choice of identity and/or linguistic accuracy becomes intriguing upon considering Dionysius's accreditation of the Romans for the revival of Atticism in the introduction of his treatise *On the Ancient Orators*.[85]

Πολλὴν χάριν ἦν εἰδέναι τῷ καθ' ἡμᾶς χρόνῳ δίκαιον, ὦ κράτιστε Ἀμμαῖε, καὶ ἄλλων μέν τινων ἐπιτηδευμάτων ἕνεκα νῦν κάλλιον ἀσκουμένων ἢ πρότερον, οὐχ ἥκιστα δὲ τῆς περὶ τοὺς πολιτικοὺς λόγους ἐπιμελείας οὐ μικρὰν ἐπίδοσιν πεποιημένης ἐπὶ τὰ κρείττω. ἐν γὰρ δὴ τοῖς πρὸ ἡμῶν χρόνοις ἡ μὲν ἀρχαία καὶ φιλόσοφος ῥητορικὴ προπηλακιζομένη καὶ δεινὰς ὕβρεις ὑπομένουσα κατελύετο, ἀρξαμένη μὲν ἀπὸ τῆς Ἀλεξάνδρου τοῦ

---

[84] Hidber (1996) succinctly describes Dionysius's account as "das klassizistische Manifest." Goudriaan (1989) 566 differentiates between classicism and Atticism and considers Dionysius an Atticist. Gelzer (1979) made the same distinction earlier and also elaborated on the political extensions of Atticism. Schwartz (1905) 934 and Wisse (1995) 77 question Dionysius's honesty and entertain the possibility of an underlying flattery of his Roman patrons and the emperor.

[85] See Gabba (1982) on the Classicistic revival in the Augustan era. He suggests that Dionysius's of Halicarnassus treatises on the orators, when read comparatively with the *On the Sublime* and Strabo, indicate that literature functions as a pivotal appurtenance of contemporary cultural politics.

Μακεδόνος τελευτῆς ἐκπνεῖν καὶ μαραίνεσθαι κατ' ὀλίγον, ἐπὶ δὲ τῆς καθ' ἡμᾶς ἡλικίας μικροῦ δεήσασα εἰς τέλος ἠφανίσθαι·... ἔδειξε δὲ ὁ καθ' ἡμᾶς χρόνος, εἴτε θεῶν τινος ἄρξαντος εἴτε φυσικῆς περιόδου τὴν ἀρχαίαν τάξιν
ἀνακυκλούσης εἴτε ἀνθρωπίνης ὁρμῆς ἐπὶ τὰ ὅμοια πολλοὺς ἀγούσης, καὶ ἀπέδωκε τῇ μὲν ἀρχαίᾳ καὶ σώφρονι ῥητορικῇ τὴν δικαίαν τιμήν, ἣν καὶ πρότερον
εἶχε καλῶς, ἀπολαβεῖν, τῇ δὲ νέᾳ καὶ ἀνοήτῳ παύσασθαι δόξαν οὐ προσήκουσαν καρπουμένη καὶ ἐν ἀλλοτρίοις ἀγαθοῖς τρυφώσῃ. (D.H. *Orat.Vett*. 1, 2).

We ought to acknowledge a great debt of gratitude to the age in which we live, my most accomplished Ammaeus, for an improvement in certain fields of serious study, and especially for the considerable revival in the practice of civil oratory. In the epoch preceding our own, the old philosophic Rhetoric was so grossly abused and maltreated that it fell into a decline. From the death of Alexander of Macedon it began to lose its spirit and gradually wither away, and in our generation had reached a state of almost total extinction… Our own age has demonstrated this. Whether at the instance of some god, or by the return of the old order of things in accordance with a natural cycle, or through the human urge that draws many towards the same activities: for whatever reason, the ancient sober Rhetoric has thereby been restored to her former rightful place of honor, while the brainless new Rhetoric has been restrained from enjoying a fame which it does not deserve and from living in luxury on the fruits of another's labors. (Translation by Usher)

With regards to modern scholarly quests to define Attic rhetoric and explicate the reasons for its Roman and Greek revival, there seems to be a consensus around the name of Calvus as the orator who should be credited with the reappraisal of Classical rhetoric. The dates of his life and the extent of his influence have been largely debated especially due to Cicero's lack of reference in *The Oratory*,[86] but his intent focus on Calvus in *The Orator* elaborates on matters of rhetorical style and their application.[87] Bowersock and Wisse among others have provided plausible scenaria that could elucidate what was perceived as Attic by Calvus; how Cicero then chose to interpret it; and what ensues in the Greek world with Tubero and Dionysius of Halicarnassus.[88] Regardless of the debates about the chronology, a major issue that surfaces lies in the definition of Atticism—at

---

[86] Wilamowitz-Moellendorff (1900) 1-2 argues that Cicero displays lack of awareness regarding Atticism and Asianism. O'Sullivan (1997) also reaches the same conclusion.

[87] For a synoptic discussion of Cicero's rhetorical treatises, see Douglas (1957); Kirby (1997). Cf. also O'Sullivan (1992).

[88] O'Sullivan (1997) discusses Caecilius and Cicero's, Quintilian's, and Dio's modulating canons of orators and their models of Attic historians. Innes (1989) 246 appraises the Attic revival in Rome as a "mutual cross-fertilization between Greeks and Romans."

first the lucid and unambiguous style of Lysias was considered the model of Atticism. Cicero hastens to question that apprehensive rigidity and argues that Attic can be more elaborate and embellished without being branded as Asiatic. So in *Brutus* we read a pithy definition of Atticism — one that agrees with our overall apprehension of Atticism.

Tum Brutus: Atticum se, inquit, Calvus noster dici oratorem volebat: inde erat ista exilitas quam ille de industria consequebatur.

Dicebat, inquam, ita; sed et ipse errabat et alios etiam errare cogebat. nam si quis eos, qui nec inepte dicunt nec odiose nec putide, Attice putat dicere, is recte nisi Atticum probat neminem. insulsitatem enim et insolentiam tamquam insaniam quandam orationis odit, sanitatem autem et integritatem quasi religionem et verecundiam oratoris probat. haec omnium debet oratorum eadem esse sententia. (Cic. *Brutus* 284)

"His aim," said Brutus, "was to be admired as an Attic orator: and to this we must attribute that strict bareness of style, which he constantly affected."This, indeed, was his professed character," replied I: "but he was deceived himself, and led others into the same mistake. It is true, whoever supposes that to speak in the Attic taste, is to avoid every awkward, every harsh, every vicious expression, has, in this sense, an undoubted right to refuse his approbation to every thing which is not strictly Attic. For he must naturally detest whatever is insipid, disgusting, or unnatural; while he considers a correctness and propriety of language as the religion, and good-manners of an orator:- and every one who pretends to speak in public should adopt the same opinion. (Translation by Sutton and Rackham)

Sin autem ieiunitatem et siccitatem et inopiam, dummodo sit polita, dum urbana, dum elegans, in Attico genere ponit, hoc recte dumtaxat; sed quia sunt in Atticis <aliis> alia meliora, videat ne ignoret et gradus et dissimilitudines et vim et varietatem Atticorum. 'Atticos', inquit, 'volo imitari.'

But if he bestows the name of Atticism on a half-starved, a dry, and a niggardly turn of expression, provided it is neat, correct, and elegant, I cannot say, indeed, that he bestows it improperly; as the Attic orators, however, had many qualities of a more important nature, I would advise him to be careful that he does not overlook their different kinds and degrees of merit, and their great extent and variety of character. The Attic speakers, he will tell me, are the models upon which he wishes to form his eloquence. (Translation by Sutton and Ruckham)

Cicero and Quintilian express their esteem of Atticism and instruct Roman orators on how to achieve it. This acknowledgment alone is enough to put forward not only an

issue of political standing of Greek language and literature, but also to contend that Atticism filtered through centuries and literary genres was modulated into a stylistic construction that transcends language. Consequently, it seems that any discussion of identity will be impeded should one does not account for the coexistence of different identities and the *literati's* conception of what seems to be three factors contributing to shaping of the self—*Atticismus* through its accommodation within the practices of Greek and Roman oratory, ἑλληνίζειν as a matter of lifestyle, and *Latinitas* as the initial foundational characteristic of native Romans (or the accommodation within a newly acquired Roman citizenship), all of which could potentially harmonize within one individual.

It seems that progressively Atticism, the most popular of the dialects, assumes an even more independent role that especially during the Imperial era transcends the boundaries of linguistic usage. Paramount literary works are written in Attic dialect, and Attica is the geographical area that through its history embodies Hellenism. Swain (Swain 1996) and Whitmarsh (Whitmarsh 2001) among others discuss Imperial Attic authors and Atticism in the Second Sophistic. Therefore, it is only reasonable that during the Empire Atticism becomes the flagship promontory against Romans and Romanness, as Bowie (Bowie 1970) suggests. There have also been ongoing discussions of Classicism, Atticism, and Asianism prompted by ancient theorists and structuralists, starting but not limited to Dionysius. From the 19th century onwards modern scholars have attempted to define Attic rhetoric, demarcate its inherent characteristics, ultimately purporting to ascertain who should be included in the canon of the Attic orators as well as when and how Attic rhetoric was later revived. Of course we should not forego the

distinction between Classicism and Atticism that Gelzer very comprehensively explicates: "Der Klassizismus lässt sich auch zuerst in verschiedenen Gattungen der darstellenden Kunst feststellen während der Attizismus sich zunächst in der Kritik einer literarischen Gattung manifestiert." Wisse also resonates the same in saying: "Atticism, then, is by nature a form of classicism." Discussions on Atticism and Asianism especially due to the nebula in the terms that would define an orator as "classically" Attic or not have given rise to extensive literary considerations and discussions. Rohde in 1886 explains the Second Sophistic as the literary counterargument against Asianism. Schmidt in 1887 moves to literary case studies and examines Atticism from its redefinition by Dionysius to Philostratus. Radermacher in 1899 and then Wilamowitz in 1900 credit the rebirth of Atticism to the reaction to Asianism. The issue is revisited by Norden in 1915 and Dihle in 1977. Goudriaan (1989), Gelzer (1979), and Wisse (1995) provide us with comprehensive overviews of the debates along with elucidating parameterization of classicism and Atticism. There have also been comparative stylistic considerations of Atticism and Asianism, attempting to consider the linguistic aspects of those movements; De Jonge (2008) succinctly summarizes the debates against the backdrop of Dionysius of Halicarnassus. O'Sullivan (O'Sullivan 1997) discusses Caecilius's, Cicero's, Quintilian's, and Dio's modulating canons of orators and their models of Attic historians. Innes (Innes 1989, 246) appraises the Attic revival in Rome as a "mutual cross-fertilization between Greeks and Romans."

Consequently, Atticism effectively appropriates legitimacy, encompassing linguistic propriety, *paideutic* standing, and social status. As I showed in chapter 2, setting the paradigm, lexicographers start compiling forms and examples of usages. The

distinction, though, is not between Attic, Doric, Ionic, and Aeolic. Instead it is between Attic, Hellenic, and Koine Greek.

3.3 Significance of Enhanced Linguistic and Computational Analysis of Atticism

The purpose of this chapter is to discuss both the theoretical linguistic and digital frameworks that were utilized for the analysis of the rhetorical speeches. First I consider the significance of the language. Several major classical Greek and Latin works have been translated widely to many languages worldwide. People throughout the centuries have shown enthusiasm for those great works of art, have sought inspiration, guidance in politics and military matters, have traversed the earth geographically and chronologically through the eyes of ancient people, or have simply enjoyed them as readings. A philologist, however, would not sanction this type of approach as profound study. The pivotal point of dissension between the scholar and the general reader would be that the latter lacks the knowledge of the original language and is therefore deprived of the truth of the author's *oeuvre*. The scholar insists that no other language can convey the true meaning and purpose of the author. The truth of the statement lies in the multiple dimensions of the written word. Certain words do not have an exact equivalence in every modern language and, even if they do, they do not convey exactly the socio-cultural depth of the original. Additionally, syntax has to be significantly altered in order to make the text readable and meaningful. A word-for-word translation would inevitably insult the sensitivities and stylistic proprieties of modern languages. Considering the aforementioned *status quo*, how would a scholar achieve a profound study of the ancient texts? A traditional philological point of view suggests that a simple reading of the text

suffices to identify the author and determine his writing style. The detailed syntactical analysis is reserved for ambiguous passages and students. A point of contention, though, is the following: how do we account for the wrongly attributed passages or the unidentified ones? Also, how do we reconcile that view with the disparate scholarly views on the style and constructional patterns of writers? Throughout this study, I was prompted several times to reconsider well-established views. There are centuries of predeterminations and presuppositions regarding who is Attic and who is not; who is considered a complex author, and whose style is straightforward. The exigency to rethink and restudy those texts was clearly pertinent.

The level that is still understudied is the linguistic metalanguage of Greek and Latin works. Following Daneš (Daneš 1964), I espouse the view that there are three levels in every utterance—grammatical structure, semantic structure, and the organization. To put the discussion on a different level beyond the philological primer, I would like to consider Chomsky who rethinks the subject-object predeterminants. He argues that in the sentence "John is easy to please," John is the direct object of "please," and relates it semantically to the sentence "This pleases John." By the same logic, in the sentence "John is eager to please," John is the subject of the verb.[89] The logical conclusion is that in every sentence there is a grammatical level that is widely accepted, the semantic level, which includes the syntactic relations and the adjoining (i.e. the pattern of the sentence), and finally the organization of the speech. There are of course other elements, such as rhythm, and intonation, that when it comes to Greek and Latin are either conveyed through meter in the case of poetry or for the most part can be dealt with on the level of word order.

---

[89] Chomsky (1955) 518

3.3.1 The Perseids Project, the Prague Mark-up Language, and Dependency Grammar

Transferring the parameters to Ancient Greek, the substance of a penetrating linguistic analysis is undeniable. Arethusa through the Perseids project provides the framework for Treebank annotation of texts. Before I proceed with the present study, I would like to discuss the linguistic foundation behind Arethusa, which also pertains to the precept behind my current analysis. As I explained in the introduction, dependency grammar that supports the stratification of the language is more adept to cover the intricacies of Greek. Still there are linguistic theories that support different schemas and follow different grammars. Once again considering the morphological and syntactical complexity of Greek, Functional Generative Description can capture the details of Greek more adequately. This linguistic framework is a stratificational grammar that conjointly reads all the layers of the sentence, the phonological, morphematical, morphonological, analytical, and tectogrammatical.[90] This system is the backbone of the Prague Dependency Treebank.[91] The focus of this grammatical system is the predicate. This annotation system deals with the sentence in three levels, namely the morphological,[92] the syntactical,[93] and the analytical or tectogrammatical.[94] The Circle Linguistique de Prague stated in 1929 that: "l'acte syntagmatique fundamental…est la predication."[95] Another aspect of this framework that applies to Greek is that each node on the tree has the role of the "functor." It can either be an argument, mandatory complements of verbs, nouns,

---

[90] This grammatical formalism was developed at Charles University in Prague by a team led by Sgall. For a comprehensive presentation, see Sgall (1969); (1986).

[91] For a comprehensive overview of the framework, see Böhmová et al. (2003)

[92] Hajič (1998).

[93] Bémová et al. (1997).

[94] Sgall et al. (1986)

[95] Circle Linguistique de Prague (1929) 13. Cf. Daneš (1964) 226.

adjectives, and adverbs, or an adjunct, not necessary adverbial complement. This type of grammatical and syntactical structure is able to describe in full detail the character along with the idiosyncrasies of Greek. The Prague Annotation System was developed for Czech. Greek, as well as Latin, and Czech share a number of peculiarities.[96] They all are inflected languages with discontinuous phrases, and for the most part with free word order.[97] To further clarify, in English in the sentence "The father sees the child," the word father is the subject, the one performing the action of the verb, and the word child is the object, the one receiving the result of the action of the verb. If we invert the meaning of the sentence, phrasing it "The child sees the father," the meaning is entirely different. In English there is no modification of either the nouns or the form of the verb. The change in meaning lies simply in the placement of the words in the sentence. This is not the case with Czech, though. The first sentence would be as follows "Otec vidí dítě," while the second "Dítě vidí otce." The difference in meaning is apparent not only through the word order but the inflection as well. Latin works similarly; the first sentence would be "pater puerum vidit," while the second "puer patrem vidit." Greek is also similarly inflected. So the first sentence would translate as follows: "πατήρ παῖδα ὁρᾷ," while the second sentence as "παῖς πατέρα ὁρᾷ." To showcase an example of discontinuous phrases along with the free word order, I am quoting a passage from Lucian's *Zeuxis*, one of the annotated texts.

Ἔναγχος ἐγὼ μὲν ὑμῖν δείξας τὸν λόγον ἀπήειν οἴκαδε, προσιόντες δέ μοι τῶν ἀκηκοότω ν πολλοὶ (κωλύει γὰρ οὐδέν οἶμαι καὶ τὰ τοιαῦτα πρὸς φίλους ἤδη ὄντας ὑμᾶς λέγειν) προσιόντες οὖν ἐδεξιοῦντο καὶ θαυμάζουσιν ἐῴκεσαν. (Luc. *Zeux*. 1)

---

[96] On the annotation of Latin, see Bamman et al. (2008), Passarotti (2009), (2014).
[97] On discontinuous constituents in Latin, see Passarotti (2009). On non-projectivity in Ancient Greek Dependency Treebank, see Mambrini et al. (2013).

Below I am providing a translation in English:

I was lately walking home after lecturing, when a number of my audience (you are now my friends, gentlemen, and there can be no objection to my telling you this)--these persons, then, came to me and introduced themselves, with the air of admiring hearers. (Translation by Fowler)

If we were to translate word for word, it would translate as follows:

Lately I to you have lectured I was going home, having approached my of those listening many (prevents for nothing I believe such things towards friends already being you to speak) having come to me they welcomed and admire me they seemed.

Therefore, the adoption of this particular annotation system for the Treebank analysis of Ancient Greek and of course Latin lies on the very constructional foundation of Classical languages and linguistic theory.

Additionally, it should be mentioned that the Prague Markup language framework has already been extensively used by many corpora, and that is indicative of its expandability and its options to fully describe language, which admittedly is a hard-to-control, variegated in nature, people-driven, and ever altering medium of communication. Some of the aforementioned corpora are the following: The Prague English Dependency Treebank[98], the Prague Arabic Dependency Treebank[99], the Prague Dependency Treebank of Spoken Language[100], the Prague Czech-English Dependency Treebank[101], Czesl (Hana et al., 2010), the Latvian Treebank[102], part of the National Corpus of Polish[103], and the Index Thomisticus Treebank[104] among others.

---

[98] http://ufal.mff.cuni.cz/pedt2.0/
[99] http://ufal.mff.cuni.cz/padt/PADT_1.0/docs/index.html
[100] http://ufal.mff.cuni.cz/pdtsl/
[101] http://ufal.mff.cuni.cz/pcedt2.0/
[102] http://dspace.utlib.ee/dspace/bitstream/handle/10062/17359/Pretkalnina_Nespore_etal_74.pdf
[103] http://nkjp.pl/
[104] http://itreebank.marginalia.it/

The backdrop against which this project was undertaken using the Arethusa framework is the opportunity that the system affords the users to annotate the texts producing data that are accessible not only visually, but also via its XML. Therefore, in broader terms the system abides by rules of corpus linguistics regarding reexamination and reproducibility of the dataset. Kirk (1996b) notes that among data and corpus-based models the researcher traces falsifiability, replicability, and objectivity.[105] Berez and Gries (2009) state: "the richness and diversity of naturally occurring data often forces the researcher to take a broader range of facts into consideration."[106] Along the same lines, Kirk (1996) argues: "with corpus-based methodology, subjectivity is controlled."[107] Then Owens also presents the option to manipulate the data and further process them, thus unveiling more information pertaining to the language, its construction as well as other social phenomena that are mirrored in texts.

In much the same way that encoding a text is an interpretive act, so are creating, manipulating, transferring, exploring, and otherwise making use of data sets. Therefore, data is an artifact or a text that can hold the same potential evidentiary value as any other kind of
artifact. That is, scholars can uncover information, facts, fi gures, perspectives, meanings, and traces of thoughts and ideas through the analysis, interpretation, exploration, and engagement
with data, which in turn can be deployed as evidence to support all manner of claims and arguments.[108]

3.4 Evaluating Atticism

5th-century orators, Lysias, Isocrates, Demosthenes, are the *par excellence* representatives of Attic oratory and paragons of Atticism—proper usage of Attic forms and expressions. Asiatic oratory ensues along with a general decadence in rhetorical productions that has

---

[105] Kirk (1996b) 253-4
[106] Berez and Gries (2009) 158
[107] Kirk (1996) 254
[108] Owens (2011) 7

been credited to the influx of eastern elements until Atticism is revived in Imperial times. Dionysius of Halicarnassus attributes this literary upward shift to the Romans—whether that means a reappreciation of Greek eloquence or implies a political vindictiveness that expresses itself through language and literature on behalf of the Roman subjects against their rulers. The fact remains, though, that there is an overwhelming production of grammar books and lexica focusing on Atticism, all the while determining Greekness as well. Cleanness of expressions, comprehensiveness, cohesiveness, and other structural attributes alongside linguistic appropriateness in the language that is used in each case, bear the tag of "Atticism." In this chapter, my intention is to parameterize Atticism, attempting to determine attributive characteristics of Lysias, Isocrates, and Demosthenes that have also been pinpointed by Dionysius of Halicarnassus in his treatises on the orators. Additionally, Imperial orators—Lucian, Dio Chrysostom, and Aelius Aristides— will be examined so as to determine whether their style is traditionally Attic or it is simply the usage of Attic dialect that has led modern scholars to the conclusion that Imperial orators revived Atticism. Finally, Thucydides, the historian, is also considered along the same parameters and on the basis of the said metrics. Dionysius of Halicarnassus discusses him as an Atticist, but, since he is not an orator, I use him as a control author versus the experimental authors. My intention is to compare his style with the aforementioned six orators, and derive more concrete conclusions regarding the latters' style.

Computational linguistics, stylometry, and network analysis have been employed in several cases to pursue linguistic and stylistic studies as well as author attribution. Binongo et al. (1999) employ PCA to achieve author attribution, but his approach is

71

purely lexical. Passarotti also performs a lexical-based comparative examination between Seneca, Cicero and Aquinas, employing Principal Component Analysis (PCA) (Passarotti et al. 2013). Burrows (Burrows 2002, 2006) and Eder (Eder et al. 2013) used stylometry to achieve a multilevel analysis of texts. Hollingsworth (2012) observed that syntactical analysis has not yet been attempted. To this end, Hollingsworth used the Stanford dependency system to pursue grammatical dependencies between words in a sentence. One of the major disadvantages is that their annotation system does not specify which word depends on the other. Ferrer I Cancho (Ferrer I Cancho et al. 2004, 2010) and Passarotti (Passarotti 2014) used network theory to study linguistic constructions. Bamman (Bamman et al. 2008, 2009), Passarotti (Passarotti 2010), Mambrini (Mambrini et al. 2012, 2013) examine issues in Latin and Ancient Greek dependency respectively. For detailed bibliographical references on similar studies, see also Bozia (Bozia, 2015). In this study, I utilize node-based metrics to parameterize Attic constructions. The advantages of such an approach is that the data set is a controlled group of authors and texts, which has been closely studied. Therefore, the metrics were set based on the philological attributes that were noted initially. Furthermore, this type of parameterization provides us with quantifiable observations on syntactical attributes of the language, something that has not yet been pursued in other frameworks. Finally, Gorman and Gorman (2016) attempted to quantify syntactical structures. Their concept is based on the above node-based method. More specifically, they try to calculate the shortest path from the leaves to the root to achieve author attribution. My metric system, though, is more specific with regards to the selection of metrics, presents a more granulated approach,

and focuses on a particular literary genre. Additionally, it reflects ancient analysis of

syntax by theoreticians and not modern observations.

3.4.1 Dionysius's of Halicarnassus Theoretical Framework

Dionysius's of Halicarnassus appreciation of Atticism fits well within the socio-political

context of Atticism's appreciation and reappreciation. In his introductory statement

Dionysius furnishes a comprehensive history of oratory, which provides an overview of

the significant historical points in the evolution of oratory always against the backdrop of

socio-historical changes.

Πολλὴν χάριν ἦν εἰδέναι τῷ καθ' ἡμᾶς χρόνῳ δίκαιον, ὦ κράτιστε Ἀμμαῖε, καὶ ἄλλων μέν τινων ἐπιτηδευμάτων ἕνεκα νῦν κάλλιον ἀσκουμένων ἢ πρότερον, οὐχ ἥκιστα δὲ τῆς περὶ τοὺς πολιτικοὺς λόγους ἐπιμελείας οὐ μικρὰν ἐπίδοσιν πεποιημένης ἐπὶ τὰ κρείττω. ἐν γὰρ δὴ τοῖς πρὸ ἡμῶν χρόνοις ἡ μὲν ἀρχαία καὶ φιλόσοφος ῥητορικὴ προπηλακιζομένη καὶ δεινὰς ὕβρεις ὑπομένουσα κατελύετο, ἀρξαμένη μὲν ἀπὸ τῆς Ἀλεξάνδρου τοῦ Μακεδόνος τελευτῆς ἐκπνεῖν καὶ μαραίνεσθαι κατ' ὀλίγον, ἐπὶ δὲ τῆς καθ' ἡμᾶς ἡλικίας μικροῦ δεήσασα εἰς τέλος ἠφανίσθαι·… ἔδειξε δὲ ὁ καθ' ἡμᾶς χρόνος, εἴτε θεῶν τινος ἄρξαντος εἴτε φυσικῆς περιόδου τὴν ἀρχαίαν τάξιν ἀνακυκλούσης εἴτε ἀνθρωπίνης ὁρμῆς ἐπὶ τὰ ὅμοια πολλοὺς ἀγούσης, καὶ ἀπέδωκε τῇ μὲν ἀρχαίᾳ καὶ σώφρονι ῥητορικῇ τὴν δικαίαν τιμήν, ἣν καὶ πρότερον εἶχε καλῶς, ἀπολαβεῖν, τῇ δὲ νέᾳ καὶ ἀνοήτῳ παύσασθαι δόξαν οὐ προσήκουσαν καρπουμένῃ καὶ ἐν ἀλλοτρίοις ἀγαθοῖς τρυφώσῃ. (D.H. *On the Ancient Orators*, 1,2).

We ought to acknowledge a great debt of gratitude to the age in which we live, my most accomplished Ammaeus, for an improvement in certain fields of serious study, and especially for the considerable revival in the practice of civil oratory. In the epoch preceding our own, the old philosophic Rhetoric was so grossly abused and maltreated that it fell into a decline. From the death of Alexander of Macedon it began to lose its spirit and gradually wither away, and in our generation had reached a state of almost total extinction… Our own age has demonstrated this. Whether at the instance of some god, or by the return of the old order of things in accordance with a natural cycle, or through the human urge that draws many towards the same activities: for whatever reason, the ancient sober Rhetoric has thereby been restored to her former rightful place of honor, while the brainless new Rhetoric has been restrained from enjoying a fame which it does not deserve and from living in luxury on the fruits of another's labors. (All translations of Dionysius of Halicarnassus are by Usher 1974)

Studying Dionysius's treatises on the orators punctiliously, one should notice his underlying commentary of Atticism and the modulations of style that seem to be in tune with the lexicographers' appreciations of the dialects.

More specifically, Dionysius considers Lysias the paragon of Atticism.

καθαρός ἐστι τὴν ἑρμηνείαν πάνυ καὶ τῆς Ἀττικῆς γλώττης ἄριστος κανών, οὐ τῆς ἀρχαίας, ᾗ κέχρηται Πλάτων τε καὶ Θουκυδίδης, ἀλλὰ τῆς κατ' ἐκεῖνον τὸν χρόνον ἐπιχωριαζούσης (D.H. *Lys.* 2)

He is completely pure in his vocabulary, and is the perfect model of the Attic dialect—not the archaic dialect used by Plato and Thucydides, but that which was in general currency in his day.

Upon closer study of the treatise, one needs to probe into what makes Lysias the model of Atticism. Dionysius furnishes the readers with examples, such as the following:

τὸ καθαρὸν τῶν ὀνομάτων, ἡ ἀκρίβεια τῆς διαλέκτου, τὸ διὰ τῶν κυρίων καὶ μὴ τροπικῶν κατασκευῶν ἐκφέρειν τὰ νοήματα, ἡ σαφήνεια, ἡ συντομία, τὸ συστρέφειν τε καὶ στρογγυλίζειν τὰ νοήματα (D.H. *Lys.* 13)

Purity of language, correct dialect, the presentation of ideas by means of standard, not figurative expressions; clarity, brevity, concision, terseness, vivid representation.

ὥστε καὶ τὴν σαφήνειαν αὐτοῦ ζηλοῦν ἄξιον. καὶ μὴν τό γε βραχέως ἐκφέρειν τὰ νοήματα μετὰ τοῦ σαφῶς, χαλεποῦ πράγματος ὄντος φύσει τοῦ συναγαγεῖν ἄμφω ταῦτα καὶ κεράσαι μετρίως, ᾗ μάλιστα οὐδενὸς ἧττον τῶν ἄλλων ἀποδείκνυται Λυσίας (D.H. *Lys.* 4)

His kind of lucidity is therefore another quality which is worthy of imitation. Then there is his ability to combine this lucidity with brevity of expression, two ingredients which are naturally difficult to blend in due proportion. Lysias manages this combination much more successfully than any other writer.

μιμητέον δὴ καὶ τὴν βραχύτητα τὴν Λυσίου· μετριωτέρα γὰρ οὐκ ἂν εὑρεθείη παρ' ἑτέρῳ ῥήτορι. (D.H. *Lys.* 5)

Thus the brevity of Lysias is a further quality to be imitated, for no other orator will be found to use it more judiciously.

καὶ συντίθησί γε αὐτὴν ἀφελῶς πάνυ καὶ ἁπλῶς, ὁρῶν ὅτι οὐκ ἐν τῇ περιόδῳ καὶ τοῖς ῥυθμοῖς, ἀλλ' ἐν τῇ διαλελυμένῃ λέξει γίνεται τὸ ἦθος.[109] (D.H. *Lys.* 8)

---

[109] Cf. D.H. *Lys.* 13

As to his composition, it is absolutely simple and straightforward. He sees that characterization is achieved not by periodic structure and the use of rhythms, but by loosely constructed sentences.

Using Lysias as his framework, Dionysius proceeds to cognitively interpret and describe the other Attic orators. Dionysius discusses Isocrates and comparatively studies his style with that of Lysias. Such a comparative analysis gives us a more perspicuous account of Atticism, something that purveys us a framework with attributes that would be deemed Attic.

ἡ δὲ λέξις, ᾗ κέχρηται, τοιοῦτόν τινα χαρακτῆρα ἔχει. καθαρὰ μέν ἐστιν οὐχ ἧττον τῆς Λυσίου καὶ οὐδὲν εἰκῇ τιθεῖσα ὄνομα τήν τε διάλεκτον ἀκριβοῦσα ἐν τοῖς πάνυ τὴν κοινὴν καὶ συνηθεστάτην. (D.H. *Isoc.* 2)

His style has the following characteristics: it is as pure as that of Lysias; not a word is used at random; and the language conforms closely to the most ordinary and familiar usage.

τῆς σαφηνείας καὶ τῆς ἐναργείας ἀμφοτέρους κρατεῖν ἀπεφηνάμην, ἐν δὲ τῷ συντόμως ἐκφέρειν τὰ νοήματα Λυσίαν μᾶλλον ἡγούμην ἐπιτυγχάνειν. περὶ τὰς αὐξήσεις Ἰσοκράτη κατορθοῦν ἄμεινον ἐδόκουν…ἐν τῇ συνθέσει τῶν ὀνομάτων Λυσίαν μὲν ἀφελέστερον ἔκρινον, Ἰσοκράτην δὲ περιεργότερον, καὶ τὸν μὲν τῆς ἀληθείας πιθανώτερον εἰκαστήν, τὸν δὲ τῆς κατασκευῆς ἀθλητὴν ἰσχυρότερον. (D.H. *Isoc.* 11)

I pronounced both to be masters of lucidity and vividness, but found Lysias the more successful in the concise expression of ideas, and Isocrates the superior at rhetorical amplification…I judged Lysias to be the simpler in sentence-structure and Isocrates the more elaborate; the former more convincing in creating the illusion of truth, the latter the more powerful master of technique.

Other interspersed proclamations regarding the two orators seem to be justified when we analyze their sentence structure. Dionysius asserts that Isocrates's diction is as pure as that of Lysias (καθαρὰ μέν ἐστιν οὐχ ἧττον τῆς Λυσίου, D.H. *Isoc.* 2). However, "it is not compact, closely-knit style like the other…it sprawls and overflows with its own exuberance." Lysias also excels in succinctness, while Isocrates in amplification

(στρογγύλη δὲ οὐκ ἔστιν, ὥσπερ ἐκείνη, καὶ συγκεκροτημένη…ὑπτία δέ ἐστι μᾶλλον καὶ κεχυμένη πλουσίως, D.H. *Isoc.* 2). The comparison is visualized in Figure 1 below.
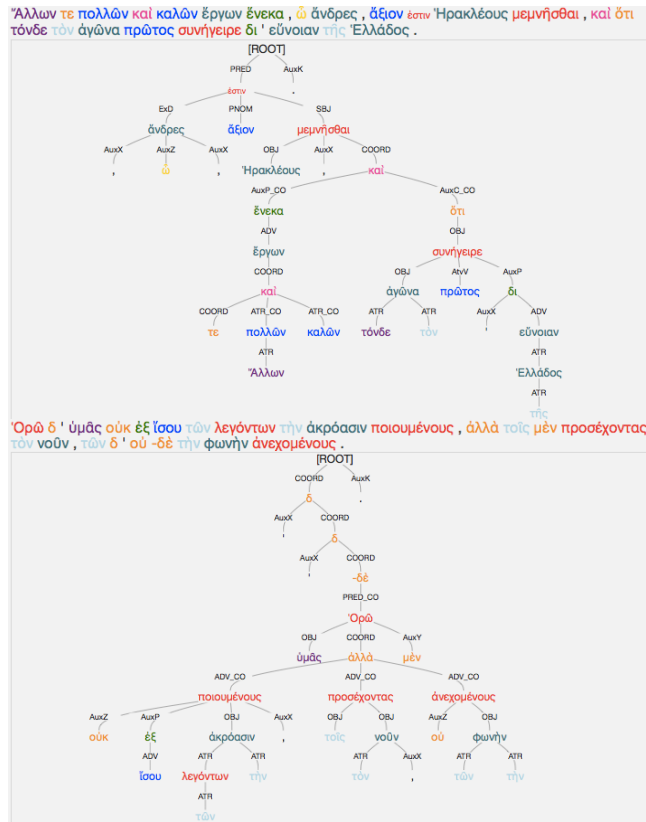
Fig 1. Syntactical comparison of Lysias' *Olympiacus* 1.1 (top) and Isocrates' *On Peace* 3.1 (bottom).

Even though the Atticism of Isocrates is never questioned, Dionysius insists upon the need for syntactical brevity. Dionysius proceeds with a profound examination of Isocrates's style. He dissects the latter's sentences, pinpointing parallelisms and rhyming clauses and constructions. He also draws the reader's attention to the symmetry of the clauses, which is not always regarded as a merit.

καὶ τῶν κώλων τριῶν ὄντων τὸ [μὲν] μῆκος ἴσον ὑπάρχον τεκμήρια τῆς Ἰσοκράτους κατασκευῆς ἐστι.
καὶ ποιητικώτερα μᾶλλόν ἐστιν ἢ ἀληθινώτερα (D.H. *Isoc.* 20)

In three clauses of equal length is characteristic of Isocrates's arrangement.
Which is artificial rather than natural

Such a treatise that combines the theoretical framework of oratory alongside technical aspects of actual speeches further apprises us of the structural essence of Attic oratory. Additionally, in *Isocrates* 20 Dionysius offers his insight by rewriting some of the orator's sentences. The first picture in Figure 2 shows Isocrates's sentence and the second Dionysius's suggestion that opts for clarity and brevity.
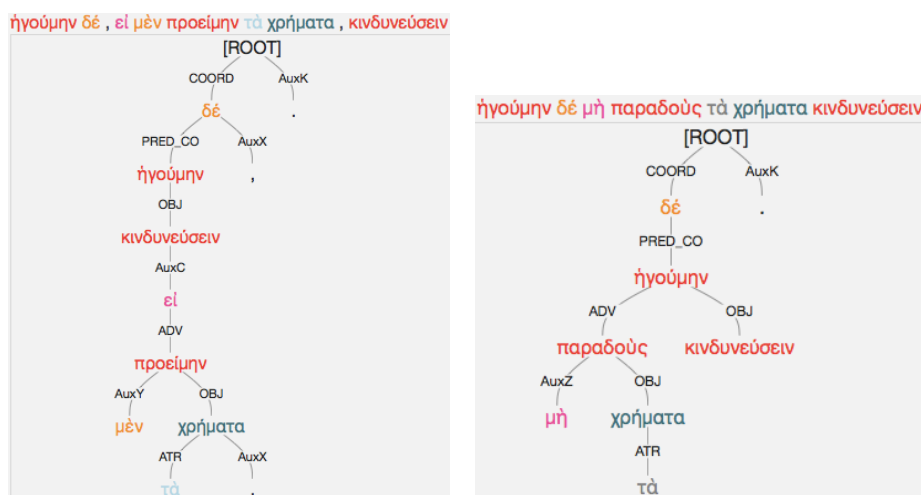
Fig 2. Syntactical comparison of Isocrates's (left) and Dionysius's (right) version.

Dionysius when it comes to his discussion of Demosthenes pursues what could be perceived as the first form of computational linguistics and scientific inquiry in the field of literary analysis. He states that there are three distinct types of stylistic diction—an elaborate that is best used by Thucydides, a simple whose best representative is Lysias, and a third that is a perfect amalgamation of the previous two. Demosthenes is the archetypal writer in this category alongside Isocrates and Plato.

ἡ μὲν οὖν ἐξηλλαγμένη καὶ περιττὴ καὶ ἐγκατάσκευος καὶ τοῖς ἐπιθέτοις κόσμοις ἅπασι συμπεπληρωμένη λέξις, ἧς ὅρος καὶ κανὼν ὁ Θουκυδίδης, ὃν οὔθεὶς οὔθ' ὑπερεβάλετο τῶν ἐπιγινομένων οὔτε <εἰς ἄκρον> ἐμιμήσατο, τοιαύτη τις ἦν. (D.H. *Dem.* 1)

This passage illustrates the striking, elaborate style which is remote from normality and is full of every kind of accessory embellishment. Thucydides is the standard and pattern of this style, and no subsequent writer employed it to greater effect or imitated him with complete success.

ἡ δὲ ἑτέρα λέξις ἡ λιτὴ καὶ ἀφελὴς καὶ δοκοῦσα κατασκευήν τε καὶ ἰσχὺν τὴν πρὸς ἰδιώτην ἔχειν λόγον…ἐτελείωσε δ' αὐτὴν καὶ εἰς ἄκρον ἤγαγε τῆς ἰδίας ἀρετῆς Λυσίας ὁ Κεφάλου (D.H. *Dem.* 2)

The second kind of style is plain and simple. Its artistry and power seem to consist in its resemblance to the language of ordinary speech…The man who perfected it and realized its potential as a distinct style was Lysias the son of Cephalus.

τρίτη λέξεως ... ἦν ἡ μικτή τε καὶ σύνθετος ἐκ τούτων τῶν δυεῖν…τούτων γὰρ ἀμήχανον εὑρεῖν τῶν ἀνδρῶν ἑτέρους τινὰς ἔξω Δημοσθένους ἢ τἀναγκαῖα καὶ χρήσιμα κρεῖττον ἀσκήσαντας ἢ τὴν καλλιλογίαν καὶ τὰς ἐπιθέτους κατασκευὰς βέλτιον ἀποδειξαμένους. (D.H. *Dem.* 3)[110]

The third kind of style was a mixture formed by combining the other two…It is impossible to find any other writers, except Demosthenes, who practiced the essential and ancillary virtues of this style to greater effect, or who expressed themselves in more beautiful language and adorned it more skillfully with additional touches of artistry.

Another characteristic of Demosthenes's constructive pattern is, according to Dionysius,

the complexity of his sentences, in which he begins with a clause which is then

interrupted in order to introduce a second, which in turn in also broken unfinished, while

a third is introduced.

πρῶτον μὲν τό, πρὶν ἀπαρτίσαι τὸ ἡγούμενον εἴτε νόημα χρὴ λέγειν εἴτε κῶλον, ἕτερον παρεμβαλεῖν καὶ μηδὲ τοῦ δευτέρου τέλος ἔχοντος τὸ τρίτον ἐπιζεῦξαι, εἶτα τὴν τοῦ δευτέρου νοήματος ἀκολουθίαν ἐπὶ τῷ τρίτῳ τέλος εἰληφότι θεῖναι, κἄπειτα ἐπὶ πᾶσιν, ὃ τοῦ πρώτου μέρος ἦν, διὰ μακροῦ καὶ οὐκέ<τι> τῆς διανοίας αὐτὸ προσδεχομένης ἀποδοῦναι. (D.H. *Dem.* 9)

---

[110] Cf. Dionys. *Dem*. 33

In the first place, before rounding off the first idea (or clause if it should be called), a second idea is introduced; then a third is subjoined before the second is complete, and material belonging to the second is tacked on after the third has been completed.

However, he does makes sure to note that this complexity can also be perceived as a laudable command of the language, as it showcases itself through a leisurely structure that allows for the argument and the usage of the language to become evident.

διώκει δ' ἐκ παντὸς τρόπου τὴν περίοδον οὐδὲ ταύτην στρογγύλην καὶ πυκνὴν ἀλλ' ὑπαγ
ωγικήν τινα καὶ πλατεῖαν καὶ πολλοὺς ἀγκῶνας, ὥσπερ οἱ μὴ
τινα καὶ πλατεῖαν καὶ πολλοὺς ἀγκῶνας, ὥσπερ οἱ μὴ
κατ' εὐθείας ῥέοντες ποταμοὶ ποιοῦσιν, ἐγκολπιζομένην.
ταῦτα μέντοι πολλαχῇ μακροτέραν τε αὐτὴν ποιεῖ
κἀναληθεστέραν ἀπαθῆ τε καὶ <ἄψυχον> καὶ πανηγυ-
ρικὴν μᾶλλον ἢ ἐναγώνιον. (D.H. *Dem*. 4)

He cultivates the period as much as possible, not the terse, compact kind, but one which follows a broad and leisurely course like a meandering river, with many curves and inlets. This often produces a tedious and unconvincing effect, robbing the speech of all feeling and life, and makes it more suited to ceremonial than to forensic oratory.

Additionally, Aeschines also commented on Demosthenes's style, censuring his complex mannerism, but never actually diminishing his compositional artistry.[111]

Dionysius also references Aeschines's commentary in his treatise on Demosthenes.

οὗτος μὲν δὴ τῆς ἄλλης δεινότητος, ἣ περὶ τὸν ἄνδρα τοῦτον ἐγένετο κατὰ τὸ λεκτικόν, ἔ
στιν ἃ διακνίζει καὶ συκοφαντεῖ, πρᾶγμα ἐχθροῦ ποιῶν. καὶ γὰρ καινότητα ὀνομάτων καὶ
ἀηδίαν καὶ περιεργίαν καὶ τὸ σκοτεινὸν δὴ τοῦτο καὶ
πικρὸν καὶ ἄλλα πολλὰ τοιαῦτα προστρίβεται αὐτῷ,
βασκαίνων μέν, ὥσπερ ἔφην, καὶ ταῦτα, ὅμως δ' οὖν ἀφορμάς γέ τινας τοῦ συκοφαντεῖν
εὐλόγους λαμβάνων. περὶ δὲ τῆς συνθέσεως τῶν ὀνομάτων οὐδὲν οὔτε
μεῖζον ..... ἢ καταγέλωτα φέρων. (D.H. *Dem*. 35)

He taxes him with his use of neologism, his bluntness, his over-elaboration, his well-known obscurity, his pungency and many other faults of that sort. His criticisms are made in a carping spirit, as I have said, yet are not entirely without reasonable grounds. But regarding his composition Aeschines is unable to bring any charges, great or small, or any that might expose Demosthenes to censure or to ridicule.

---

[111] 2.40; 22.34; 3.143; 3.229

The figure below demonstrates one of Demosthenes's sentences syntactically analyzed. The complexity of the sentence, the secondary clauses, and dependent phrases are on par with Dionysius's apprehension of the orator. Furthermore, the developed metrics discussed later in the chapter can contribute to the quantification of the sentence's complexity.
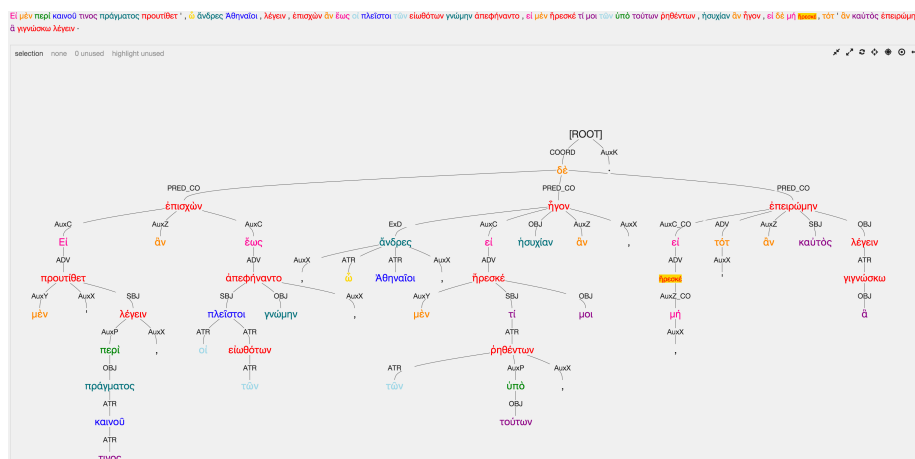
Fig. 3. Demosthenes, *Philippic* 1.1

Our analysis becomes more intriguing when we examine Imperial Greek oratory, in which the revival of Atticism is manifest. Lucian of Samosata, the second-century CE orator, imitates Classical Attic dialect and prides himself in his acquired Greekness, or chastises himself whenever he commits a linguistic blander.

Πλὴν ἐμέ γε (εἰρήσεται γάρ) οὐ μετρίως ἠνία ὁ ἔπαινος αὐτῶν, καὶ ἐπειδή ποτε ἀπελθόντων κατ'ἐμαυτὸν ἐγενόμην ἐκεῖνα ἐνενόουν· οὐκοῦν τοῦτο μόνον χάριεν τοῖς ἐμοῖς ἔνεστιν, ὅτι μὴ συνήθη μηδὲ κατὰ τὸ κοινὸν βαδίζει τοῖς ἄλλοις, ὀνομάτων δὲ ἄρα καλῶν ἐν αὐτοῖς καὶ πρὸς τὸν ἀρχαῖον κανόνα συγκειμένων ἢ νοῦ ὀξέος ἢ περινοίας τινὸς ἢ χάριτος Ἀττικῆς ἢ ἁρμονίας ἢ τέχνης τῆς ἐφ' ἅπασι, τούτων δὲ πόρρω ἴσως τοὐμόν. οὐ γὰρ ἂν παρέντες αὐτὰ ἐκεῖνα ἐπῄνουν μόνον τὸ καινὸν τῆς προαιρέσεως καὶ ξενίζον. ἐγὼ δὲ ὁ μάταιος ᾤμην, ὁπότε ἀναπηδῶντες ἐπαινοῖεν, τάχα μέν τι καὶ αὐτὸ τοῦτο προσάγεσθαι αὐτούς· ἀληθὲς γὰρ εἶναι τὸ τοῦ Ὁμήρου, καὶ τὴν νέαν ᾠδὴν κεχαρισμένην ὑπάρχειν τοῖς ἀκούουσιν· οὐ μὴν τοσοῦτόν γε οὐδὲ ὅλον τῇ καινότητι νέμειν ἠξίουν, ἀλλὰ τὴν μὲν ὥσπερ ἐν προσθήκης μοίρᾳ συνεπικοσμεῖν τι καὶ πρὸς τὸν ἔπαινον συντελεῖν καὶ αὐτήν, τὰ δὲ τῷ ὄντι ἐπαινούμενα καὶ ὑπὸ τῶν ἀκουόντων

ὑφημούμενα ἐκεῖνα εἶναι. ὥστε οὐ μετρίως ἐπήρμην καὶ ἐκινδύνευον πιστεύειν αὐτοῖς ἕνα καὶ μόνον ἐν τοῖς Ἕλλησιν εἶναι λέγουσι καὶ τὰ τοιαῦτα. (Luc. *Zeux.* 2)

To be honest, however, their praise caused me considerable annoyance, and when they had gone and I was left alone, I reflected as follows: "So this is the only attraction in my writings, that they are unconventional and keep off the beaten track. While good vocabulary, conformity to the ancient canon, penetration of intellect, power of perception, Attic grace, good construction, general competence, perhaps have no place in my work. Otherwise they would not have ignored these qualities and praised only the novel and strange element in my style. I, fool that I was, had thought when they rose in approbation that perhaps this particular feature too had some attraction for them — I remembered the truth of Homer's remark that the new song takes the fancy of an audience; but I did not think to attribute so much — indeed all of it — to novelty, but supposed novelty to be a kind of additional ornament making some contribution indeed to the approbation of my work, the audience's real praise and commendation, however, going to those other qualities. As a result my elation overstepped its bounds — to think I nearly believed them when they called me unique and in a class apart in Greece and other flatteries of this kind. (Translation by Kilburn)

There have also been extensive discussions on Dio's and Aristides's Atticism. Schmidt, Swain, Whitmarsh elaborate on implicit and explicit Atticism—both on linguistic level and the assumption of different literary personae all imbued with different forms and levels of Greekness (Schmidt 1887-1897: i.72-191. Swain 1996, 27-42; 187-241; 254-297. Whitmarsh 2001, passim). Lucian, Dio, and Aelius Aristides embrace Atticism in both their linguistic choices and sentence structure. However, upon closer reading, one notices significant variations. Of course the purpose of their delivered orations and the different intended audiences had also predetermined the stylistic variations. How do we consider these variances, though? Should they be appreciated as forms of Atticism or do they err significantly from the traditional constructions? Cicero was already one of the first to elaborate on stylistic differences, arguing in favor of the variegated nature of Atticism and against branding any intricacy of style as Asiatic, as I showed in section 3.2.

In his conclusive statement on Demosthenes, Dionysius emphasizes the preponderance of linguistic appropriateness, but most of all structural composition of one's speeches. Therefore, he argues that it is that particular orator's mercurial stylistic identity that accounts for his effectiveness.

καὶ τῆς σαφηνείας δεῖ στοχάζεσθαι τὸν ῥήτορα καὶ τῆς ἐναργείας καὶ τῆς αὐξήσεως καὶ τῆς
περὶ τὴν σύνθεσιν τῶν ὀνομάτων εὐρυθμίας, ὑπὲρ
ἅπαντα δὲ ταῦτα τοῦ παθητικήν τε καὶ ἠθικὴν καὶ ἐναγώνιον ποιεῖν τὴν λέξιν, ἐν οἷς ἐστι
ν ἡ πλείστη τοῦ πιθανοῦ μοῖρα. τούτων δὲ τῶν ἀρετῶν ἑκάστην οὐχ ἡ βραχυλογία κράτισ
τα δύναται ποιεῖν, ἀλλὰ καὶ ὁ πλεονασμὸς ἐνίων ὀνομάτων, ᾧ καὶ ὁ Δημοσθένης
κέχρηται. (D.H. *Dem*. 58)

while the orator ought admittedly to aim at clarity, vividness, amplification and good rhythmical composition, he should aim above all at making his style capable of arousing emotion and evoking moral tone and assuming the force of live debate, because the art of persuasion depends most of all on these. The best means of achieving each of these qualities is not brevity, but the pleonastic use of certain words; which is what Demosthenes actually employs.

In this study I work on the same basis, as I attempt to establish a framework within which Atticism seems to be working. A computational analysis therefore could provide us with measurable and appreciable characteristics.

3.5 Methods: Computational Quantification of Rhetorical Styles

In this section I present the metrics developed to quantify the syntactical structure of the sentence, parameterizing the morphology of the tree. For the purpose of this analysis of the rhetorical structure epideictic rhetorical speeches of the aforementioned orators were annotated syntactically in the form of treebank annotation, as shown in the above figures, using the Arethusa annotation framework through Perseids (www.perseids.org). The sentences were annotated manually. The degree of non-projectivity in ancient languages,

such as Greek and Latin, is so high that in order to produce the cleanest possible data, a part of the project involved the morphological and syntactical tagging of the selected texts. Majidi and Crane discussed the degrees of fallibility between human and machine dependency parsing. The test group consisted of student parsers. The results of this study indicate that manual and machine parsers actually falter similarly.[112] Mambrini and Passarotti also explore the possibility of training an automatic parser for the Ancient Greek Dependency Treebank and explore models to increase its efficiency. They do state that: "Non-projectivity's impact on results is quite strong."[113] Therefore, the exigency for manual annotation in Classical languages is apparent. So for the purpose of the present study I personally annotated the texts. This way the margin of error in the annotation and subsequently the results of the metrics are minimized to a considerable degree. I contend that this formational consideration of rhetorical speeches will shed light on statistical distributions of syntactical phenomena and consequently the evolution of oratory and the involvement of Atticism. This research trajectory that pre-manipulates the data and tests certain hypothesis on specific texts has been widely adopted by corpus linguistics. Kübler and Zinsmeister (2015) in their volume on linguistically annotated corpora state that: "Linguists would use invented examples rather than attested language use. Such examples have the advantage that they concentrate on the phenomenon in question and abstract away from other types of complexities."[114] In the case of the present study, this type of manipulation can actually guarantee more substantive results. Having first noted the syntactical constructions of Atticism from a philological perspective, I then proceed

---

[112] Majidi and Crane (2014). The issue of automatic annotation has been extensively explored, but the results are more encouraging in modern languages. See Bohnet (2010), Dligach et al. (2010), Garretson and O'Connor (2004), Haverinen et al. (2011), McDonald and Nivre (2007).
[113] Mambrini et al. (2012) 139
[114] Kübler and Zinsmeister (2015) 3.

with the development of more precise and descriptive metrics. More specifically, defining and particularizing the morphology of the tree and pinpointing the importance of attributes, such as the width and depth of the branches and the syntactical tags describing each lemma, I "translate" the compositional elements of each author into a more or less intricate authorial style that can then be used as a measure for further comparisons. In the next section the quantification framework is presented, using node-based sentence metrics.

3.5.1 The Perseids 1.5 ALDT schema

Using the Arethusa framework, approximately 200 sentences were annotated manually, taking into consideration the grammar, syntax, and other unique structural phenomena that needed to be annotated and considered for the analysis. So as to explore syntactical constructions of both Classical Attic oratory and then perform objective comparative analysis against the backdrop of Imperial Attic oratory, I selected six authors—three of which belong to the Classical 5th- 4th- century BCE oratory and three from the 1st- and 2nd- century CE Imperial oratory. More specifically, I annotated selections from Lysias's *Olympic Oration*, Isocrates's *Against the Sophists*, Demosthenes's *First Philippic*, Lysias's *Zeuxis*, Dio's *Oration 42 An Address to his Native City*, Aelius Aristides's *Encomium to Rome*. The selection of the Classical orators is based on Dionysius's of Halicarnassus treatise on the orators, as my primary intention is to quantify Atticism based on its ancient appreciations that are chronologically adjacent and can naturally apprehend stylistic evolution more organically than moden scholarship. As for the Imperial orators, I selected non-native Greek speakers who commented extensively on their own use of language. Additionally to minimize the "noise" from outside parameters and produce objective results, I selected the introductory parts of epideictic rhetorical

speeches that are for the most pat formulaic. This way I maintained cohesiveness throughout the dataset. Finally, I annotated equal amount of sentences from each author.

Below I include some examples of the syntactical trees.

Fig. 4 Lysias, *Olympiacus* 3

Fig. 5 Isocrates, *On Peace* 3.1

Fig. 6 Demosthenes, *Philippic* 1.1

Fig. 7 Lucian, *Zeuxis* 1

Fig. 8 Dio Chrysostom, *Oration* 42.1
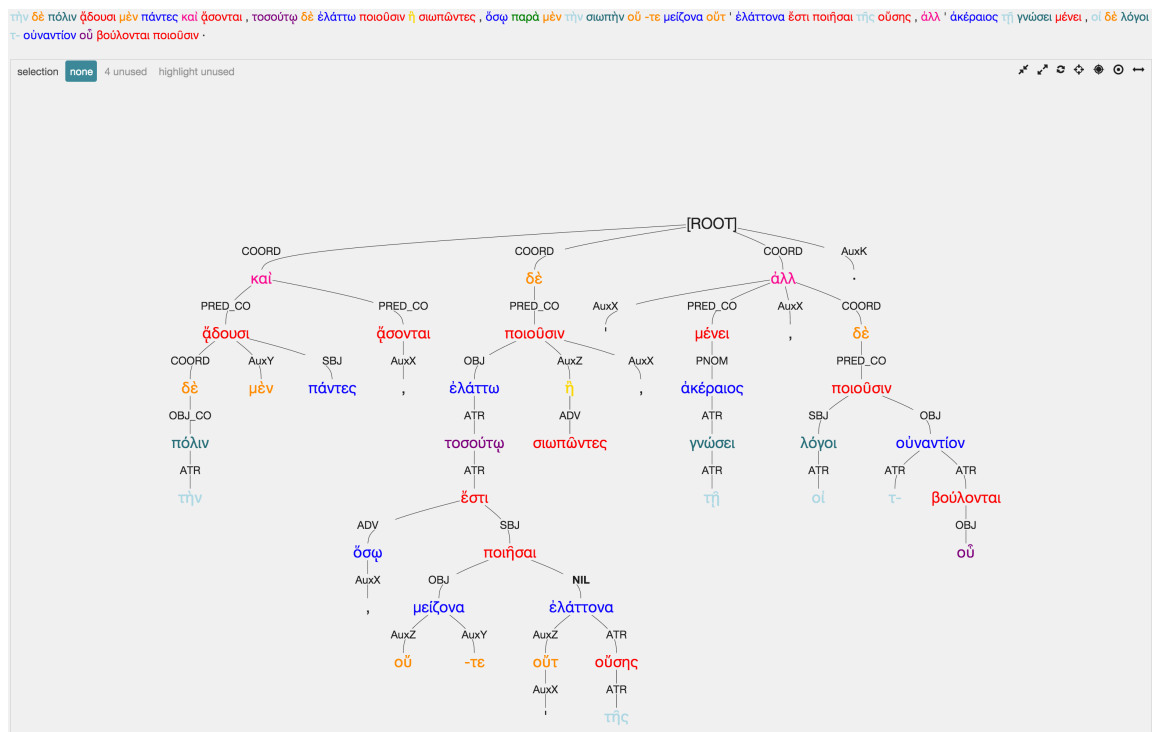
Fig. 9 Aelius Aristides, *To Rome* 198.8

Metreex XML Tree Structure

One of the advantages of the Perseids annotator is that the data is stored as XML, thus opening up the possibilities for the further processing of information. XML schema was established as a form of common grammar to facilitate exchange of data across applications. The data that is encoded in XML schema can be opened with any application that supports this schema. There are several XML schemas, namely Bookmarks, Brewing, Business, Elections, Engineering, Financial, Geographical Information Systems and Geotagging, Graphical User Interfaces, Intellectual Properties, Libraries, Math and Science, Metadata, Music Playlists, Musical Notation, News Syndication, Paper and Forest Products, Publishing, Statistics, Vector Images, and of course the Humanities. More specifically, the Humanities schemas include TEI (Text Encoding Initiative, EpiDoc (Epigraphic Documents), Menota (Medieval Nordic Texts Archive), MEI (Music Encoding Initiative), and OSIS (Open Scripture Information Standard). Another example similar to aforementioned schemas that is meant to serve the purpose of syntactically annotated texts is the Ancient Language Dependency Treebank (ALDT), which has been used in many applications, including Perseus and Perseids.

XML (Extensive Markup Language) is a generic markup language to encode documents and describe data in a format that is understandable both by people and computers. Additionally, several schemas exist to accommodate XML-based languages and numerous Application Programming Interfaces (APIs) have been developed for the processing of XML data. Simon coined the very precise word "omnimorphic" to conceptualize and succinctly describe the nature of XML. He explains that: "XML is an omnimorphic markup language that provides a universal data-tagging format so that

applications can seamlessly transfer and exchange data."[115] Below I am citing a basic

explanation of XML's terminology.

Key terminology
_____

The material in this section is based on the XML Specification. This is not an exhaustive list of all the constructs that appear in XML; it provides an introduction to the key constructs most often encountered in day-to-day use.

Character

An XML document is a string of *characters*. Almost every legal Unicode character may appear in an XML document.

Processor and application

The *processor* analyzes the markup and passes structured information to an *application*. The specification places requirements on what an XML processor must do and not do, but the application is outside its scope. The processor (as the specification calls it) is often referred to colloquially as an *XML parser*.

Markup and content

The characters making up an XML document are divided into *markup* and *content*, which may be distinguished by the application of simple syntactic rules. Generally, strings that constitute markup either begin with the character `<` and end with a `>`, or they begin with the character `&` and end with a `;`. Strings of characters that are not markup are content. However, in a CDATA section, the delimiters `<![CDATA[` and `]]>` are classified as markup, while the text between them is classified as content. In addition, whitespace before and after the outermost element is classified as markup.

Tag

A *tag* is a markup construct that begins with `<` and ends with `>`. Tags come in three flavors:

- *start-tag*, such as `<section>`;
- *end-tag*, such as `</section>`;
- *empty-element tag*, such as `<line-break />`.

Element

An *element* is a logical document component that either begins with a start-tag and ends with a matching end-tag or consists only of an empty-element tag. The characters between the start-tag and end-tag, if any, are the element's *content*, and may contain markup, including other elements, which are called *child elements*. An example is `<greeting>Hello, world!</greeting>`. Another is `<line-break />`.

Attribute

An *attribute* is a markup construct consisting of a name–value pair that exists within a start-tag or empty-element tag. An example is `<img src="madonna.jpg"`

_____

[115] Simon (2001) 2

`alt="Madonna" />`, where the name of the attributes are "src" and "alt" and their values are "madonna.jpg" and "Madonna" respectively. Another example is `<step number="3">Connect A to B.</step>`, where the name of the attribute is "number" and its value is "3". An XML attribute can only have a single value and each attribute can appear at most once on each element. In the common situation where a list of multiple values is desired, this must be done by encoding the list into a well-formed XML attribute with some format beyond what XML defines itself. Usually this is either a comma or semi-colon delimited list or, if the individual values are known not to contain spaces, a space-delimited list can be used. `<div class="inner greeting-box">Welcome!</div>`, where the attribute "class" has both the value "inner greeting-box" and also indicates the two CSS class names "inner" and "greeting-box".

XML declaration

XML documents may begin with an *XML declaration* that describes some information about themselves. An example is `<?XML version="1.0" encoding="UTF-8"?>`.[116]

The ALDT 1.5 schema does not utilize the original XML tree conception to store the dependency tree. The basic construction follows the linear order of the sentence in the text and is assigned a word id, which is the order in which each word appears in the sentence. Every word tag has an attribute that denotes which the head of that word is. Hence this is a linear and not a tree structure. It does contain the necessary information for a tree, but is not one on each own. However, when a query requests the parent, the grandparent, or the dependent(s) of a word, the complexity of the request increases significantly as the corresponding API algorithm needs to run through all the entries every time for every query. If such requests are made repeatedly, the algorithm is set to run every time through all the word tags in a sentence. To avoid this redundant complexity and increase its efficiency, one can look for an optimal structure. Therefore, while I retained the basic information of the ALDT 1.5 schema, I have altered the XML schema of my data so that the words might not appear in a linear order, but in a tree

---

[116] Source: https://en.wikipedia.org/wiki/XML

structure that follows the syntactical order. This utilizes the intrinsic XML structure through the appropriate nesting of word tags. To put it simply, I am retaining the XML tree format—every word-node functions as a tree with its dependents. The advantage of this more efficient schema is that the metric calculation that will be presented in the next section has complexity $O(n)$. Instead the complexity of calculating the same metric with the ALDT is $O(n^2)$. Therefore, it is simpler to run searches that require recursive sentence metrics. Every programming language, such as Python, JAVA, JavaScript, has efficient native APIs for XML parsing. So, since XML is a tree-type document, they have the mechanisms to retrieve the parents and children of a node. So, using an XML reader, one can perform metric calculations on a tree, assuming that the sentence is an XML tree.

Below I include an example of the XML schema that is adopted by the Arethusa framework.

```
<sentence id="1" document_id="" subdoc="" span="">
  <word  id="1"  form="οὐδὲν"  lemma="οὐδείς"  postag="p-s---na-"  relation="OBJ"
    head="4"/>
  <word id="2" form="ἄν" lemma="ἄν1" postag="d--------" relation="ADV" head="4"/>
  <word id="3" form="τις" lemma="τις" postag="p-s---mn-" relation="SBJ" head="4"/>
  <word  id="4"  form="εἴποι"  lemma="εἶπον"  postag="v3saoa---"  relation="PRED"
    head="0"/>
  <word id="5" form="τῆς" lemma="ὁ" postag="l-s---fg-" relation="ATR" head="6"/>
  <word  id="6"  form="ἐπινοίας"  lemma="ἐπίνοια"  postag="n-s---fg-"  relation="OBJ"
    head="7"/>
  <word  id="7"  form="νεαρώτερον"  lemma="νεαρός"  postag="a-s---nac"  relation="ATR"
    head="1"/>
  <word id="8" form="." lemma="punc1" postag="u--------" relation="AuxK" head="0"/>
</sentence>
```

The new structure that I introduced is shown below.

```
<sentence id="1" document_id="" subdoc="" span="">
  <word id="4" form="εἴποι" lemma="εἶπον" postag="v3saoa---" relation="PRED">
    <word id="1" form="οὐδὲν" lemma="οὐδείς" postag="p-s---na-" relation="OBJ">
      <word id="7" form="νεαρώτερον" lemma="νεαρός" postag="a-s---nac" relation="ATR">
        <word id="6" form="ἐπινοίας" lemma="ἐπίνοια" postag="n-s---fg-" relation="OBJ">
          <word id="5" form="τῆς" lemma="ὁ" postag="l-s---fg-" relation="ATR"/>
        </word>
      </word>
    </word>
    <word id="2" form="ἄν" lemma="ἄν1" postag="d--------" relation="ADV"/>
```

```
   <word id="3" form="τις" lemma="τις" postag="p-s---mn-" relation="SBJ"/>
  </word>
  <word id="8" form="." lemma="punc1" postag="u--------" relation="AuxK"/>
</sentence>
```

To query the XML structure in order to find whether the word with id=7 is a leaf or not, in the ALDT schema the algorithm would have to run through all the nodes to determine whether this node is the head of another node, i.e. by searching for head=7. This data structure will require on average "n" steps for this query, hence it has complexity O(n). In the case of the new XML schema that I proposed, the algorithm simply needs to go to that particular word to see what its relation is with the other nodes, thus simplifying the search process and the complexity of the algorithm. For this particular query, it is enough to check if the node with id=7 has children or not, which has constant complexity O(1). This advantage is evident when tree-based calculations are performed on a large corpus and a previously quadratic complexity $O(n^2)$ is now reduced to a much more efficient linear process O(n).

3.5.2 Node-based sentence metrics

The structure of a syntactically annotated sentence is defined as a linearly ordered set of elements S={n_1, n_2, … n_k}, where each element n_i is a tree node ($n_i \in$ T) and T denotes the space of tree nodes. The word order in a sentence defines the linear order of the tree nodes in the set S. It should be noted that every tree node is a tree on its own, while also being the root of that tree. Therefore, a syntactically annotated sentence is a linearly ordered set of as many trees as the words in the sentence.

Consider the following example. There is a sentence with seven words with this exact order n_1, n_2, n_3, n_4, n_5, n_6, n_7. Assume that the syntactical tree of this sentence is as shown in the figure below.

93
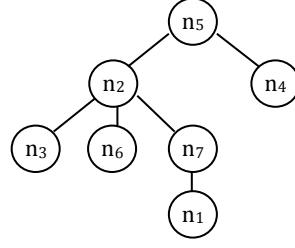
In this tree structure, each node is a tree on its own as it forms a sub-tree. Therefore, in the previous example the seven nodes correspond to the seven trees shown in the next figure.
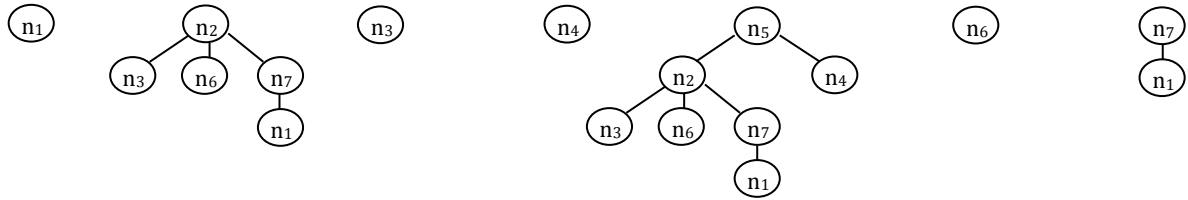
The node n_2 corresponds to a tree with 5 nodes in total with tree height = 3. Similarly, node n_7 corresponds to a tree with 2 nodes in total, and with tree height =2. Nodes n_1, n_3, n_4, and n_6 correspond to trees of height = 1 since these four nodes are leaves in the syntactical tree of this sentence.

Furthermore, in this space the operator *children of* is defined, which maps each node to a set of children nodes that are also elements of the same sentence (*children of*: $T \rightarrow \{\emptyset, T, T^2, \dots, T^{k-1}\}$). A node without children is mapped to the empty set through this operator (i.e. when x=0). For example, in the above sentence the operator *children of* is evaluated for each node of the sentence as follows:

children of: $n_1 \rightarrow \{\}$

children of: $n_2 \rightarrow \{n_3, n_6, n_7\}$

children of: $n_3 \rightarrow \{\}$

children of: $n_4 \rightarrow \{\}$

children of: $n_5 \rightarrow \{n_2, n_4\}$

children of: $n_6 \rightarrow \{\}$

children of: $n_7 \rightarrow \{n_1\}$

Additional operators can also be defined to implement other characteristics of the nodes, such as syntactical tags, for example the mapping *isATR*: $T \rightarrow \{0,1\}$ could indicate if a given node is an attributive.

In order to quantify the use of Attic in this case, one needs to extract numerical descriptors for each annotated sentence in a given corpus. Therefore, a set of metrics could be defined within the space *S* of sentences that will then allow us to perform further comparative analyses. The syntactical morphology of the sentence is depicted in the connectivity of the nodes. This study explores the possibility to establish a node-based metric so as to quantify the local morphology of each individual node and ultimately assess the complexity of the sentence.

A sentence metric is a function that maps each sentence to the space of real numbers *f*: $S \rightarrow \mathbb{R}$, where S denotes the previously defined space of syntactically annotated sentences. A generalized sentence metric can be expressed as the weighted sum of node-based metrics:

$$f(S) = w_1\mu(n_1) + w_2\mu(n_2) + \cdots + w_k\mu(n_k) = \sum_{i=1}^{k} w_i\mu(n_i) \qquad (1)$$

where $\mu(n_i)$ is a node metric that operates on node n_i and computes a numerical value (μ: T → ℝ). The weights w_i determine each node's degree of syntactical and/or positional contribution in the sentence. Figure 10 illustrates the evaluation of Eq. 1 on an abstract sentence with 7 words.
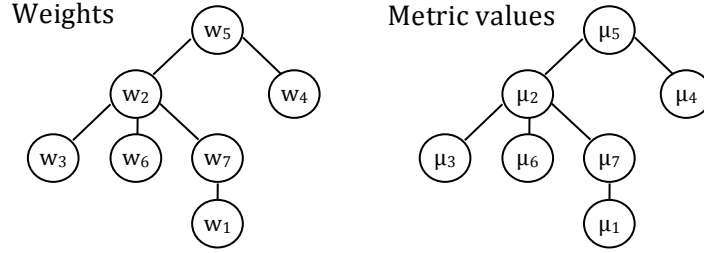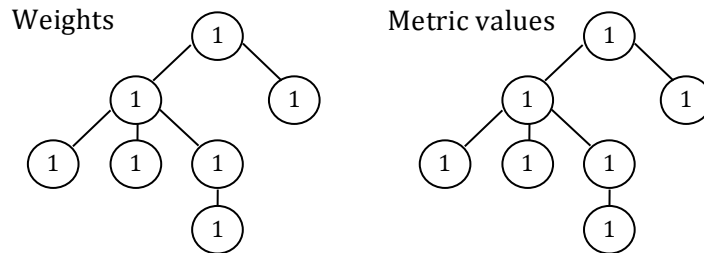

Fig. 10. Illustration of node-based sentence metrics. Each node has an assigned weight and a metric value. The total value of the sentence metric is $w_1\mu_1 + w_2\mu_2 + ... + w_7\mu_7$.

The form of node-based sentence metrics as defined in Eq. 1 is generic enough so that it can implement a wide variety of sentence metrics that can quantify syntactically annotated sentences. The following sections demonstrate in six detailed examples the construction of sentence metrics using Eq. 1.

Simple node-based sentence metrics

A basic example of a simple node-based sentence metric is the one that calculates the *number of words* in a sentence. Such metric can be expressed in the form of Eq. 1 by setting $w_i=1$ and $\mu(n_i)=1$ for all nodes in the sentence. In this case, the value of Eq. 1 will correspond to the number of words in a given sentence as it is shown in Figure 11.
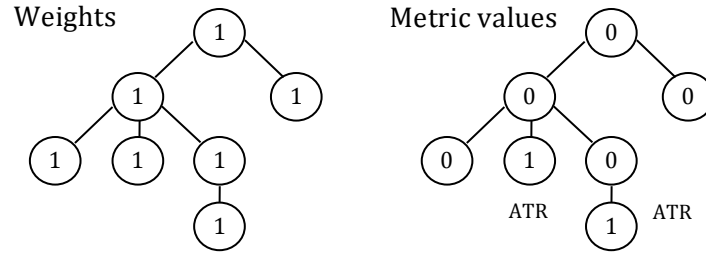

Fig. 11. Calculation of the "number of words" as a node-based sentence metric. In this example the result is $1\times1+1\times1+1\times1+1\times1+1\times1+1\times1+1\times1=7$.

96

Based on the developed metric system, the equation for the calculation of the number of words will appear as follows:

1×1+ 1×1+ 1×1+ 1×1+ 1×1+ 1×1+ 1×1=7

Another simple example of a node-based sentence metric is the one that calculates the *number of attributives* in a sentence. Such a metric can be expressed in the form of Eq. 1 by setting $w_i=1$ for all nodes in the sentence, $\mu(n_i)=1$ for the attributive nodes, and $\mu(n_i)=0$ for the rest of the nodes. In this case, the node metric $\mu(n_i)$ implements the "*is attributive*" metric and the value of Eq. 1 will correspond to the number of attributives in a given sentence, as it is shown in Figure 12. As for the calculation of the number of attributives of the above sample sentence, the estimation would simply count the one attributive as having w=1, i.e. $1×0 + 1×0 + 1×0 + 1×0 + 1×0 + 1×0 + 1×1=1$.

Fig 12. Calculation of the "number of attributives" as a node-based sentence metric. In this example the result is 1×1+1×0+1×0+1×0+1×0+1×1+1×0=2.

At this point, as an example, I have run the simple metric to the annotated sentence below.

εἰ μὲν γὰρ οὕτως ἔχετε , θαρρῶν ὑμῖν παρέχω ἐμαυτόν , ἵνα ἐμπλήσητε τὴν προθυμίαν ·
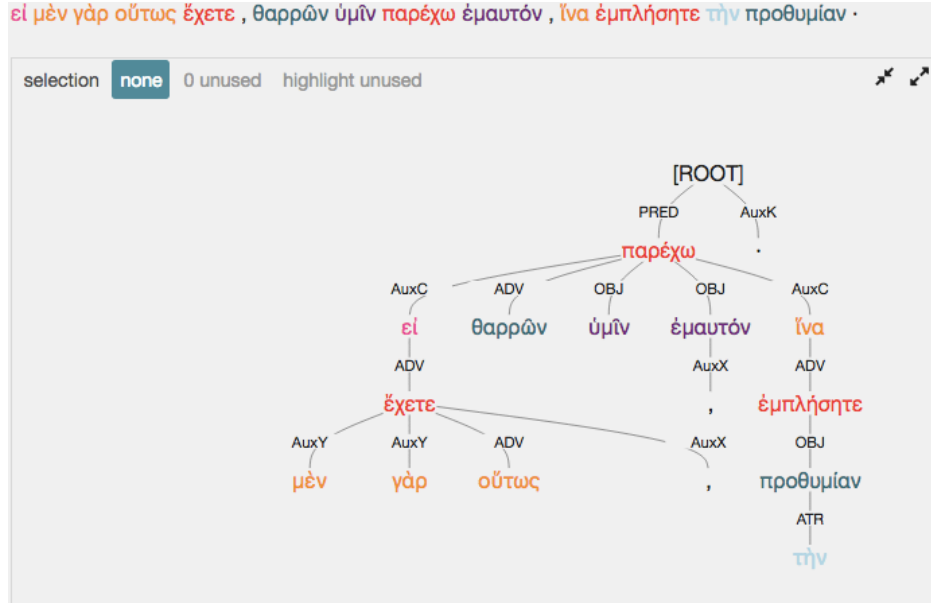
Number of words:

$1×1+1×1+1×1+×1+1×1+1×1+1×1+1×1+1×1+1×1+1×1+1×1+1×1+1×1+1×1=15$

Number of Attributives:

$1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×0+1×1=1$

Relative sentence metrics

In order to quantitatively compare annotated sentences from one or more corpora, it is essential to be able to express metrics in a normalized way, as percentage of the number of the words in a sentence. Such relative sentence metrics can be defined in the same way as the previous examples. An example of a relative node-based sentence metric is the one that calculates the *percentage of leaves* in a sentence. Such metric can be expressed in the form of Eq. 1 by setting $w_i=1/k$, where k is the number of the words in a sentence, $\mu(n_i)=1$ for the leaves, and $\mu(n_i)=0$ for the rest of the nodes in the sentence. In this case,

the node metric $\mu(n_i)$ implements the "*is leaf*" metric and the value of Eq. 1 will correspond to the percentage of leaves in a given sentence as it is shown in Figure 13.
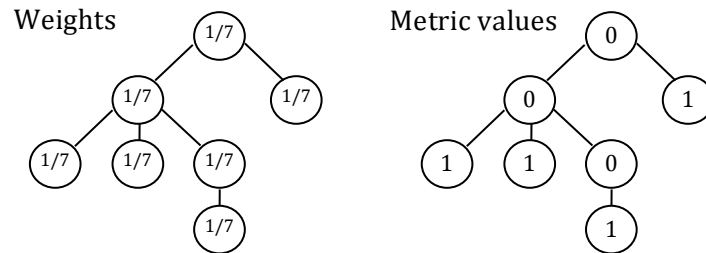

Fig 13. Calculation of the "percentage of leaves" as a node-based sentence metric. In this example the result is $1/7×1+1/7×0+1/7×1+1/7×1+1/7×0+1/7×1+1/7×0=4/7$.

Similarly, the example in Figure 6 can be expressed as a relative sentence metric by setting $w_i=1/k$ for all the nodes in the sentence. In this case the value of Eq. 1 will correspond to the percentage of attributives in a sentence. To calculate the leaves in the sentence below the metric will run as follows:

$1/30×0+1/30×1+1/30×1+1/30×1+1/30×1+1/30×1+1/30×1+1/30×1+1/30×1+1/30×0+1/30$
$×1+1/30×0+1/30×0+1/30×1+1/30×0+1/30×1+1/30×0+1/30×0+1/30×0+1/30×1+1/30×0+$
$1/30×0+1/30×0+1/30×0+1/30×1+1/30×1+1/30×0+1/30×0+1/30×0+1/30×0+1/30×0+1/30$
$×0+1/30×0=16/33$

So the conclusion is that 48% of the words in this particular sentence are leaves.
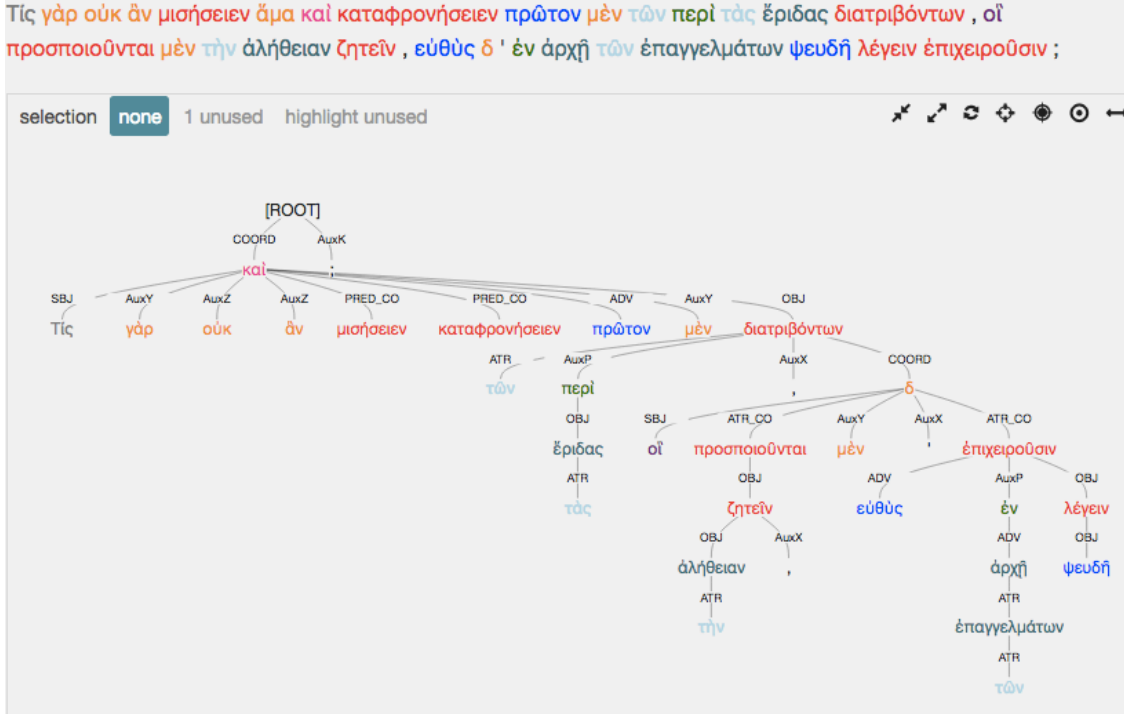
Recursive sentence metrics

Although the previous examples demonstrated the construction of basic sentence metrics using Eq. 1, more complex metrics can be defined by setting the weights w_i and the node metric μ accordingly. It should be noted that, despite the linear form of Eq. 1, non-linear metrics can also be established, using $w_{root}=1$, $w_{i \neq root}=0$, and setting $\mu(n_{root})$ to be a non-linear function that can operate on the entire sentence tree by recursively traversing it from the root.

An example of a recursive sentence metric is the one that calculates the *height of the syntactical tree* of a sentence. Such metric can be expressed in the form of Eq. 1 by setting $w_{root}=1$ and $w_{i \neq root}=0$ for the rest of the nodes in the sentence. The node metric $\mu(n_i)$ will recursively implement the *"height of the tree"* metric for the sub-tree n_i. In this case, the value of Eq. 1 will correspond to the height of the syntactical tree of a given sentence, as it is shown in Figure 14.

In this example the result is 0×1+0×3+0×1+0×1+1×4+0×1+0×2=4.
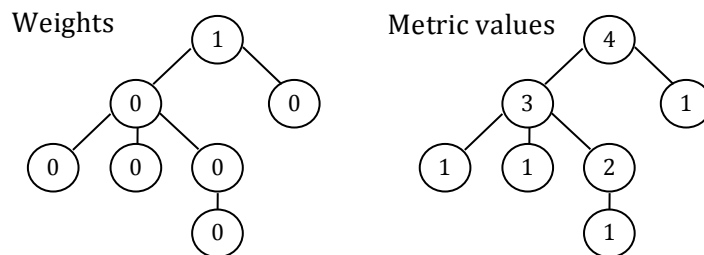
Fig 14. Calculation of the "height of the tree" as a recursive node-based sentence metric. In this example the result is 0×1+0×3+0×1+0×1+1×4+0×1+0×2=4.

To explain further the reasoning of this particular metric, I am furnishing the two sentences below, on the left is the original sentence as written by Isocrates and on the right is the rewrite that was suggested by Dionysius of Halicarnassus as being the simpler and therefore the cleaner and more Atticizing structure.
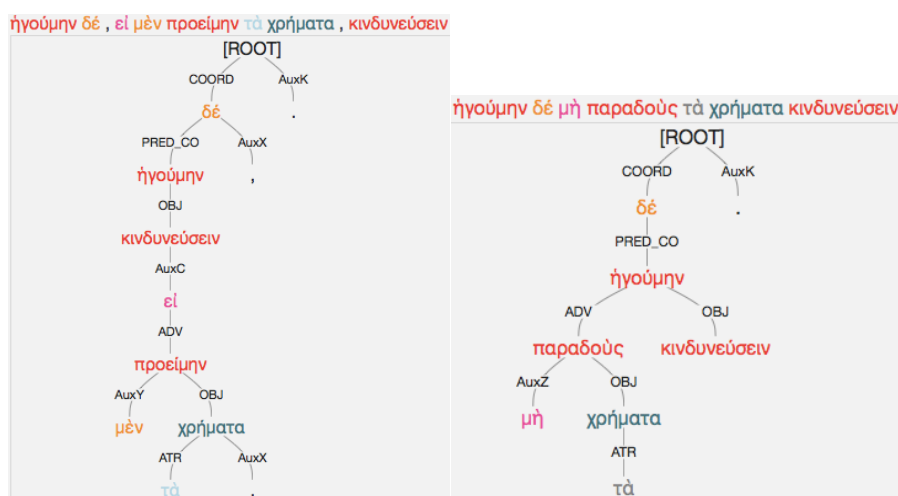
If we run the recursive metric to calculate the height of the tree, then the result is that setting $w_{root}=1$ for the root and $w_{i \neq root}=0$ for the rest of the nodes in the sentence, the Isocratean sentence produces the number 7, while the one by Dionysius gives the number 5. Studying the sentences closely from a philological perspective, the complexity of the former originates in the usage of a whole new secondary clause to provide the condition,

εἰ μεν προείμην τὰ χρήματα. Dionysius instead opts for the succinct usage of a conditional participle, παραδοὺς, to convey the same meaning, thus eliminating the conditional conjunction and the lengthening of the sentence. This grammatical-syntactical observation is thus confirmed by the metric system, as it becomes clear that the height of the first sentence is bigger.

Another example of a recursive sentence metric is the one that calculates the syntactical tree. Similarly to the previous example, such metric can be expressed in the form of Eq. 1 by setting $w_{root}=1/k$, where k is the number of words in the sentence and $w_{i \neq root}=0$ for the rest of the nodes in the sentence. The node metric $\mu(n_i)$ will recursively *percentage of the words"* metric for the sub-tree n_i. In this case, the value of Eq. 1 will correspond to the size of the largest family in the syntactical tree of a given sentence calculated as percentage of the total number of words in the sentence as it is shown in Figure 15.
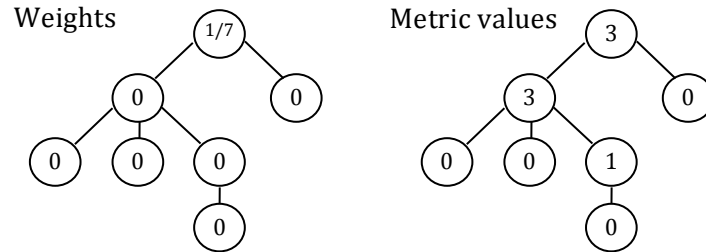
Fig. 15 Calculation of the "size of the largest family as percentage of the words". In this example the result is 0×1+0×3+0×1+0×1+1/7×3+0×1+0×1=3/7.

Another example of a recursive sentence metric is the one that calculates the *width* of a syntactical tree. Similarly to the previous example, such metric can be expressed in the form of Eq. 1 by setting $w_{root}=1$ and $w_{i \neq root}=0$ for the rest of the nodes in the sentence. The node metric $\mu(n_i)$ will recursively implement the *"width"* metric for the

102

sub-tree n_i. In this case, the value of Eq. 1 will correspond to the width of the syntactical tree of a given sentence, as it is shown in Figure 16.

Fig. 16 Calculation of the "width" of the tree. In this example the result is $0\times1+0\times3+0\times1+0\times1+1\times4+0\times1+0\times1+0\times1=4$.

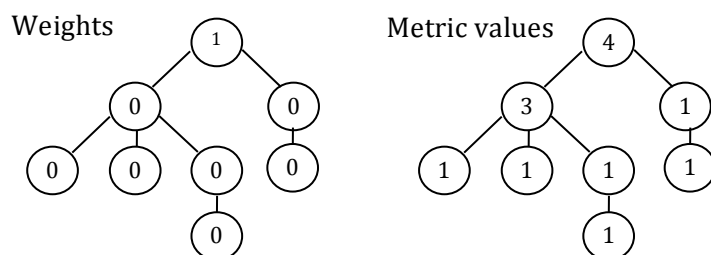To provide another example of the significance of the current metric, I am citing two more annotated sentences below. The top one is a sentence from Lysias's, the 5th-century BCE Attic orator, *Olympian speech*. The one on the bottom is from Lucian's *Zeuxis*, the 2nd-century CE Syrian who writes in Greek, and he himself comments on numerous occasions on his usage of Atticism.
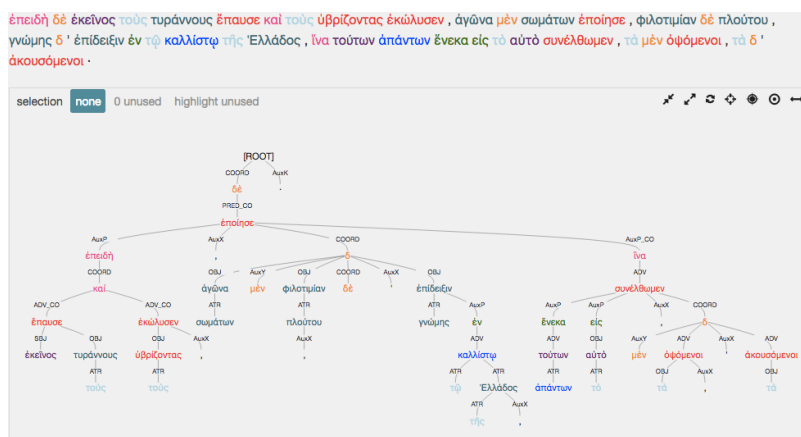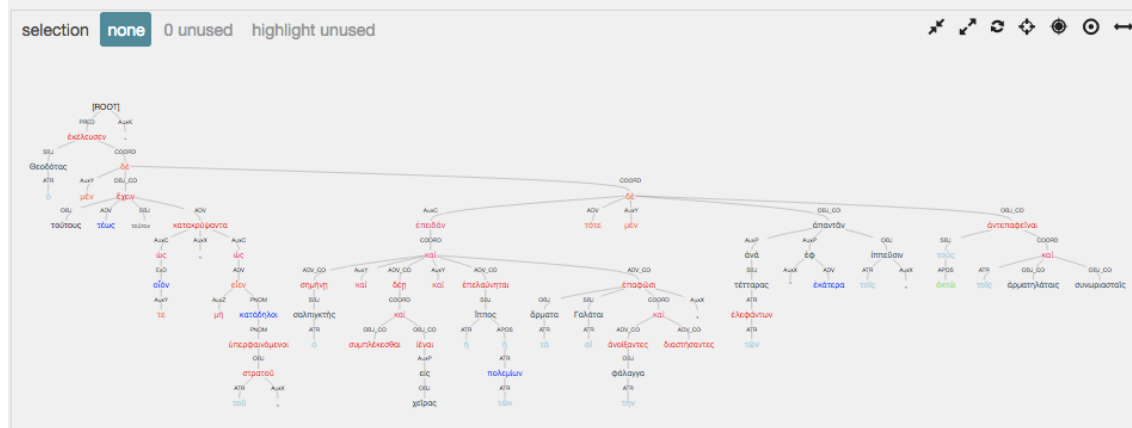
The numbers that are produced when running the algorithm on the basis of this particular metric system concur with the philological analysis. The width of Lysias's sentence is 10, while Lucian's sentence comes significantly ahead with the width being 17. Phrasing this in a stylistic context, this indicates that the latter's constructions are more complicated, with each node governing more dependents.

3.5.3 Computer implementation

The purpose of the project is to establish a set of complex metrics, custom-defined in order to be able to capture the syntactical constructions and peculiarities of Ancient Greek. The metrics were set after the texts were annotated to pinpoint particular attributes and phenomena that might not have been obvious otherwise. Additionally, the annotation of the texts revealed information that was obscured by the philologists' predefined expectations regarding certain authors, texts, and literary genres.[117] However, the equivalent manipulation of data against the backdrop of corpus linguistics implies more

---

[117] Another approach is to query the annotation system, but that does not allow for the accommodation of particular complex metrics. For query systems, see Kübler and Zinsmeister (2015) 197-205, Lezius (2002), Mírovský (2006), Pajas and Štěpánek (2006, 2008, 2009).

particular and focused searches. Kübler and Zinsmeister argue about annotation that: "If we have linguistic information, we can often give a more specific description of what we want to find…and we can find phenomena which are not anchored in a specific word or phrase."[118] Celano and Crane also point to the semantic connotations that can be revealed when reading the text not only through the traditional grammatical lenses, which is the morphological layer of the annotation, but also when the reader/user is afforded the opportunity to visually examine phenomena and query the system to cross-reference occurrences through texts, authors, and genres. They explicate the process as such: "Relying on SG (Smyth Grammar) description, a hierarchical tagset was designed which, on the basis of the PoS annotation at the morphological layer, allows an annotator to get to a SR (semantic role) annotation in a guided way." [119] Mambrini also supports the idea in his analysis of a distich from Sophocles's *Women of Trachis*. He very convincingly makes the case that the morphological identity of a verb and its subsequent identification heavily rely on the context and the ability to search through the text so as to inspect a particular phenomenon. He states: "Context (intended both as the 'intra-textual' net of references and presuppositions to other passages of the work, and as the communicative situation a text is inserted in) is a primary linguistic element, which is often crucial in disambiguating syntactic and semantic problems."[120]

This analytical framework was implemented in Javascript/HTML5 as a cross-platform programming environment. The developed interface includes API (Application Programming Interface) for defining custom node-based sentence metrics and is compatible with the Ancient Language Dependency Treebank (ALDT) format version

[118] Kübler and Zinsmeister (2015) 22
[119] Celano and Crane (2015) 28. Cf. Celano (2014)
[120] Mambrini (2016) 86-7.

1.5 currently used by Perseids. The detailed list of classes and methods available in the developed API is provided in the appendix. In this API a custom metric can be defined in 3 lines of JavaScript code (lines 1-3) as follows:

```
1.    var example=new NodeMetric("Number of nodes");
2.    example.weight=function(node){return 1;};
3.    example.metric=function(node){return 1;};
4.    var value=example.apply(sentence);
```

The above example shows a case in which $w_i=1$ and $\mu(n_i)=1$. This implements the node-based sentence metric demonstrated in Figure 5, which simply counts the number of nodes in a syntactical tree. The last line (line 4) in the example shows how a metric can be applied to a Treebank sentence, which is given as a `TreebankSentence` object variable (here named `sentence`).

The metric demonstrated in Figure 6, which calculates the number of attributives in a sentence, is implemented below:

```
1.    var example=new NodeMetric("Number of attributives");
2.    example.weight=function(node){return 1;};
3.    example.metric=function(node){return
node.getRelation()=="ATR";};
4.    var value=example.apply(sentence);
```

In the above example $w_i=1$ and $\mu(n_i)=1$ if n_i is ATR (attributive), or 0 if otherwise. The same metric can be normalized by implementing it as a relative node-based metric in the following way:

```
1.    var example=new NodeMetric("Percentage of attributives");
2.    example.weight=function(node){return
1/node.getRoot().getNumOfWords();};
3.    example.metric=function(node){return
node.getRelation()=="ATR";};
4.    var value=example.apply(sentence);
```

In this case $w_i=1/k$, where k is the total number of nodes in a given sentence, and $\mu(n_i)=1$ if n_i is ATR (attributive), or 0 if otherwise. Similarly, the metric that calculates the percentage of leaves in a syntactical tree can be implemented as shown below:

```
1.    var example=new NodeMetric("Percentage of leaves");
2.    example.weight=function(node){return
1/node.getRoot().getNumOfWords();};
3.    example.metric=function(node){return node.isLeaf();};
4.    var value=example.apply(sentence);
```

In this case $w_i=1/k$, where k is the total number of nodes in a given sentence, and $\mu(n_i)=1$ if n_i is a leaf, or 0 if otherwise. This implements the relative node-based sentence metric demonstrated in Figure 13.

In order to calculate the height of the tree, as shown in Figure 8, the weight is 1 for the root node and 0 otherwise. The value of the metric for each node equals the height of the tree of the subtree under that node. This can be implemented as a recursive function that traverses the tree from the leaves, which have height that equals 1, being roots of single-node trees. The recursive algorithm continues in their parents, which respectively have height 2, and continues until we reach the root node of the entire sentence. This value is the only one that will be weighted by w=1 and corresponds to the final value of the calculated metric. This is implemented in the following code.

```
1.    var example=new NodeMetric("Height of the tree");
2.    example.weight=function(node){return
node==node.getRoot();};
3.    example.metric=function(node){return node.getHeight();};
4.    var value=example.apply(sentence);
```

Similarly, a recursive algorithm can be used to calculate the largest family width as percentage of the words, as shown in Figure 15. The tree will be traversed from the leaves to the root node, calculating the maximum family width of each subtree under

every node. All weights will be set to 0 except the root node that is set to w=1/k, where k

is the number of nodes in the sentence, as shown below:

```
1.    var example=new NodeMetric("Largest family width as
percentage");
2.    example.weight=function(node){if(node!=node.getRoot()) return 0;
      else return 1/node.getRoot().getNumOfWords();};
3.    example.metric=function(node){return
node.getMaxFamilyWidth();};
4.    var value=example.apply(sentence);
```

Finally, the width of the tree can be calculated in a similar manner, as presented in

Figure 16. The implementation of this metric is shown below:

```
1.    var example=new NodeMetric("Width of the tree");
2.    example.weight=function(node){return
node==node.getRoot();};
3.    example.metric=function(node){return node.getWidth();};
4.    var value=example.apply(sentence);
```

As demonstrated in the examples above, the developed API for calculating node-

based metrics using the proposed framework is generic enough to accommodate different

types of metrics beyond those specific examples. The developed metrics should be

determined based on the type of syntactical phenomena that need to be studied in each

case, and it is up to the researcher to identify what the proper metrics are to be

implemented.

3.6 Conclusion

This chapter presented a novel method for the quantification of rhetorical styles in

Classical and Imperial Attic oratory. A number of sentences were annotated syntactically

using the Arethusa framework through the Perseids ALDT 1.5 schema. Then a set of

node-based metrics was developed in order to parameterize quantifiably the detected syntactical attributes, and the implementation of the framework was done in javascript.

 The metrics were set against the backdrop of traditional philological analysis of syntax so as to determine quantifiably whether philological observations can actually be verified using computer-enhanced methods.

CHAPTER 4
Experimental results, Analysis, and Topological Haar Wavelets

4.1 Introduction

In this section I present the numerical results acquired in chapter 3 using Principal Component Analysis. Additionally, Haar wavelets are calculated so that the positional arrangement of the detected syntactical phenomena might also be determined. The purpose of the experiments presented in this chapter is to demonstrate how the proposed framework is tested on six particular authors by identifying certain metrics and applying them on a collection of treebanks. This process produces several numerical descriptors of each sentence, as I explained in the previous chapter, which can quantify syntactical construction. These numbers are then used as an input in a pattern analysis algorithm, namely Principal Component Analysis, to examine similarities between works, authors, and writing styles.

More specifically, section 1 presents the particular metrics that were set to quantify Atticism and explains their selection process as based on the identifiable syntactical patterns. Section 2 presents the results visualized with Principal Component Analysis and graphs and further explicates the affinities or lack thereof that can be noticed against the backdrop of traditional philological analyses. Finally, section 3 presents a novel method to determine the topology of each of the attributes that were tested through the metrics within the sentences. A weighting scheme is defined using Haar Wavelets to generate a set of features that capture both the linear topology of a sentence and the tree network topology of the corresponding syntactical tree.

4.2 Experimental Results

For the current study, nine node-based metrics were implemented and applied to the annotated sentences, using the presented framework, which are: 1) Percentage of leaves, 2) Percentage of tree height, 3) Percentage of tree width, and 4) Percentage of maximum family width, 5) Percentage of ATR (attributives), 6) Percentage of Verbal Attributives, 7) Percentage of Adjectival Attributives, 8) Percentage of nodes under ATR, and 9) Percentage of δέ COORD (coordination).

At this point it is pertinent that the reasoning behind the selection of the aforementioned criteria be explained. First of all, considering that this study was conducted on a relatively small corpus, in an attempt to produce trustworthy results, the metrics that were used were selected as global descriptors of the morphology of the sentence and are not prone to noise deriving from local syntactic variations. The succinctness or not of a sentence along with the types of words that are being used (attributives, coordinates, conjunctions that signify secondary clauses) as well as the number of leaves (nodes that do not have any dependents) can provide us with a concise apprehension of rhetorical style. The height of a syntactical tree can apprise us of the number of secondary clauses that an author uses. Additionally, considering the above parameter alongside the width of the tree, which furnishes the complexity of each individual sentence, can enhance our apprehension of syntactical complexity. Furthermore, attributives (ATR) constitute the complementary embellishments *par excellence* in a sentence. According to the Arethusa annotation system, ATR signifies an

adjective, an article, a relative participle, or the verb of a relative clause.[121] The difference between the above, which is to be derived from metrics 6 and 7, is that a simple adjective, article, or even participle simplifies and shortens the sentences significantly, whereas the verb would be the tree node upon which a number of other nodes will depend. The percentage of family width assists the researcher in determining whether there is a particular clause that bears the meaning of the sentence, whether that is the main clause or a secondary clause that is meant to capture the audience's attention or gravitate the focus of the sentence or even the whole oration elsewhere. Finally, δέ is a major coordination. Based on my readings of those texts, I noticed that the coordination does not seem to appear in the same frequency in Classical Attic oratory as in Imperial authors and particularly Lucian, the 2nd-century CE Syrian orator who wrote in Greek. A simple observation of the annotated trees indicates that his sentences become infinitely more complex as the coordination does not only govern the whole sentence, thus being in the ROOT position, but they are also used in other positions within the sentences governing other minor parts. Therefore, that particular last metric was set in order to examine the standing of this observational supposition. One might argue that the above metrics could very well describe Greek or that there is no differentiation between Attic and Hellenistic. However, my intention is not to differentiate between Attic and non-Attic. Instead my analysis is based on the contingency that all authors strive to be as Attic as possible. Therefore, what I wish to explore is whether there are differences between Classical Attic and Imperial Attic orators, or they latter achieved the perfect *mimesis*. Subsequently my

---

[121] Bamman and Crane (2008); For more specific annotation guidelines see also
https://github.com/PerseusDL/treebank_data/blob/master/AGDT2/guidelines/Greek_guidelines.md (page visited February 20, 2017)

focus is not the attributes but whether there are affinities or lack thereof between those authors against the backdrop of those attributes.

Using the above metrics, we are furnished with 9 numbers for each of the annotated sentences. So each sentence is transformed into a 9-dimensional feature vector, i.e. 9 numbers, as the metrics attempt to extract features from each sentence (See table below). In other words we now have a multidimensional space, and each feature vector is a point in that space. So we are furnished with the coordinates of each sentence in that space.

0.4000	0.3700	0.2000	0.1300	0.2700	0	0.0300	0	0.4000
0.7500	0.2500	0.7500	0.7500	0.2500	0	0	0	0.2500
0.5000	0.3300	0.2800	0.2200	0.0600	0	0	0.1100	0.0600
0.4400	0.1600	0.2400	0.0800	0.1800	0	0.0800	0.0400	0.3500
0.4700	0.2700	0.3300	0.2700	0.0700	0	0	0	0.0700
0.3500	0.3200	0.1800	0.0900	0.1800	0.0300	0.0300	0.0900	0.3400
0.5600	0.4400	0.3300	0.3300	0.1100	0	0	0	0.1100
0.4700	0.2400	0.3100	0.1100	0.3800	0.0500	0.0500	0.1300	0.6500
0.4700	0.1600	0.2400	0.1600	0.2100	0	0	0.0300	0.2100
0.5000	0.1500	0.2500	0.1000	0.1900	0.0600	0.0400	0.0200	0.3300
0.5000	0.4100	0.2700	0.1400	0	0	0	0.0500	0
0.5800	0.2500	0.4200	0.3300	0.2500	0	0	0	0.2500
0.4700	0.1500	0.2600	0.1300	0.2100	0	0.0200	0.0900	0.2800
0.4600	0.3800	0.3100	0.3100	0.3800	0	0	0	0.6200
0.5000	0.2500	0.2500	0.1400	0.2500	0.0400	0	0.0400	0.3900
0.4400	0.3300	0.4400	0.3300	0.2200	0	0.1100	0	0.3300
0.5000	0.2100	0.3600	0.2900	0.2900	0	0	0	0.4300
0.5800	0.2500	0.4200	0.4200	0.1700	0	0	0	0.1700
0.6000	0.4000	0.6000	0.6000	0	0	0	0.2000	0
0.4400	0.2200	0.2600	0.1500	0.1100	0	0.0400	0	0.1500
0.5800	0.4200	0.4200	0.4200	0	0	0	0.0800	0
0.5500	0.1900	0.2600	0.2600	0.2900	0.0300	0.0600	0.0300	0.6100
0.4800	0.2300	0.1900	0.1900	0.1900	0	0	0	0.1900
0.5300	0.1600	0.3400	0.1600	0.1600	0	0.0300	0.0500	0.1600
0.5000	0.1500	0.1800	0.0600	0.1300	0.0100	0	0.0200	0.2900
0.4800	0.2000	0.4400	0.2000	0.0400	0	0	0.0400	0.0400
0.5500	0.3600	0.4500	0.4500	0.2700	0.0900	0.0900	0	0.2700
0.5500	0.3600	0.3600	0.3600	0.1800	0	0.0900	0	0.1800
0.4300	0.3300	0.2400	0.1400	0.2900	0.1000	0	0	0.6700
0.4900	0.2300	0.1300	0.0900	0.1600	0	0.0100	0	0.1800
0.4200	0.2300	0.1600	0.0800	0.2500	0.0300	0.0200	0.0500	0.6100
0.4300	0.2000	0.2500	0.1200	0.2200	0	0.0200	0.0400	0.3100
0.3500	0.3000	0.2600	0.1300	0.2600	0.0500	0	0	0.3600
0.4400	0.3300	0.4400	0.4400	0.4400	0.2500	0	0	0.7500
0.5300	0.1800	0.2600	0.1100	0.2100	0.0300	0.0300	0	0.2400
0.5700	0.3600	0.3600	0.3600	0.1400	0	0.0700	0	0.1400
0.4400	0.2800	0.3600	0.1200	0.2400	0.0400	0	0.0400	0.3300
0.4700	0.1400	0.2300	0.0600	0.1100	0.0100	0.0500	0.0100	0.3500
0.4700	0.3000	0.1700	0.1700	0.1300	0.0300	0.0300	0	0.5000
0.5300	0.2100	0.4200	0.3200	0.1100	0	0	0.0500	0.1100
0.5500	0.2300	0.2000	0.1100	0.1400	0.0200	0.0200	0.0200	0.5900
0.3600	0.4500	0.2700	0.2700	0.3600	0.1000	0.1000	0	0.6000
0.5000	0.2500	0.2900	0.1400	0.0400	0	0	0.0700	0.0400

Fig. 1 A representative sample of the 9-dimensional feature vectors computed from a sample of the annotated sentences. Each row corresponds to one sentence and each column to a different metric value.

Even though this type of enumeration of the sentence features brings us closer to forming an objective quantification of rhetorical styles, it is still not feasible to extract any particular information for a large number of sentences by simple manual observation. One way to reduce the dimensionality of the feature space is the Principal Component

Analysis that calculates the eigenaxes of the feature space, which are described in the form of vectors known as eigenvectors. In our case, each eigenvector transforms a feature vector into a number by weighting the 9 features with the corresponding 9 components of the eigenvectors. So for the current calculations we have:

$e_1 x f_1 + e_2 x f_2 + e_3 x f_3 + e_4 x f_4 + e_5 x f_5 + e_6 x f_6 + e_7 x f_7 + e_8 x f_8 + e_9 x f_9$, where e_i and f_i are the components of the eigen- and feature- vectors respectively. The principal eigenvector corresponds to the orientation with the largest data scatter in the 9-dimensional feature space.

The previous equation maps each sentence to one number, which is the coordinate of the sentence along the principal eigenvector. Continuing with this type of computations, the second eigenvector as well as the tertiary are also significant with respect to the variation of the data. Therefore, instead of the original 9 features that "describe" each sentence, we are reducing the dimensionality to as many as the eigenvectors that we consider worth examining.

In this experiment the point cloud was processed using PCA to map the data onto the 2D plane of the largest spread as shown in Figures 3 and 4. For the PCA to work, we first compute the covariance matrix of the raw data. In our case, we have 9-dimensional feature vectors; so there will be 9x9 pairs of features and 9x9 covariances in the form of a 9x9 covariance matrix. By applying PCA to the covariance matrix the following 9 eigenvectors were obtained with the corresponding eigenvalues as shown on the table below. The last two eigenvectors correspond to the principal and secondary eigenaxes with corresponding eigenvalues of 3.0209 and 1.7671.

```
vec =

  -0.0774   -0.2593    0.6642    0.0861   -0.0187    0.3451    0.3941    0.2492   -0.3760
  -0.1992   -0.1846    0.3834   -0.0059    0.3059   -0.3446   -0.7194    0.1898   -0.1156
  -0.6286    0.1994   -0.4509   -0.0786    0.1042    0.1042    0.0387    0.3171   -0.4814
   0.7470    0.0830   -0.2102   -0.0612    0.1289    0.0229   -0.1251    0.3571   -0.4762
  -0.0069   -0.6072   -0.2191   -0.4481    0.0751   -0.0558    0.1681    0.4647    0.3597
  -0.0021   -0.1844   -0.1911    0.5507   -0.0596    0.6167   -0.3617    0.2196    0.2515
   0.0054    0.1176   -0.0227    0.6143    0.2895   -0.4787    0.3675    0.3551    0.1851
   0.0310   -0.0076   -0.0347   -0.0894    0.8854    0.3034    0.1143   -0.3106    0.0655
   0.0024    0.6599    0.2795   -0.3054    0.0415    0.2147   -0.0530    0.4325    0.3944


val =

   0.0681        0        0        0        0        0        0        0        0
        0   0.1723        0        0        0        0        0        0        0
        0        0   0.3078        0        0        0        0        0        0
        0        0        0   0.5283        0        0        0        0        0
        0        0        0        0   0.8973        0        0        0        0
        0        0        0        0        0   1.0034        0        0        0
        0        0        0        0        0        0   1.2348        0        0
        0        0        0        0        0        0        0   1.7671        0
        0        0        0        0        0        0        0        0   3.0209
```
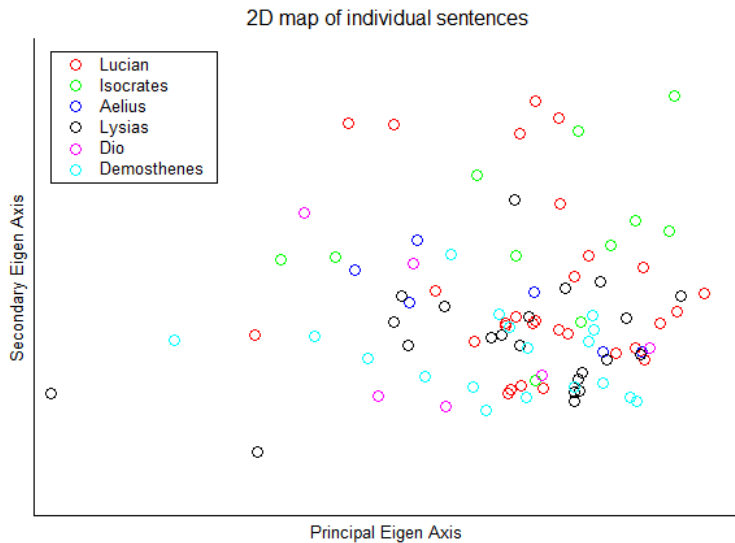
Fig. 2 Eigenvectors and eigenvalues

The plane of the largest spread was computed using the principal and secondary eigenaxes calculated by the PCA. The plots below clearly furnish the affinities or lack thereof between the discussed orators.

Fig. 3 Plot of the sentence dataset on the plane of the two dominant eigenvectors. Each sentence is represented by one point (circle) in this plot.

116
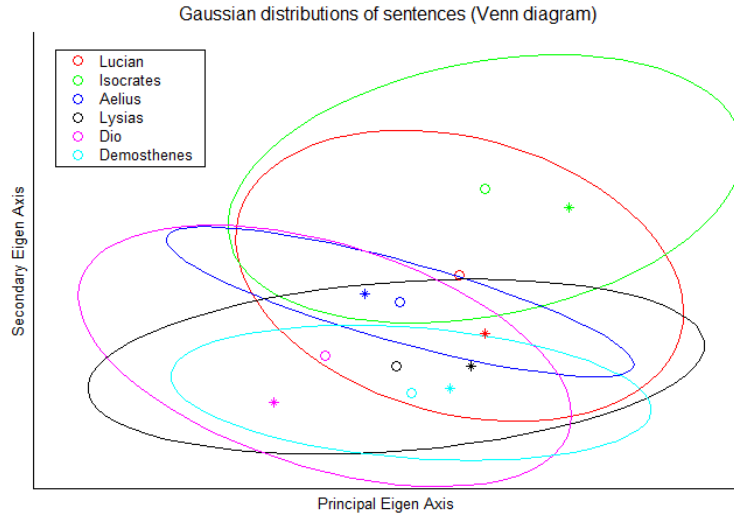
Fig. 4 Visualization of the point set of Fig.1 as Gaussian distributions. The distribution of the sentences of each author is depicted as an ellipse. The center of each distribution is marked by a circle, and the median is marked by an asterisk.

4.3 Data Visualization

In this section, the plots present a visual comparison of the authors, using as parameters the primary and secondary eigenvectors. Additionally, the labels of each plot along the x and y axes show the contribution of each metric to the cosrresponding eigen axes. The three metrics with the biggest contribution are shown in each plot. This helps us understand which features better separate the data in each eigenplane. I have added the dominant eigneplanes of each individual author so as to determine affinities and lack thereof from each individual author's perspective.
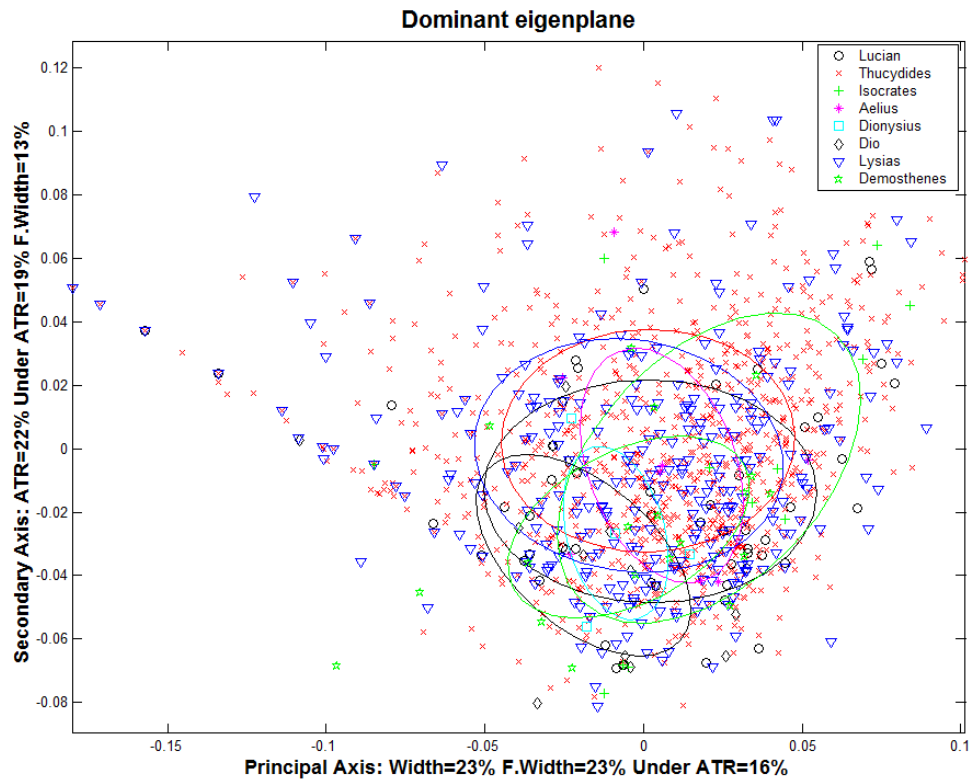
Fig. 5 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane.
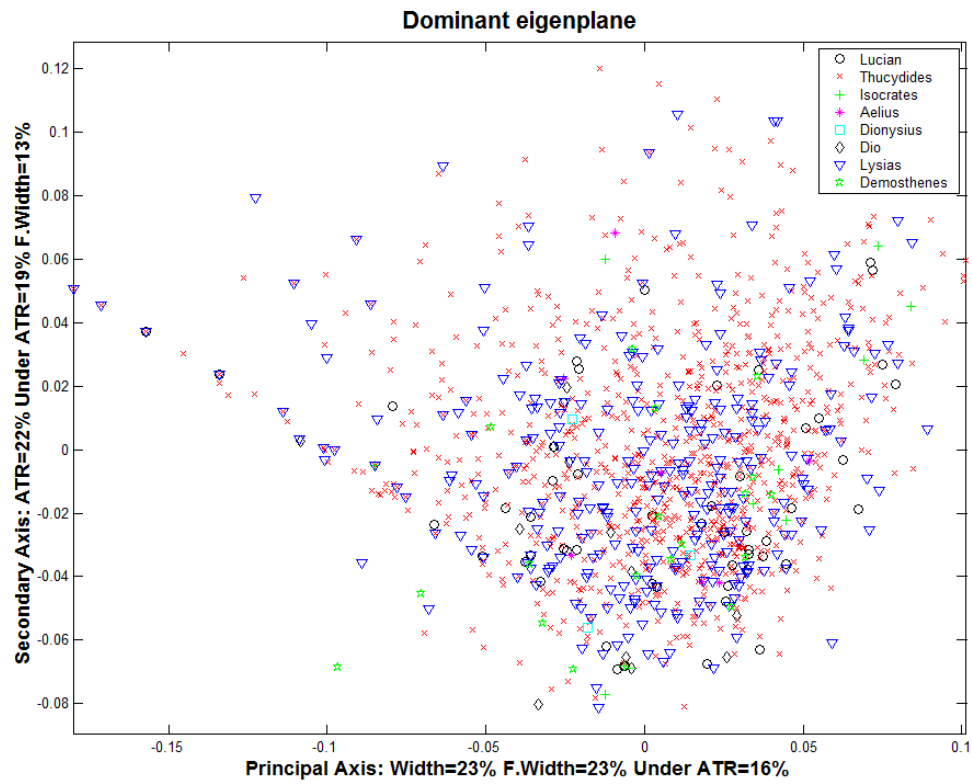
Fig. 6 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane calculated from the entire dataset.
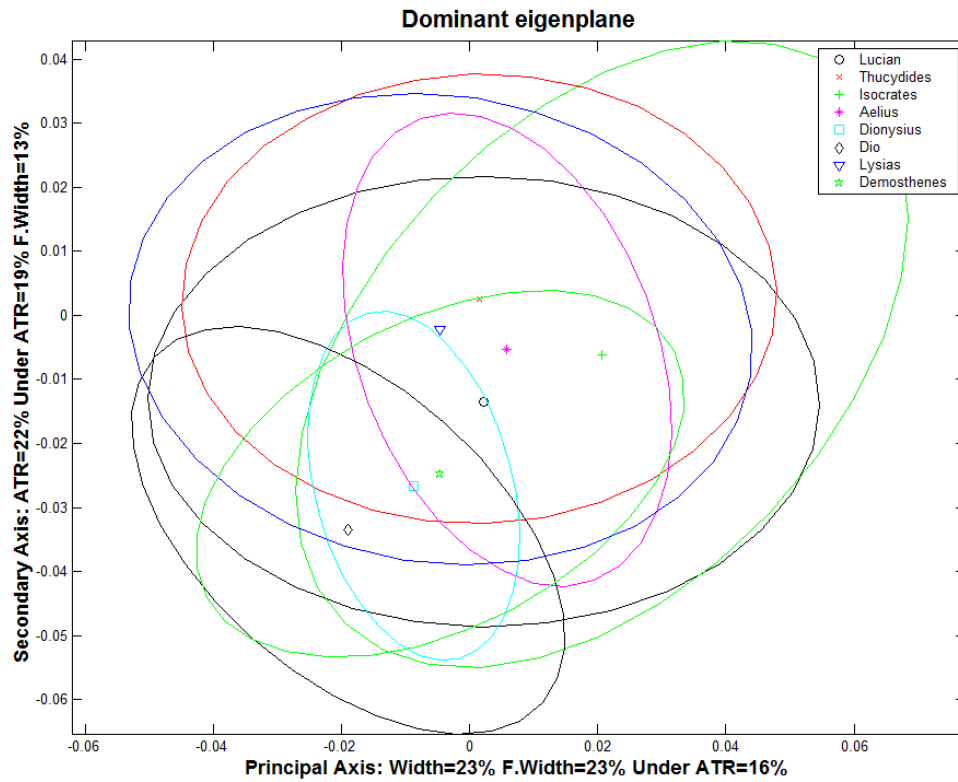
Fig. 7 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane.

There are three different viewpoints from which to examine and interpret the above plots. Starting with individual orators, the plots indicate affinities between Lysias and Lucian. The latter proclaims in several places in his work that he opts and strives for Attic writing style. His dialect is distinguished for its Attic purity, even though the orator dates in the second century CE. Therefore, the sentence plot is an attestation of the close proximity between Lysias and Lucian. Isocrates is the other ellipse that coincides with the aforementioned authors. Based on the analysis presented in Section 2, Isocrates, albeit less succinct, is still regarded for the cleanness of his expression. On the other hand, Dionysius's of Halicarnassus explication of the style of Demosthenes as a perfect mixture of simple and florid expects the locality of the orator in the figure. Finally, Dio converges

significantly with Demosthenes and Isocrates, which can be explained when one considers their intended audiences and the fact that they had clearly politicized their rhetorical practice. Finally, Aelius, having resorted to a more convoluted form of expression, employs Attic constructions. However, he does not relate closely with the majority of the other orators.

The second viewpoint from which to consider the orators is in groups—the Classical Attic and the Imperial orators. It is interesting to note that Demosthenes and Isocrates do not coincide, but Lysias is the connecting ellipse between the two. This showcases that, albeit Classical Attic orators, they have distinct writing styles. They are, however, undeniably Attic, and the affinities with Lysias, the quintessential Atticisist, prove that they share common traditional elements. Close examination of the Imperial orators proves that they also have distinct similar elements. All three ellipses coincide considerably, which would mean that the revived Atticism opted for standardized schemas for self-validation. In the future, isolating certain constructions and determining whether they are particular to Atticism in general, Classical, or Imperial Atticism will further this analysis.

The third approach to the plots is the apparent unity of Atticism. It should be considered that regardless of stylistic differences and the ultimate attempt to establish a syntactical territory for each one of these authors, hence parameterizing Atticism, a major point that is obvious through the plot is that there is no author who is entirely disconnected from the group, thus reinforcing the idea that there was indeed an Attic framework which was first established by the 5th- and 4th-century Attic orators and was then recanonized and revived in Imperial times. Additionally, we should not discount the

possibility that the metrics set for this study may have not be adequately discriminating. On the one hand, we can establish that Atticism is a formalized phenomenon, but we also need to define different metrics, pertaining to certain syntactical constructions, that could perhaps be more descriptive of each author. Consequently, the structural analysis of Atticism—Classical and Imperial—will be further dissected, and our understanding will be more percipient.
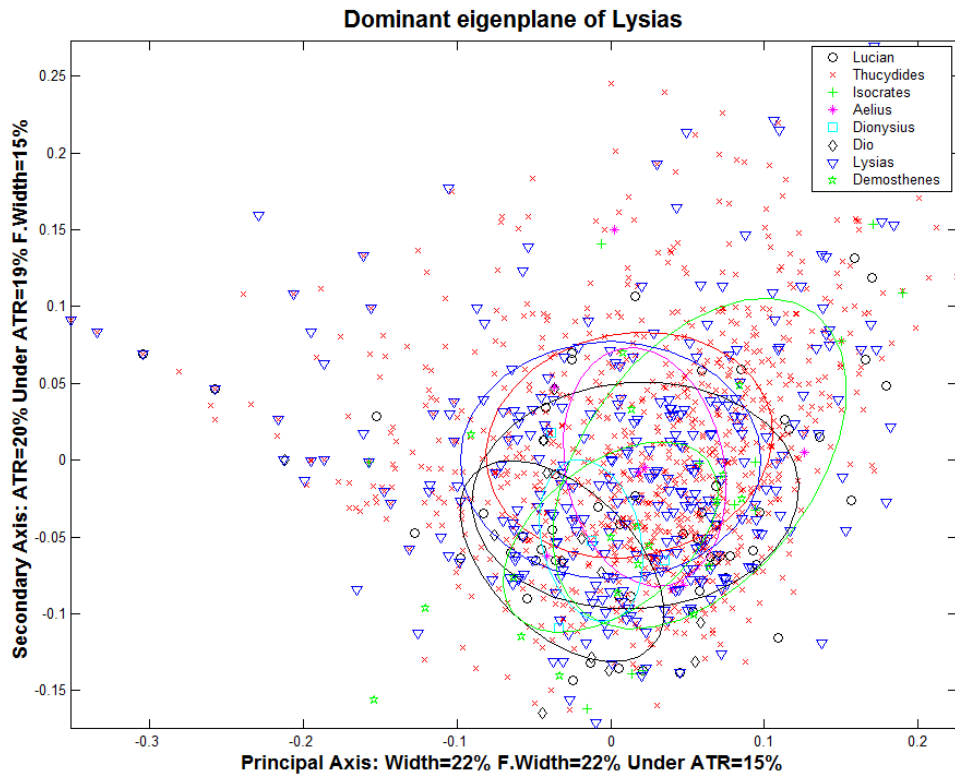
Fig. 8 This figure shows the feature vectors from the sentences of each author and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Lysias.
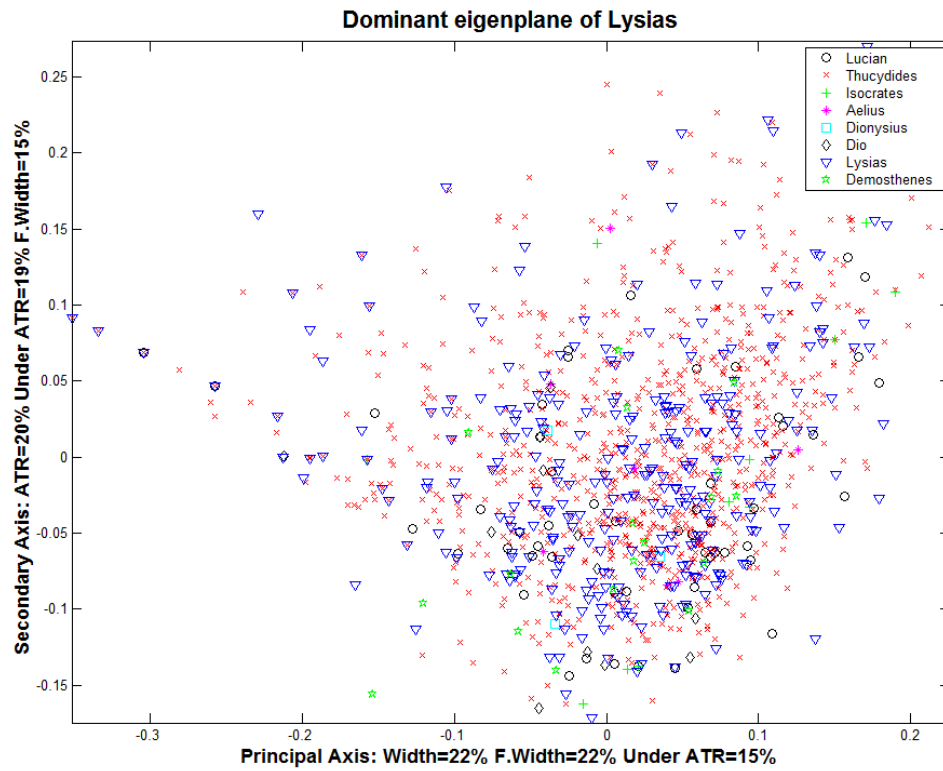
Fig. 9 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Lysias.
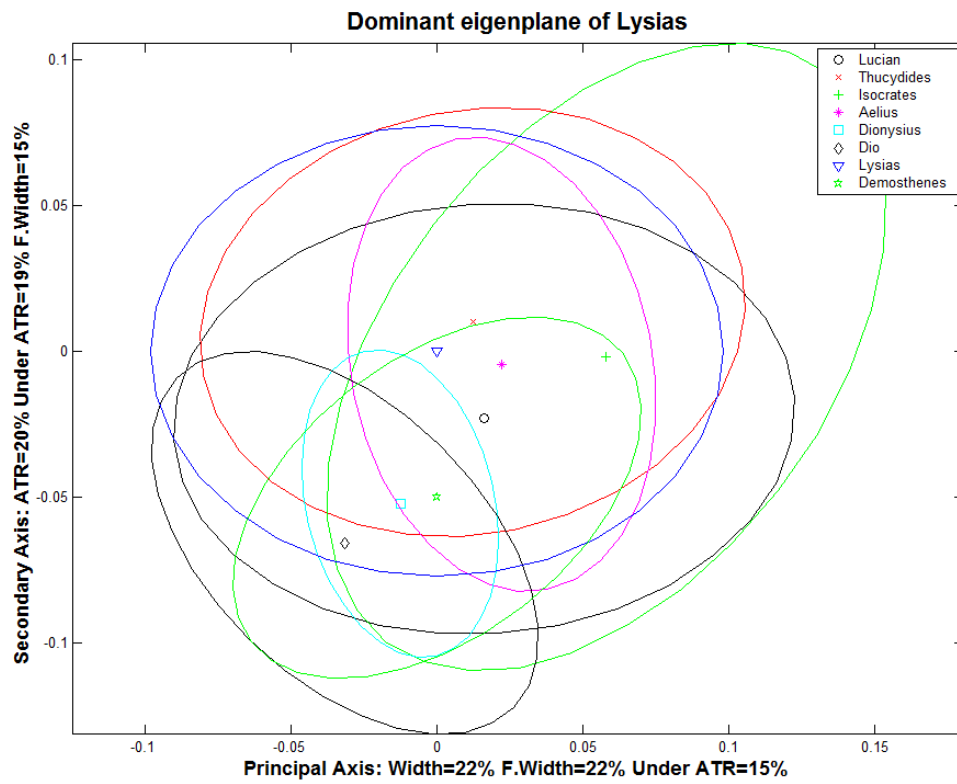
Fig. 10 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Lysias.

Fig. 11 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Isocrates.

Fig. 12 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Isocrates.

Fig. 13 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Isocrates.

Fig. 14 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Demosthenes.
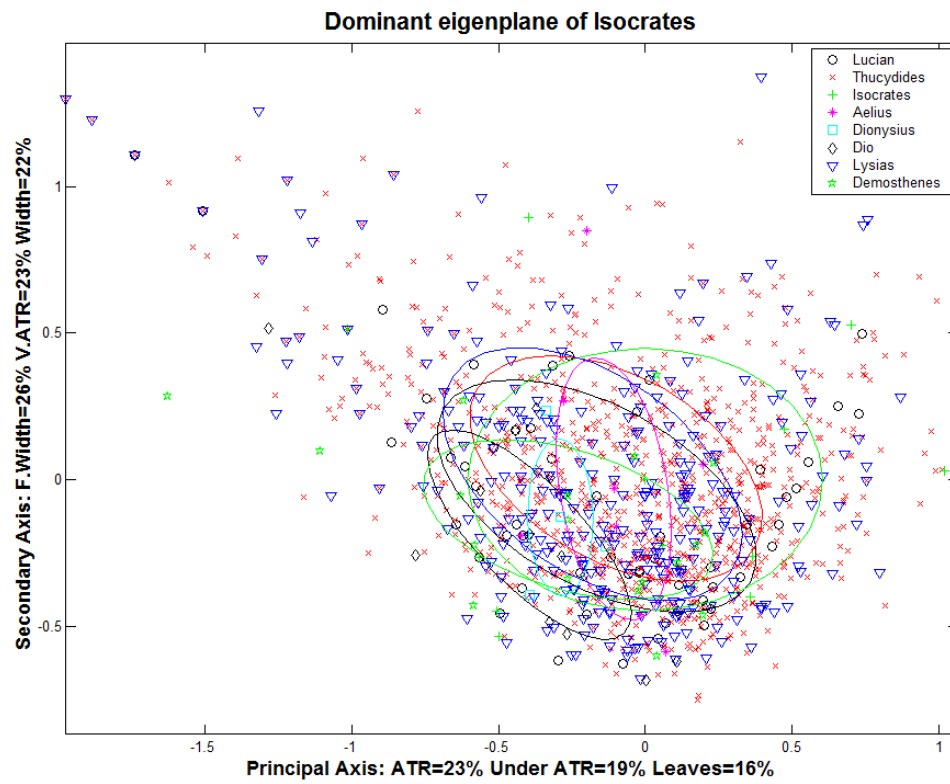
Fig. 15 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Demosthenes.
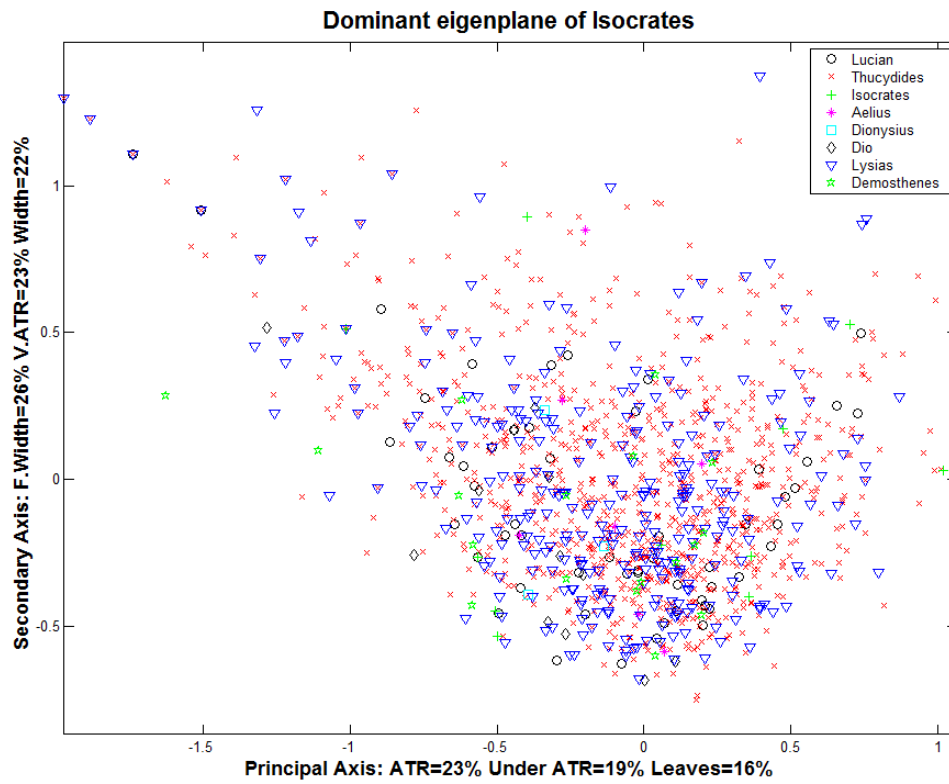
Fig. 16 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Demosthenes.
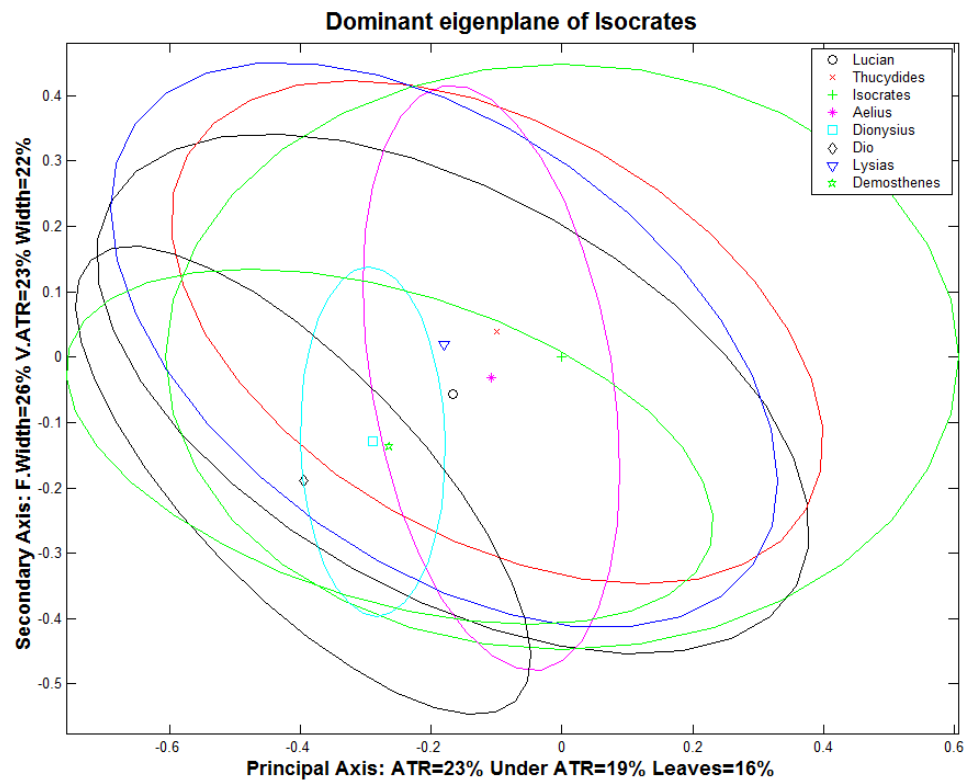
Fig. 17 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Dio.

Fig. 18 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Dio.
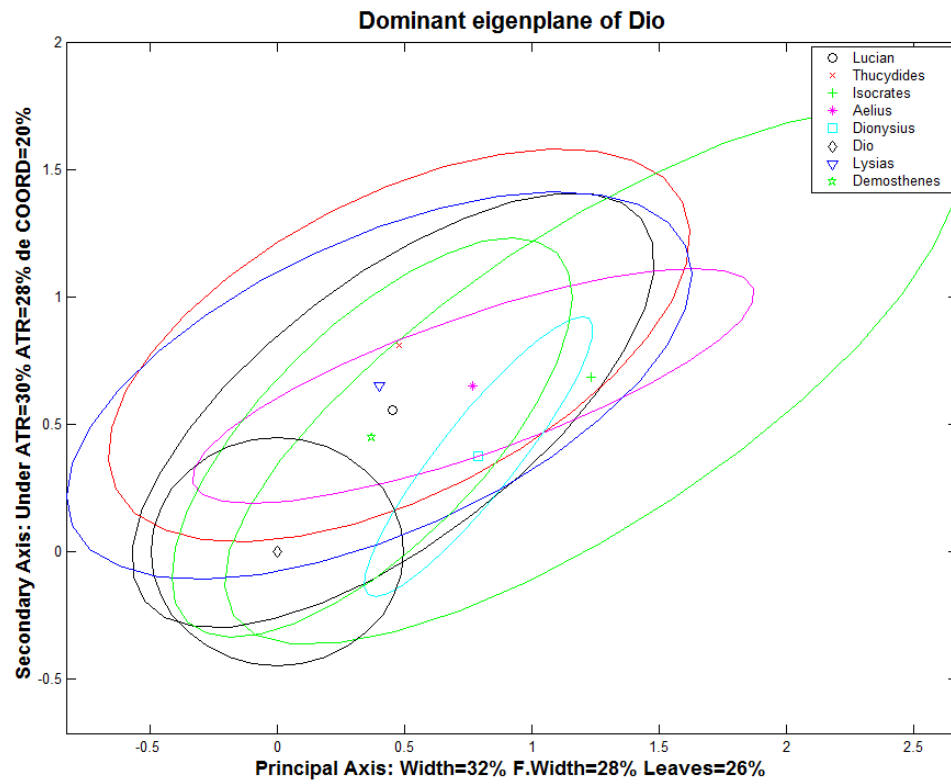
Fig. 19 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Dio.
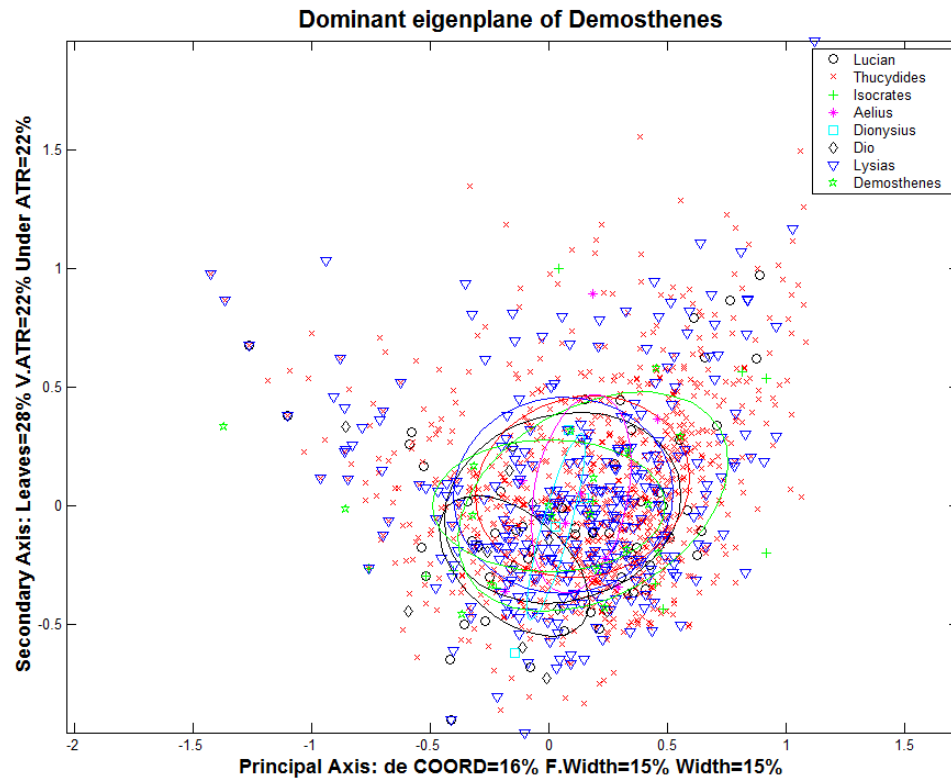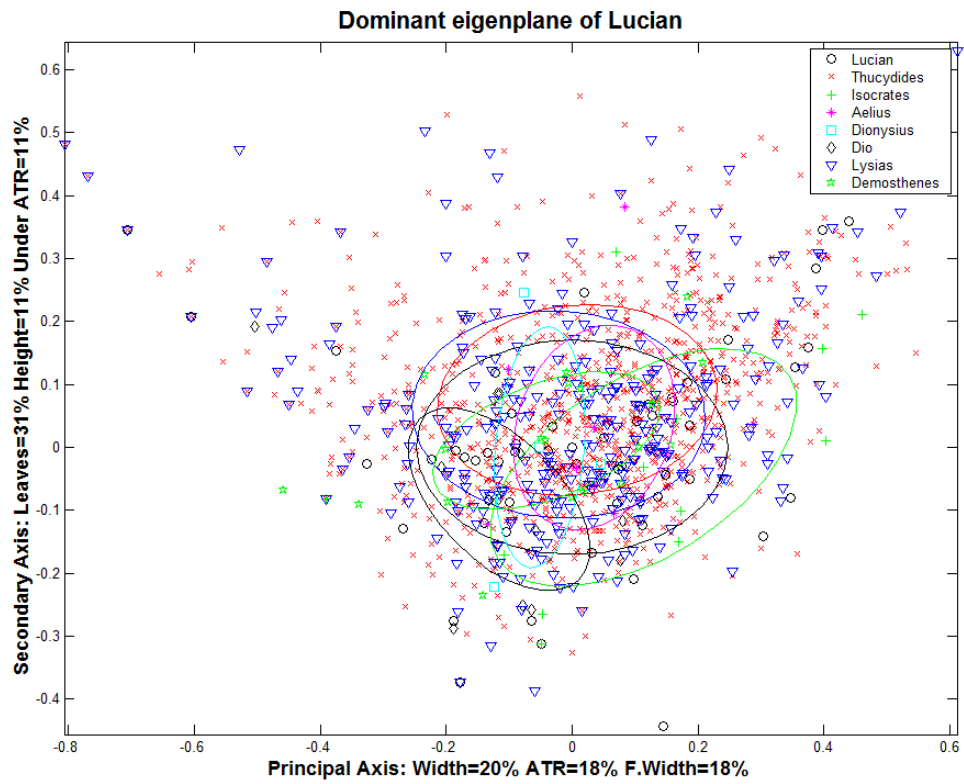
Fig. 20 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Lucian.
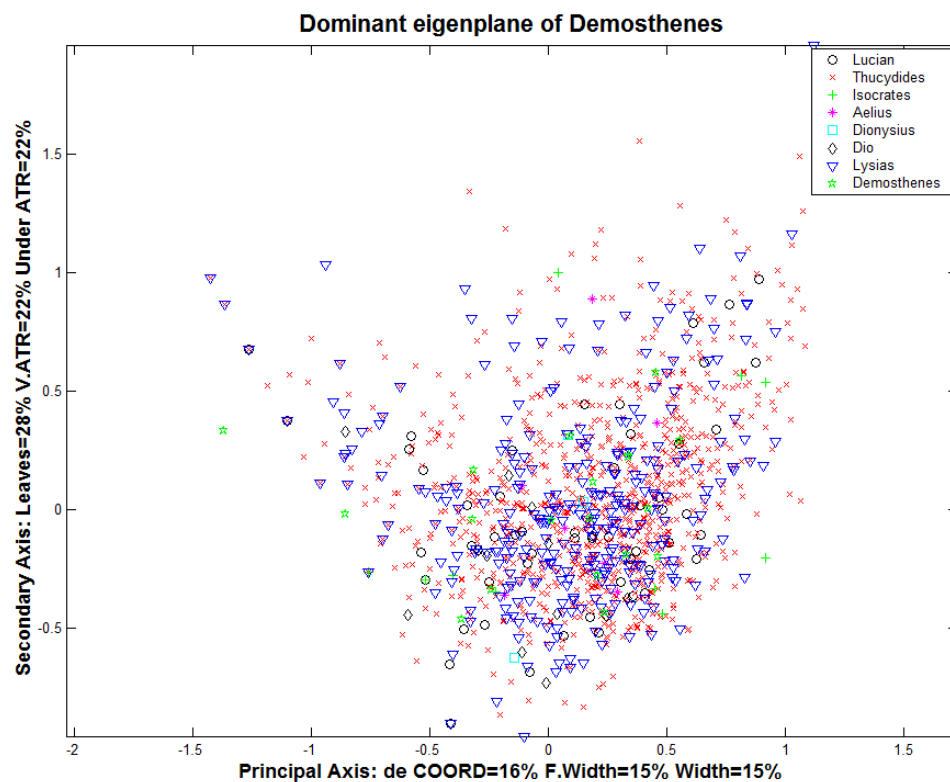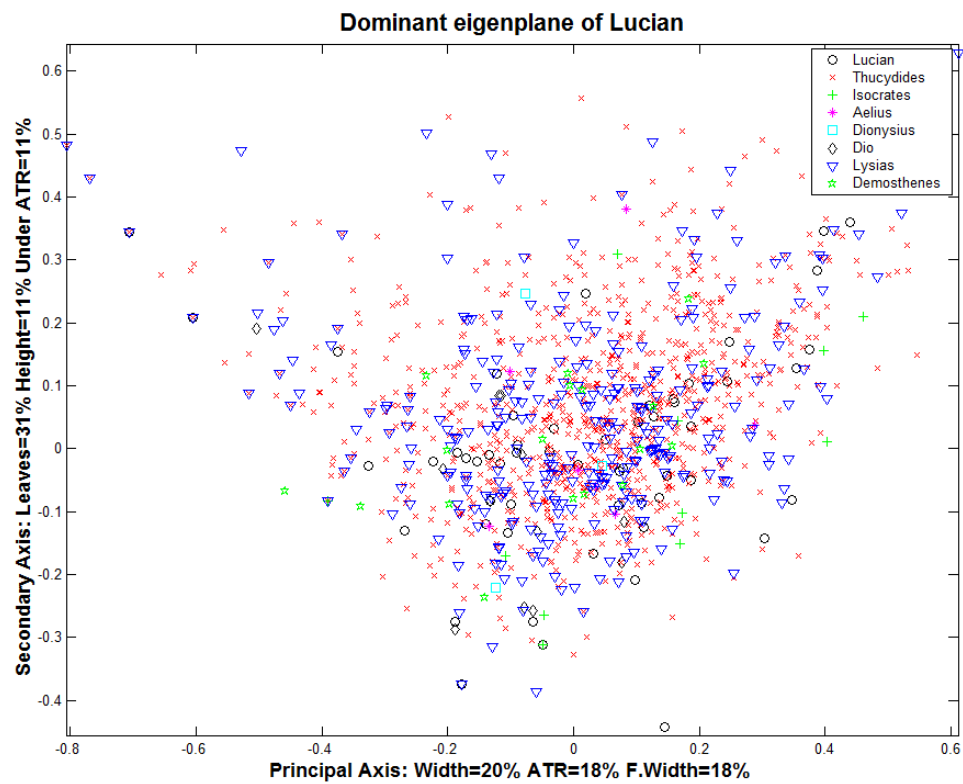
Fig. 21 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Lucian.
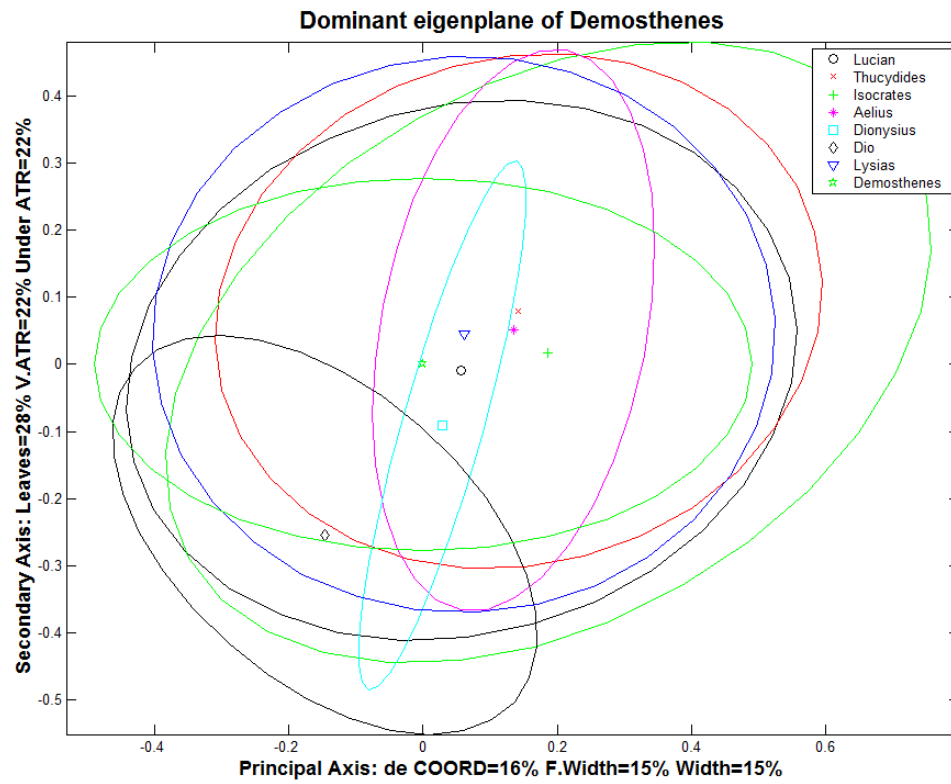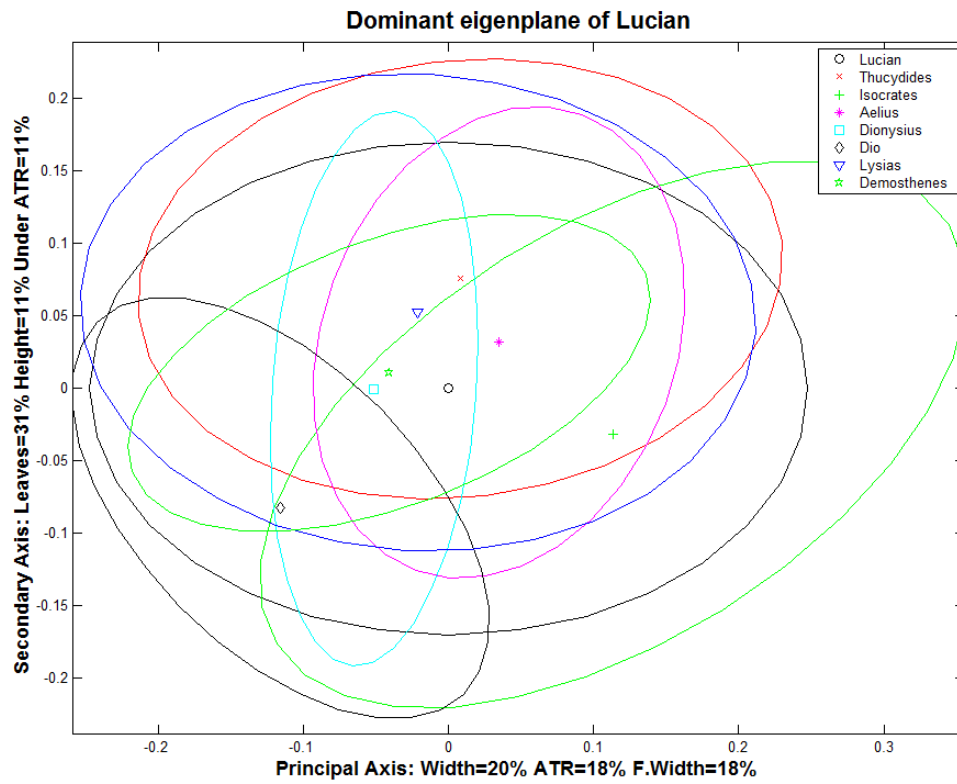
Fig. 22 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Lucian.
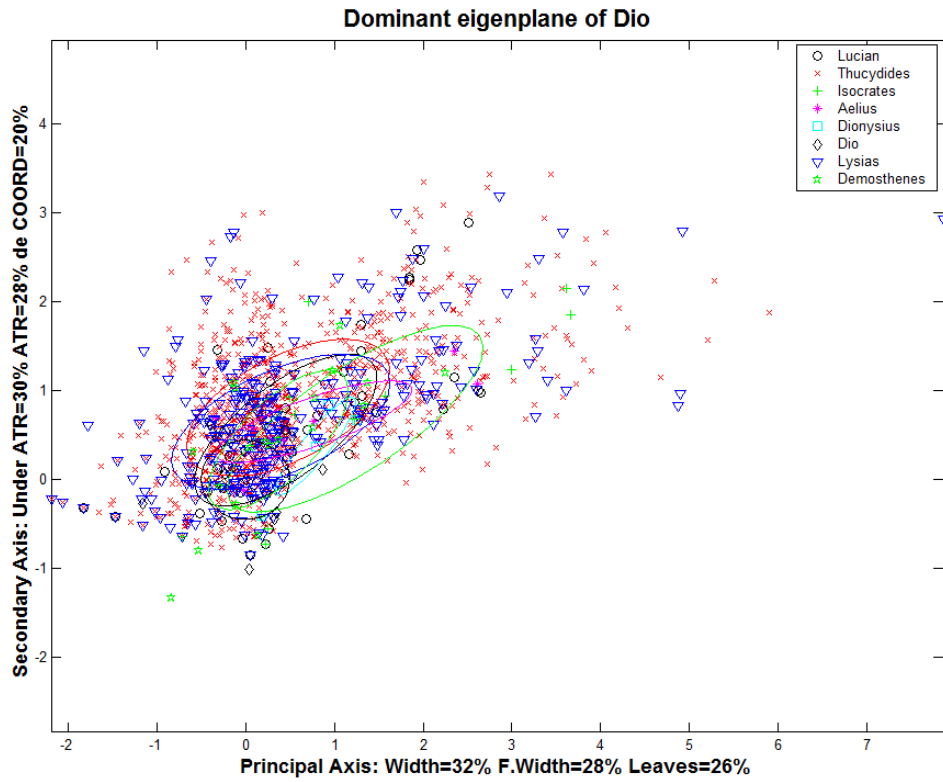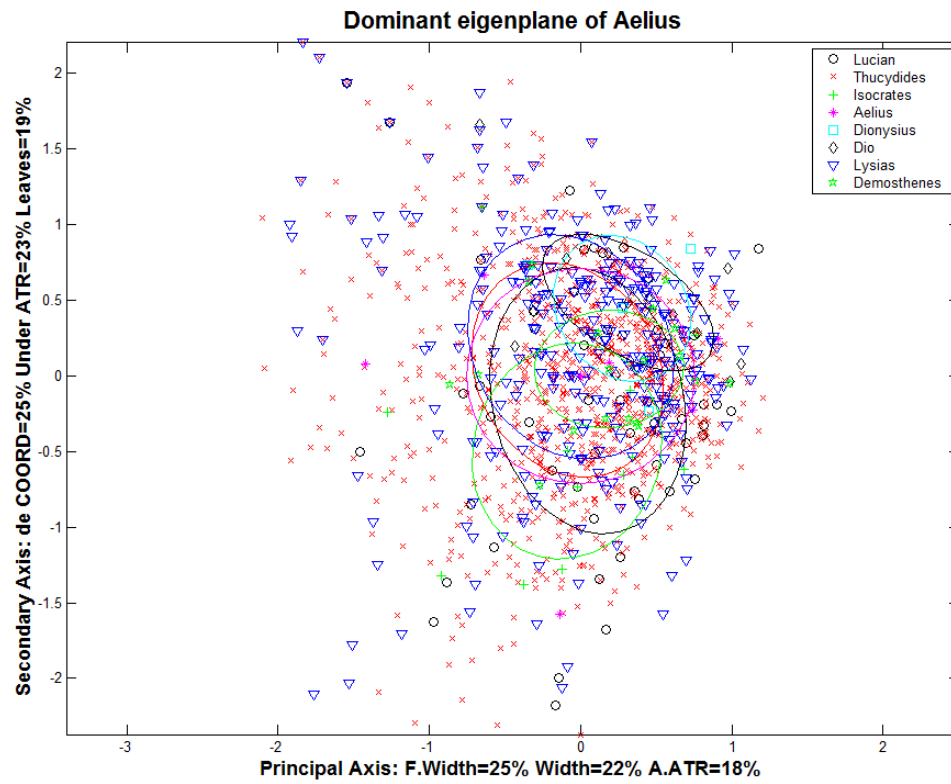
Fig. 23 This figure shows the feature vectors from the sentences of each author calculated from the entire dataset and the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Aelius Aristides.
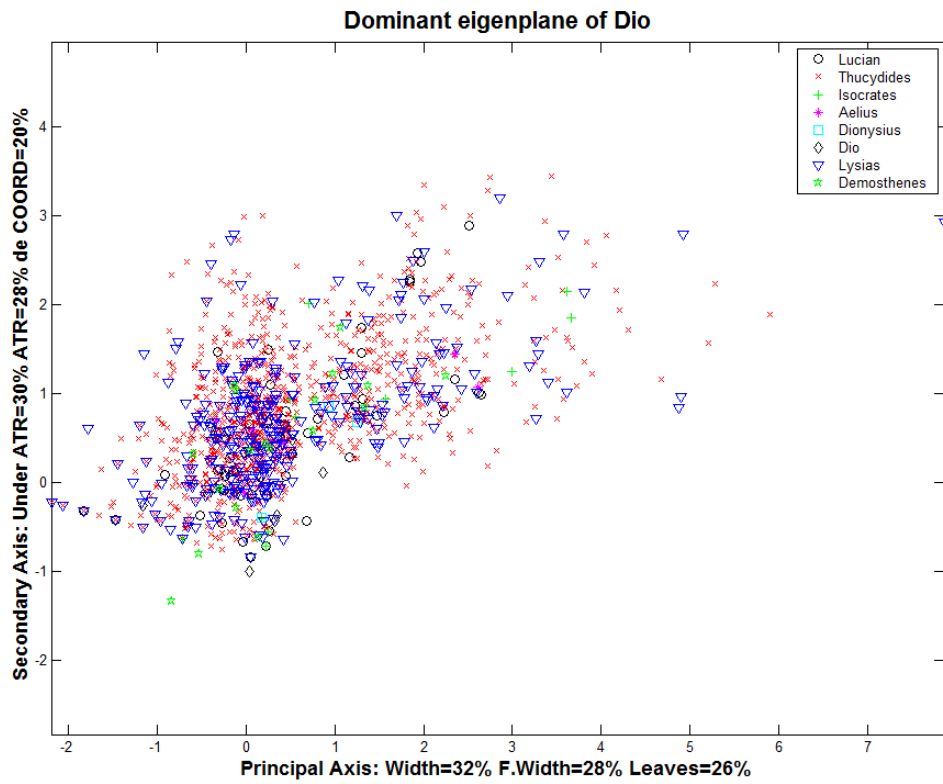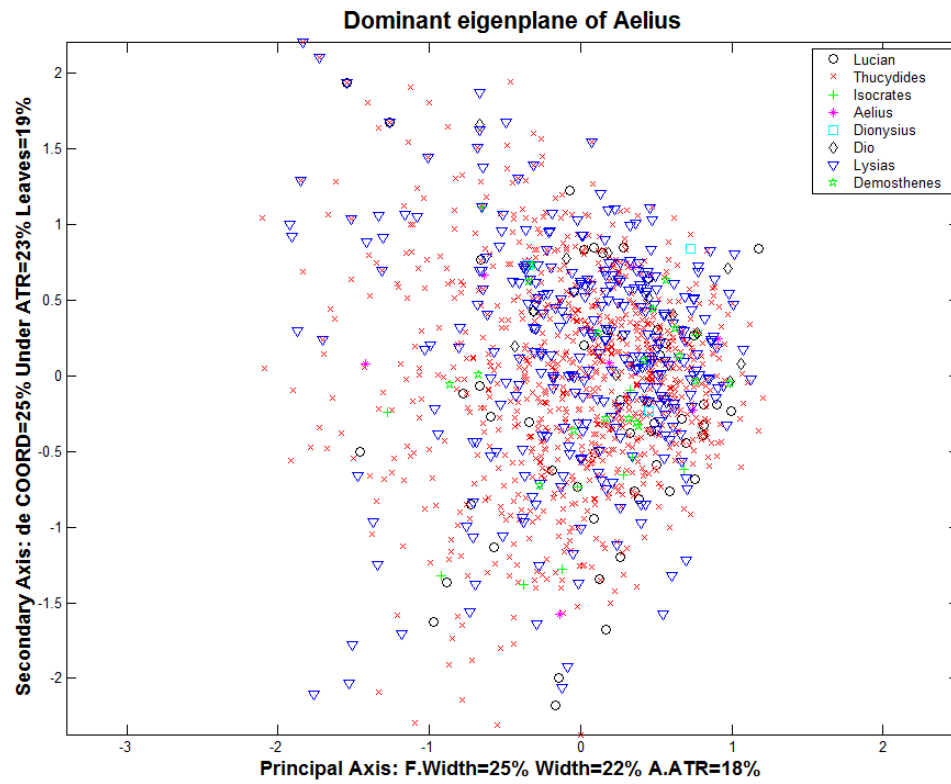
Fig. 24 This figure shows the feature vectors from the sentences of each author on the dominant eigenplane of Aelius Aristides.
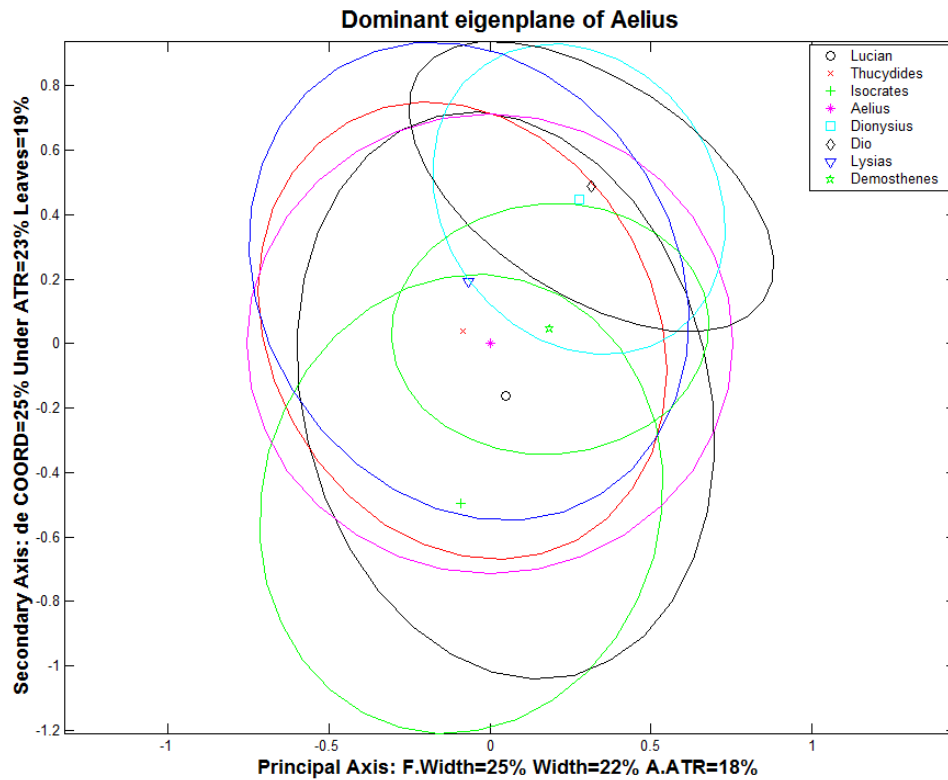
Fig. 25 This figure shows the plot of the mean feature vector and standard deviation shown as an ellipse for all authors on the dominant eigenplane of Aelius Aristides.

Discussion of the plots

A close study of the plots furnishes us with interesting observations.

1. In the dominant eigenplane of Demosthenes (figs. 14, 15, 16) the principal axis is based on the family width and the general width. Looking at the plot, we notice that Demosthenes displays close affinity to Lucian (figs. 20, 21, 22), whose principal axis is also influenced significantly by the family width and the general width. In both plots the two authors are placed close together.

Fig. 26 Demosthenes, *Against Conon* 1

Fig. 27 Lucian, *Zeuxis* 1

The annotated sentences above (figs. 26, 27) constitute representative examples of those authors. Even from a philological point of view, it is obvious that the width

140

of the sentences and the family width of certain nodes contribute to the complexity of their styles and the stylistic intricacy of the Tree.

2. Another point of interest is that Lucian has the attributive metric (ATR) and the dependents under the attributive respectively both on the principal and the secondary axes (fig. 22). This locality indicates more composite and embellished nodes that also contribute to the elongation of the sentences. On the same note, Demosthenes seems to be exhibiting variability in the dependents of the attributive nodes and the verbal attributives, which indicate relative clauses (fig. 16). On both the above indicators, Demosthenes and Lucian display close affinity.

3. Regarding Demosthenes, Dionysius of Halicarnassus observes that he does not closely imitate anyone in particular, but he does incorporate in his speeches elements from all orators. Therefore, observing the eigenplanes, his variability in placement and his proximity to and distance from all other orators prove exactly that point (figs. 15, 16, 17). He is Attic, but he has modulated characteristics and styles and reformulated his personal rhetorical schema that is (un)like anyone else's.

τοιαύτην δὴ καταλαβὼν τὴν πολιτικὴν λέξιν ὁ Δημοσθένης οὕτω κεκινημένην ποικίλως, καὶ τηλικούτοις ἐπεισελθὼν ἀνδράσιν ἑνὸς μὲν οὐθενὸς
ἠξίωσε γενέσθαι ζηλωτὴς οὔτε χαρακτῆρος οὔτε ἀνδρός, ἡμιέργους τινὰς ἅπαντας οἰόμε ος εἶναι καὶ ἀτελεῖς, ἐξ ἁπάντων δ' αὐτῶν ὅσα κράτιστα καὶ χρησιμώτατα
ἦν, ἐκλεγόμενος συνύφαινε καὶ μίαν ἐκ πολλῶν διάλεκτον ἀπετέλει, μεγαλοπρεπῆ λιτήν, περιττὴν ἀπέριττον, ἐξηλλαγμένην συνήθη, πανηγυρικὴν ἀληθινήν, αὐστηρὰν ἱλαράν, σύ ντονον ἀνειμένην, ἡδεῖαν πικράν, ἠθικὴν παθητικήν, οὐδὲν διαλλάττουσαν τοῦ μεμυθευμ ένου παρὰ τοῖς ἀρχαίοις ποιηταῖς Πρωτέως, ὃς ἅπασαν
ἰδέαν μορφῆς ἀμογητὶ μετελάμβανεν, εἴτε θεὸς ἢ δαίμων τις ἐκεῖνος ἄρα ἦν παρακρουόμ ενος ὄψεις τὰς ἀνθρωπίνας εἴτε διαλέκτου ποικίλον τι χρῆμα ἐν ἀνδρὶ σοφῷ, πάσης ἀπατ ηλὸν ἀκοῆς, ὃ μᾶλλον ἄν τις εἰκάσειεν, ἐπειδὴ ταπεινὰς καὶ ἀσχήμονας ὄψεις οὔτε θεοῖς οὔτε δαίμοσι προσάπτειν ὅσιον. ἐγὼ μὲν <δὴ> τοιαύτην τινὰ δόξαν ὑπὲρ τῆς Δημοσθένο

υς λέξεως ἔχω καὶ τὸν χαρακτῆρα τοῦτον ἀποδίδωμι αὐτῷ τὸν ἐξ ἁπάσης μικτὸν ἰδέας. (Dionys. *Dem*. 8)

Thus political oratory had gone through a variety of changes when Demosthenes came on the scene. He found himself following in the footsteps of some illustrious men, but refused to make any single orator or any single style his model, for he considered every one to be incomplete and imperfect. Instead he selected the best and most useful elements from all of them, weaving them together to make a single, perfect, composite style embracing the opposite qualities of grandeur and simplicity, the elaborate and the plain, the strange and the familiar, the ceremonial and the practical, the serious and the light-hearted, the intense and the relaxed, the sweet and the bitter, the sober and the emotional. It thus has a character not at all unlike that of Proteus as portrayed by the mythological poets, who effortlessly assumed every kind of shape, being either a god or superhuman, with the power to vary his speech and so beguile every ear: the latter alternative seeming the more likely, since it is irreverent to attribute mean and unbecoming appearances to gods and superhuman beings. This, then, is my opinion of Demosthenes's diction, and I ascribe to him a style which s a mixture of every form.

4. Another noticeable characteristic that appears on Lucian's eigenplane is the height of his trees (figs. 20, 21, 22).

I am attaching representative annotated trees to highlight the contribution of their height, as it is a significant indicator of his complexity and the construction of his sentences (figs 28, 29, 30, 31).
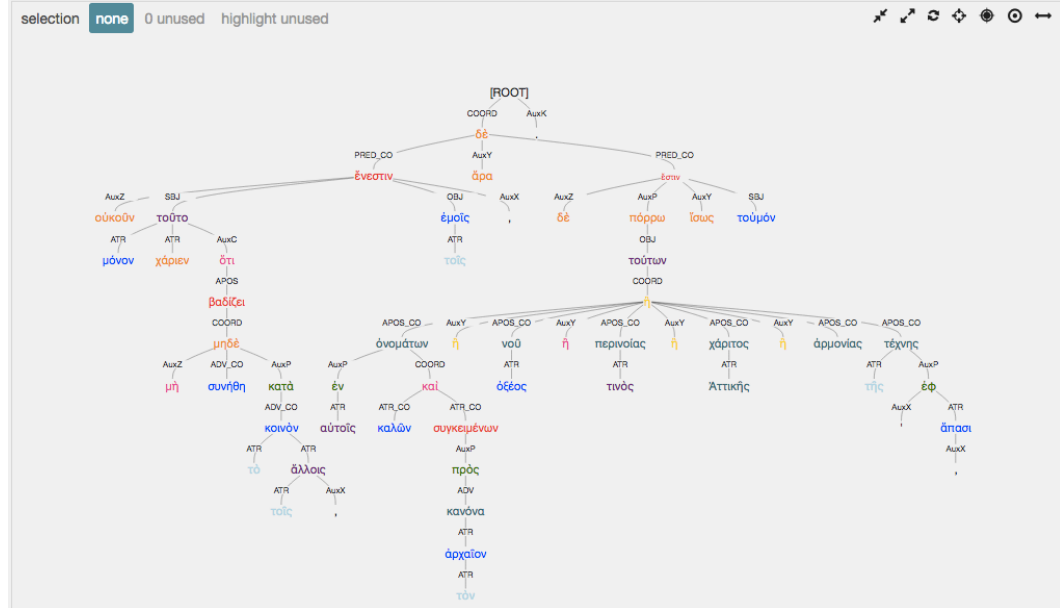
Fig. 28 Lucian, *Zeuxis* 1
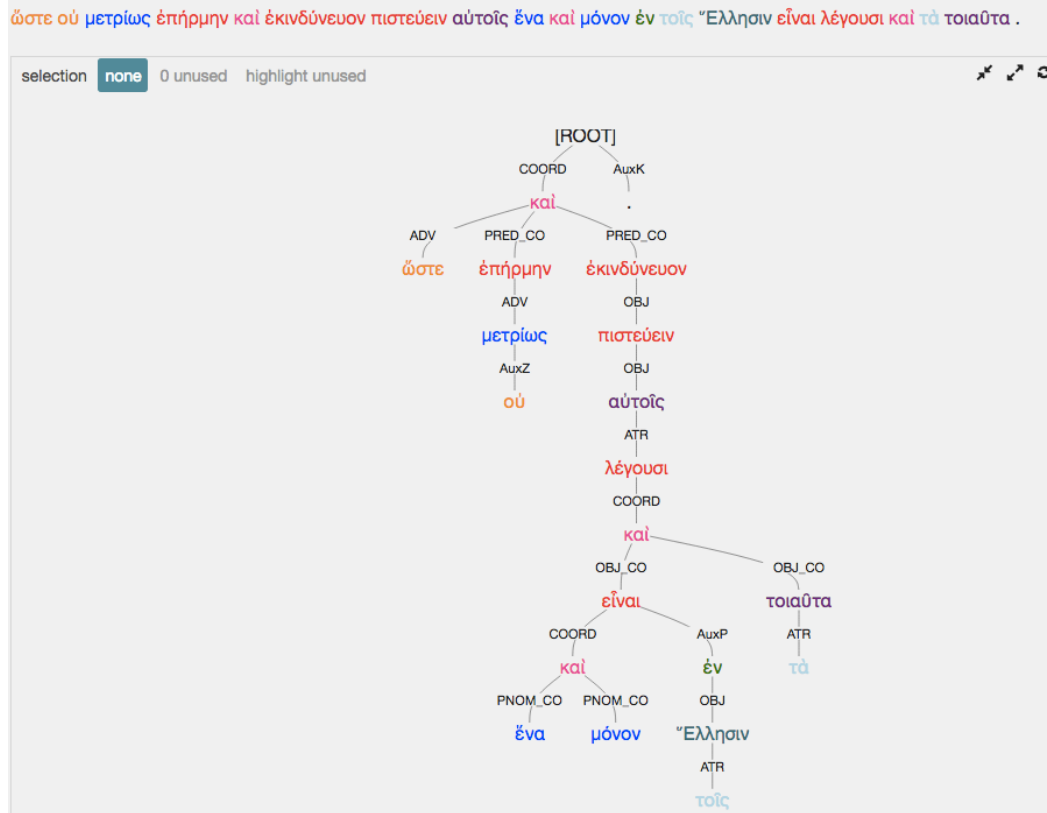
Fig. 29 Lucian, *Zeuxis* 2

Fig. 30 Lucian, *Zeuxis* 2

Fig. 31 Lucian, *Zeuxis* 3

Taking a closer look at the sentences, it is noticeable that even shorter sentences have increased length. The elongation of the sentences is mainly due to several extended prepositional phrases that pertain to place, time, or are generally complementary. However, it should also be noted that there are both long and short sentences that do not exceed a certain height (as it can be seen in the last two trees).

5. In an attempt to appraise Lucian's height more comprehensively, I computed the histograms of the height of the sentence. Below is a cumulative figure of all the authors. Studying Lucian, it seems that there is a tendency towards a variety of heights, hence a variety in the stylistic characteristics, such as complements and prepositional phrases. What is pivotal in our observations is that Lucian's histogram is comparable to Lysias's (fig. 32).

145

Fig. 32 This figure shows histograms of height as percentage of the nodes.

I am providing a sample of annotated sentences from Lysias's *Olympiacus* below

to further my argument that there are close affinities in their syntactical

constructions (figs. 33, 34, 35).

Fig. 33 Lysias, *Olympiacus* 2

Fig. 34 Lysias, *Olympiacus* 1-2
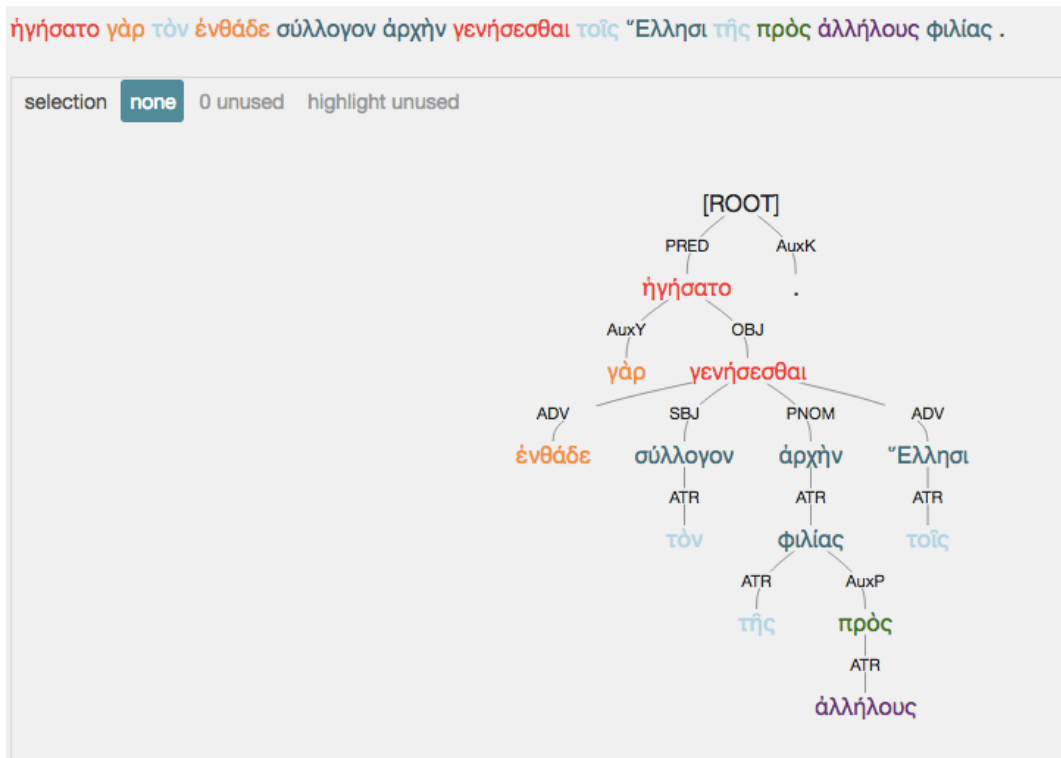
Fig. 35 Lysias, *Olympiacus* 2-3

6. A major difference that I noted while annotating and then calculating the complexity of the metrics based on the set metrics is that usage of the COORD δέ is pervasive in Lucian and far more extensive than in Lysias. I am providing the histogram of the δέ coordinate in all the authors below (fig. 36). Comparing Lucian with the Classical Attics, Lucian diverges from Lysias, the one with the admittedly simpler and more straightforward style. He compares closer, however, to Isocrates and Demosthenes. According to Dionysius of Halicarnassus, Demosthenes is the one prone to more complex dictions, and Isocrates is the average between the latter and Lysias. Additionally Lucian does seem to associate more with Dio and Aelius Aristides, namely his contemporary Imperial Attic authors. Noting also the eigenplanes of Demosthenes (figs. 14, 15, 16), Lucian and Lysias display proximity to him.
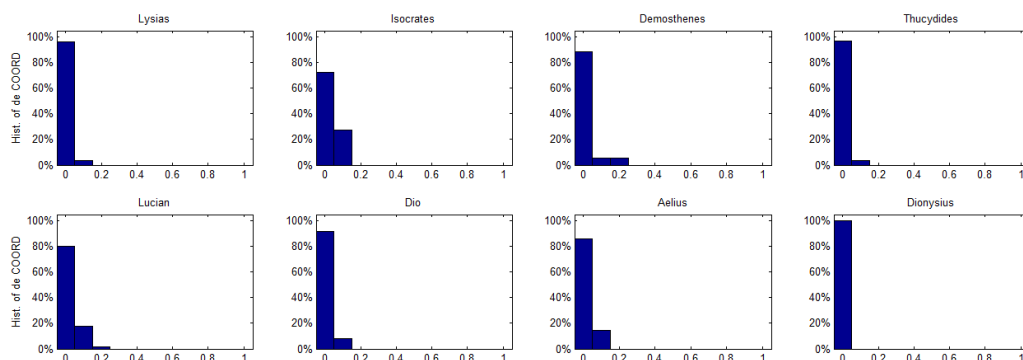
Fig. 36 This figure displays the histogram of the δέ (de) coordinate as percentage of the nodes.

7. From the perspective of Demosthenes (figs. 14, 15, 16), we notice that he is close to Lysias and Lucian, while all three are set further apart from Isocrates, Dio, and Thucydides. We notice the same configuration—same affinities and lack thereof between the aforementioned authors—when studying the eigenplane of Isocrates

148

(figs. 11, 12, 13). Similarities can also be noticed between Lucian and Lysias in different metrics, such as in the usage of ATR, the parts of the sentence that appear under the ATR tag (especially in cases of relative clauses), the percentage of verbal attributives, and the width of the trees. Therefore, one might say that Lucian has actually succeeded in his attempts to appear entirely Attic.

Against this backdrop, I proceeded to calculate the histograms for the ATR in all authors (figs. 37, 38). From the plots below, it becomes clear that Demosthenes, Lysias, and Lucian share significant similarities with regards to the nodes under ATR as well as the verbal ATR, which are the relative clauses.
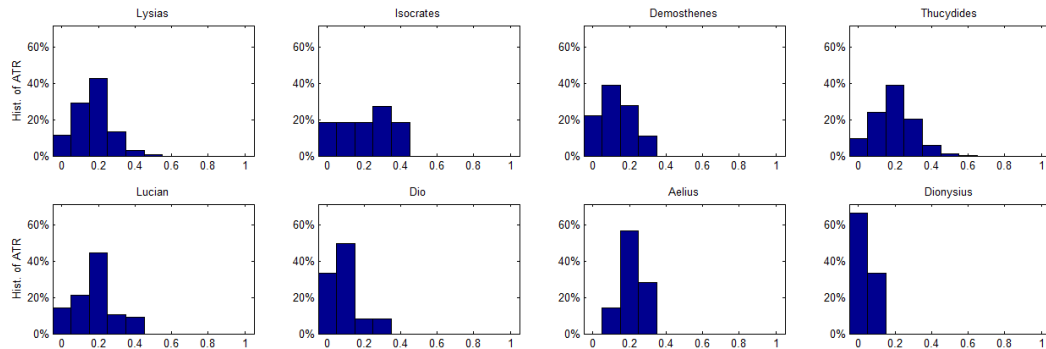
Fig. 37 This figure displays the histogram of ATR as percentage of the nodes.
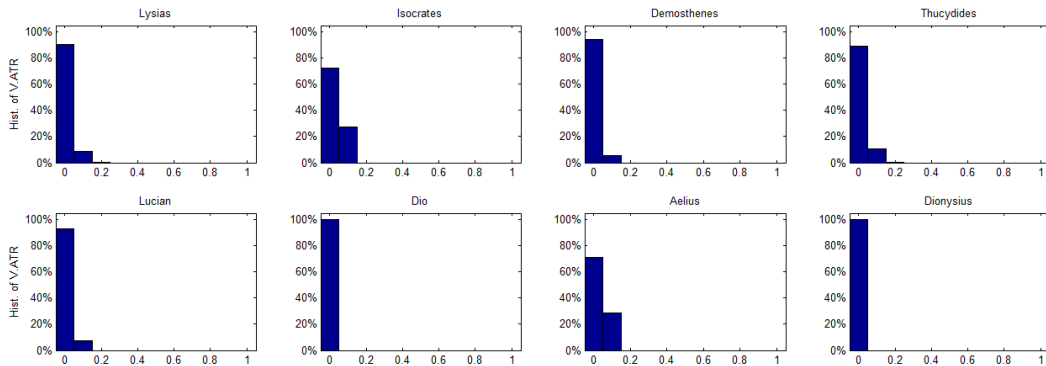
Fig. 38 This figure displays the histogram of verbal ATR as percentage of the nodes.

8. Another point of interest is the proximity between Lysias and Lucian. Studying closely the above two diagrams (figs. 37, 38) as well as those depicting the level of occurrences of height (fig. 32), adjectival attributives (fig. 37), width (fig. 40), leaves (fig. 41), family width (fig. 42), it is apparent that the two authors — Lysias, the 5th-century BCE orator, and Lucian, the 2nd-century CE authors — share remarkable resemblances in their sentence construction. The one point of contention between the two appears to be the use of the δέ coordination that appear more often in Lucian, Aelius Aristides, and Isocrates. However, Lucian still differentiates himself, as he seems to be using the coordination even in the middle of the sentence, something that is not observed elsewhere, as I noted earlier in the chapter.
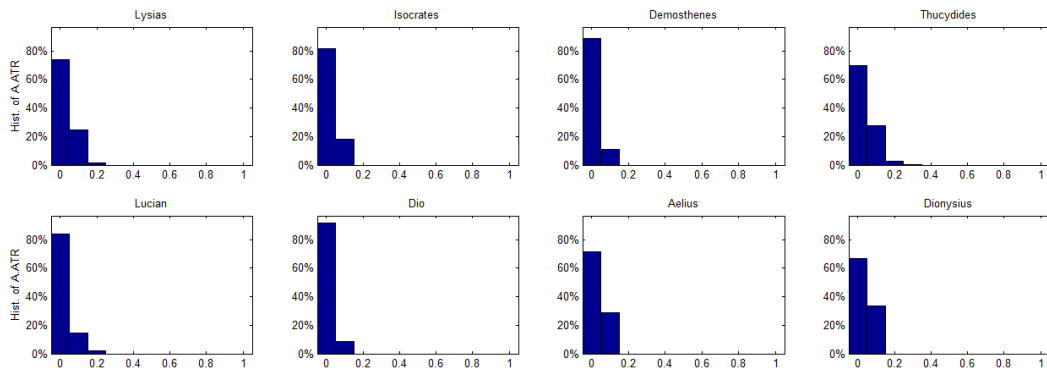
Fig. 39 This figure displays the histogram of ATR as percentage of the nodes.
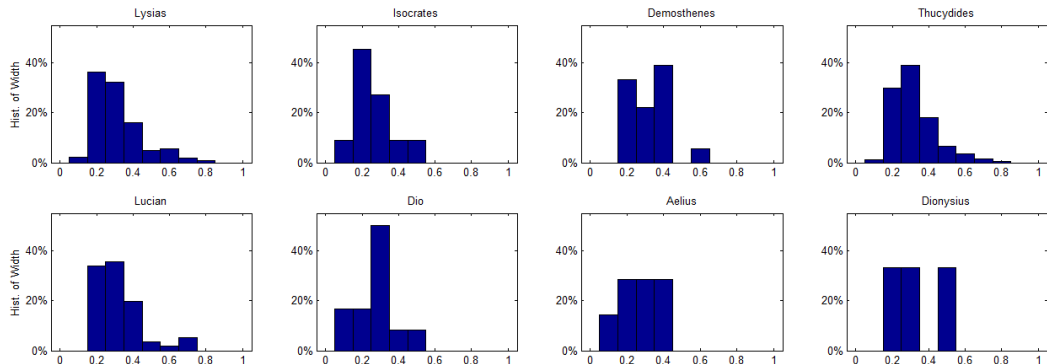
Fig. 40 This figure displays the histogram of width as percentage of the nodes.
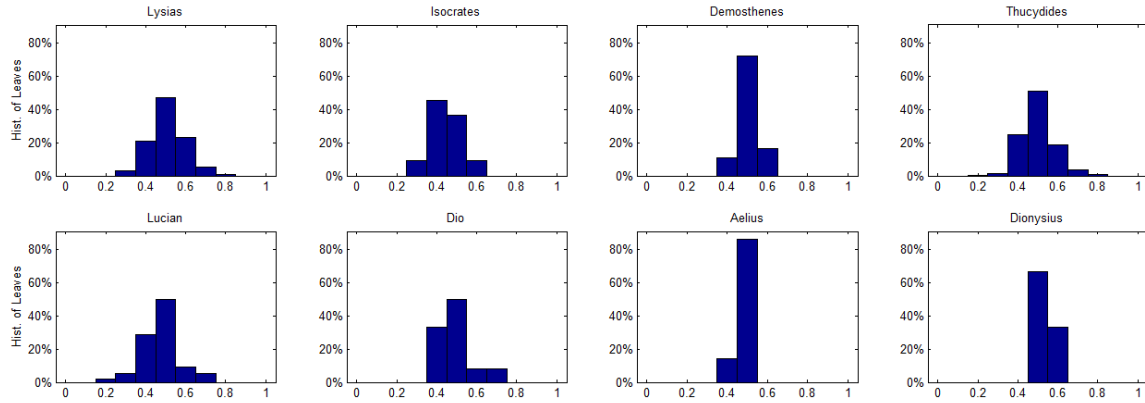
Fig. 41 This figure displays the histogram of Leaves as percentage of the nodes.
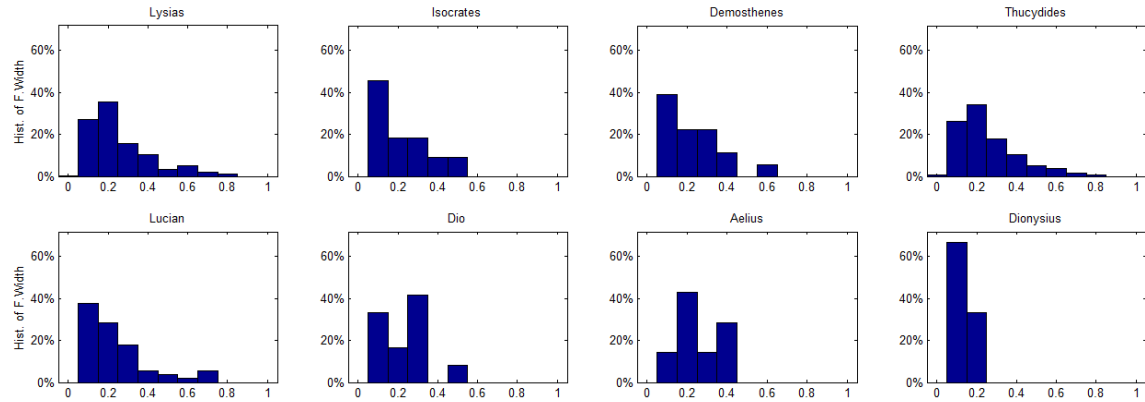
Fig. 42 This figure displays the histogram of family width as percentage of the nodes.

9. Other observations include similarities between Isocrates and Dio in regards to sentence width as well as between Demosthenes and Aelius Aristides. Admittedly, Demosthenes is considered amidst the most complex of Classical Attic orators, and Aristides opts for more convoluted forms of expression. Dio's and Demosthenes's affinities can also be explained, should one notice their tension for expansion, which can be observed when one looks closely into their syntactically annotated sentences.

10. When it comes to the usage of attributives (figs. 37, 38), it seems that all the authors display similarities. The percentages are higher among Aelius, Thucydides (the historian that has been discussed by Dionysius of Halicarnassus as a model of Atticicm, albeit intricate) and Dionysius himself in his rewrites of the original passages. The latter can be explained when we consider that Dionysius suggested the shortening of sentences by adopting different grammatical elements, such as participles in the place of whole secondary clauses. Therefore, it comes as no surprise that the percentage of his attributives, including his relative participles, is higher. The associations between the rest of the authors reinforces my argument that this computational analysis still indicates that Atticism should be apprehended as one phenomenon. It is not unreasonable, though, to also contend that Atticism was revived. Consequently, we should consider that Imperial Atticism should not be subsumed under Classical Atticism, reductively denying the mastery of Imperial orators to refashion it.

11. Observing closely the histogram of family width (fig. 42), it is interesting to note that Thucydides resembles Lysias and Lucian. Dionysius's inferences, therefore, regarding the historian's blending of style and Lucian's own admission of having embraced all forms of Atticism support the metrical analysis. Furthermore, there seems to be a chronological pairing between Isocrates and Demosthenes as well as Dio and Aristides.

In conclusion, the histograms seem to be validating Dionysius's and modern observations regarding orators. Their additional contribution is that they also reveal minute details and subtle characteristics in the revived Attic style during the Imperial Era, thus reinforcing my argument about the unique style of the new Atticism as an amalgamation of classic and prototypical sophistic structuring of the language. Details, such as the idiosyncratic usage of the coordination δέ in Imperial rhetoric, were substantiated through the computational analysis of the data. Other considerations include the synthesis of styles that we notice in Lucian along with notable affinities to Lysias, the quintessential Atticist. Therefore, one could argue with a degree of certainty that Atticism was a unified phenomenon that was revitalized within a new literary context in Imperial times.

4.4 Topological Metric Wavelets for syntactical quantification

The metrics that were developed in the previous chapter furnish us the opportunity to observe underlying layers of the language, thus achieving an understanding that would not have been possible, and providing us with observations that could not have been otherwise quantified. However, there is a parameter that is still lacking. On the one hand, we are in a position to track the appearance of certain syntactical phenomena, but there is no way to determine where in the sentence they appear. For instance, when we notice the abundance of verbal attributives in an author, thus the usage of relative clauses, is there a particular part of the sentence (beginning, middle, end) that they usually occur. This information will apprise us of an even more profound appreciation of the syntactical construction of the sentence and the stylistic attributes of each author. To this end, this section presents a novel method to determine particular syntactical attributes of Ancient

Greek oratory in order to quantitatively compare the orators and their works based on their style of writing. This method uses the node-based metrics that quantify the morphology of a syntactically annotated Treebank, which were set in the previous chapter. A weighting scheme is defined using Haar Wavelets in order to generate a set of features that can capture both the linear topology of a sentence, and the tree network topology of a the corresponding syntactical tree.

More specifically, Haar wavelets of various orders are used as a basis for capturing the linear variations of the syntactical features. By applying the wavelet bases functions as the weights of individual tree-nodes, various node-based metrics can be defined that capture both the linear and tree network morphological features of a sentence.

The advantages of the proposed framework are numerous. The derived metrics can be used to calculate more descriptive features from each sentence. Moreover, metrics from different order wavelets are linearly independent and therefore can be combined together in the form of a feature vector. Finally, the local variations of a sentence can be calculated as a linear combination of such feature vectors.

4.4.1 Wavelets

"Wavelets are mathematical functions that cut up data into different frequency components, and then study each component with a resolution matched to its scale...Wavelets were developed independently in the fields of mathematics, quantum physics, electrical engineering, and seismic geology."[122]

The significance of the wavelet analysis is the various scale that we can use to view our data. Graps succinctly phrases this quality as "If we look at a signal with a large 'window,' we would notice gross features. Similarly, if we look at a signal with a small

---

[122] Graps (1995) 1

'window,' we would notice small features. The result in wavelet analysis is to see both the forest and the trees, so to speak."[123] There are several forms of wavelet analysis. The first one was the one by Fourier. The reason that the Haar wavelet was chosen for this study is that it is the simplest form of wavelets as they are not continuous. For the purposes of this study, however, this is an advantage as we can analyze sudden transitions throughout the sentences. Also, Fourier transform simply uses two functions, the sine and the cosine. The wavelet transform does not have a finite number of functions. Therefore, wavelet analysis gives us more views of the data.[124] On that basis, Darányi et al. used wavelet analysis for text categorization. They actually state that: "Results suggest that wavelet-based kernels slightly outperformed traditional kernels on classification reconstruction from abstracts and vice versa from full-text documents, the latter outcome due to word sense ambiguity."[125]

4.4.2 Topological Metrics using Wavelets

To be able to define metrics that capture both the linear and tree network topologies of a sentence, we need to define either w_i or $\mu(n_i)$ as functions of the order of node in the sentence. Since not all sentences have the same number of words, a normalized domain will be used in the interval (0,1]. Therefore the order of each node will be defined as $t_i=i/k$. For example the last word of a sentence has $t_i=k/k=1$, and the first word of a sentence will have $t_i=1/k$.

The mapping of each word to the tree nodes is not trivial, hence it is not smooth. For example, the first word of the sentence could correspond to a tree node far from the

---

[123] Graps (1995) 1

[124] For more information about wavelets, their different types as well as the differences with the Fourier methods, see Graps (1995), Vidacovic et al. (1991).

[125] Darányi et al. (2012)

second word of the sentence. For this reason the linear topology should be introduced, using a robust function that does not generate unnecessary noise due to this non-trivial mapping.

An ideal choice that takes under consideration all the above is the Haar wavelet function, defined as

$$\psi(t) = \begin{cases} 1 & 0 < t \leq 1/2 \\ -1 & 1/2 < t \leq 1 \\ 0 & otherwise \end{cases} \qquad (2)$$

This function splits the linear topology in two equal segments and can be used to describe the variation of a function in the first half and second half of its domain. Higher order wavelets lead to more segments in a divide and conquer recursive fashion, which can be used to set the weights of a node-based metric as follows:

$$w_i = \psi(2^n t_i - s)/k \qquad (3)$$

where n is the order of the wavelet, s is the temporal shift of the wavelet, which is an integer between 0 and 2^n-1, and $t_i=i/k$ is the normalized order of a word in a sentence in the interval (0,1].

In the case of n=0 order, one wavelet basis functions is defined by Eq. 3. In the case of n=1 order, two wavelet basis functions are defined by setting s=0, or 1 in Eq.3. Similarly, in the case of n=2 order, four wavelet basis functions are defined by setting s=0,1,2, or 3. The lower order basis corresponds to larger segments of the sentence, i.e. low frequency variations, and the higher order basis corresponds to smaller segments of

the sentence, i.e. high frequency variations. The combination of the 7 wavelet basis for orders n=0,1,2 and the simple node metric with $w_i=1$ provide a feature vector of 8 metrics, that can be used to describe the linear variations on a sentence across 8 equidistant segments of the sentence. Figure 43 shows the corresponding 8 wavelet features for the sentences of each orator as described in the next section. By observing the plots of these features, it is evident that the lower order features have higher magnitude (lower frequencies) while the higher order features have lower magnitude (higher frequencies) as expected.

4.4.3 Experimental Results

For the calculation of the wavelets five of the node-based metrics were implemented, using the presented framework, which are the ratios of the: 1) Percentage of leaves 2) Percentage of ATR (attributives), 3) Percentage of Verbal Attributives, 4) Percentage of Adjectival Attributives, and 5) Percentage of δέ COORD (coordination). Having observed affinities and lack thereof between those authors on the basis of the above metrics, as shown in the previous section, it would be particular constructive to determine which of these characteristics appear in certain parts of the sentences. This way we will be apprised of certain constructional attributes of each one of the authors, but we will also be in a position to consider where their similarities and differences mostly lie.
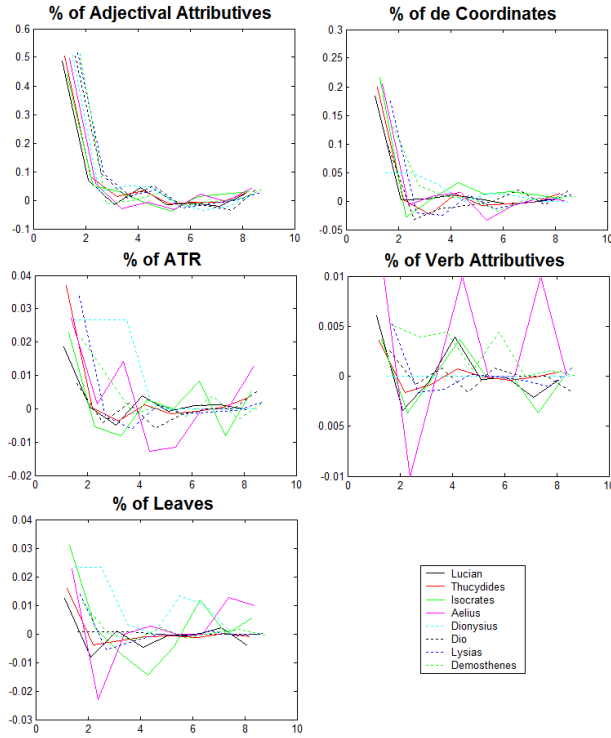
Fig. 43 Plots of the average feature vector of each wavelet metric.

At this point, it is pertinent to explain briefly the axes of the above plots. The vertical axis shows the percentage of occurrences of each phenomenon. The horizontal axis shows the following: 1) average across the sentence, 2) variation between halves, 3) variation between quarters 1 and 2, 4) variation between quarters 3 and 4, 5) variation between eighths 1 and 2, 6) variation between eighths 3 and 4, 7) variation between eighths 5 and 6, 8) variation between eighths 7 and 8. The division of the data is likely to show more details of the sentence as well as from different perspectives.

158
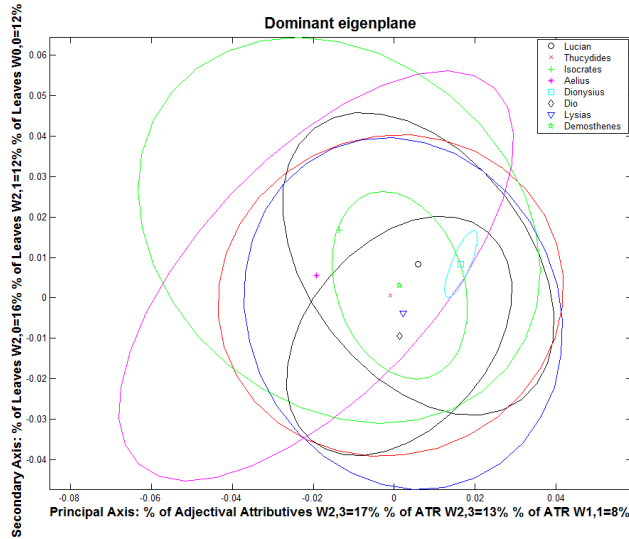
Fig. 44 The average and variance (shown as ellipse) of the feature vectors of each orator on the dominant eigenplane.

To this end, wavelets were utilized to divide the data into frequency components. This way the locality of the variations and the syntactical phenomena can be pinpointed and can be analyzed according to scale.

The dominant eigenplanes of Lysias and Thucydides seem to be in the middle of the eigenplane, indicating that they constitute the average of the Attic characteristics. Thucydides, though, is admittedly more complex with regards to his structures, and that explains the proximity with Demosthenes. Moreover, Lysias and Lucian appear to have the same distance from the aforementioned two authors. The point of interest is that Lysias is a 5th-century BCE orator, while Lucian is the 2nd-century CE orator who wishes to imitate not a particular author, but revive Atticism in general. Isocrates's eigenplane seems to be all encompassing of Atticism. This observation in itself is consonant with Dionysius's of Halicarnassus apprehension that Isocrates combines simplicity and complexity throughout his writings.
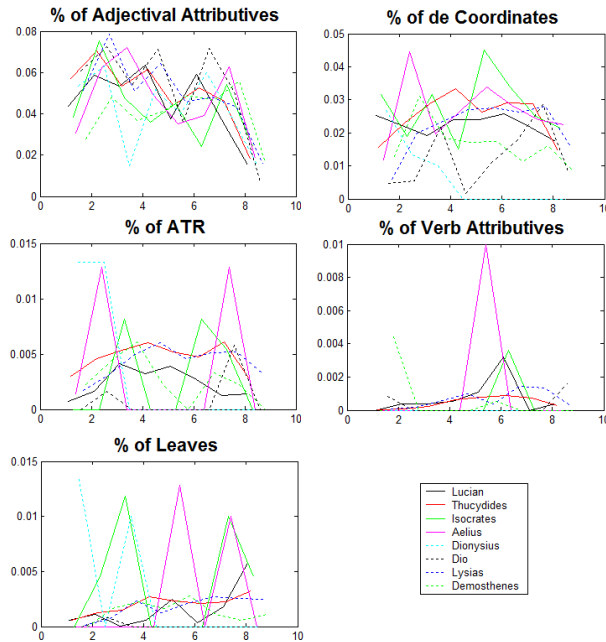
Fig. 45 Plots of the average local variations of each metric along the sentence as calculated from the wavelet metrics.

The average temporal plot also furnishes us with more minute observations. It seems that the adjectival attributives appear throughout the sentences of all authors, as we observe peaks and valleys in several parts of the sentences. However, the percentage of attributives in general is mostly in the beginning and the end of the sentences. Even more distinct is the appearance of verbal attributives, which indicate relative clauses. The plot indicates that Aelius Aristides is prone to using more relative clauses in the middle of his sentences, but clearly not throughout.

Another interesting observation is that adjectival attributives are more common than relative clauses, which is an indication of the Attic tendency to simplicity. Interestingly Lucian, Isocrates, and Aristides show significantly higher spikes than the rest. Lysias does use relative clauses, but is notably simpler than Isocrates. Thucydides shows consistency throughout the sentences. Cumulatively the percentage of attributives shows

160

spikes in Isocrates, Aelius Aristides, and Demosthenes. However, there seems to be a high threshold throughout in Thucydides, Lysias, and Lucian. The cumulative plot's indications are consistent with the analytical ones, the percentage of adjectival and verbal attributives. Regarding Isocrates's peaks, Dionysius's of Halicarnassus observation is very accurate:

ὥστε ἀνάγκη παραπληρώμασι λέξεων οὐδὲν ὠφελουσῶν χρῆσθαι καὶ
ἀπομηκύνειν πέρα τοῦ χρησίμου τὸν λόγον. λέγω δὲ οὐχ ὡς διαπαντὸς αὐτοῦ ταῦτα ποιο
ῦντος (οὐχ οὕτως
μαίνομαι· καὶ γὰρ συντίθησί ποτε ἀφελῶς τὰ ὀνόματα   καὶ λύει τὴν περίοδον εὐγενῶς κα
ὶ τὰ περίεργα σχήματα καὶ φορτικὰ φεύγει καὶ μάλιστα ἐν τοῖς συμβουλευτικοῖς τε καὶ δι
κανικοῖς λόγοις) (D.H. *Isoc*. 3)

He is therefore compelled to pad his sentences with words that contribute nothing, and to extend his speech beyond its effective length. I do not mean to imply that he invariably does this (I am not so mad as to do that: for there are times, especially in his political and forensic speeches, when he tastefully relieves the periodic structure and avoids the excessive and vulgar use of figures, and composes in plain style).

Furthermore, the percentage of δέ coordinates is scattered throughout the sentences. An interesting observation is the case of Dionysius. It seems that towards the end of his sentences, there is a notable lack of coordinates. Dionysius's sentences that were annotated are the ones in which he rewrote the original texts of orators, actually suggesting a less complex sentence construction. Therefore, the plot indicates that indeed there is a notable simplicity. Another point worth mentioning is that, when reading Lucian, it becomes obvious that he does favor the δέ coordinate throughout his sentences governing even secondary elements. This is something that is not customarily done in other authors, as the δέ coordinate usually dominates the entirety of the sentence or at least its main parts. So this explains the locality of the waves in Aelius, for instance, as well as Isocrates. Generally, it seems that there are positions that favor the usage of δέ and others where the coordination does not appear. It is only Lucian that gives more

nuances and perhaps oral flavor to his speeches by creating these kinds of ups and downs. Furthermore, the percentage of leaves is distributed evenly across the sentences in all authors.

4.5 Conclusion

In conclusion, the chapter presented the application of the proposed framework for quantification of Atticism and its syntactical attributes. The PCA and graphic visualizations as well as the topological Haar wavelets that were implemented purveyed us a more apt and efficient way to proceed with comparative analyses of authors and isolate particular characteristics, something that would not have been possible otherwise.

Close observation of the results proves that there are indeed particular characteristics that distinguish each author. There are also common denominators between authors of the Classical and Imperial era respectively. The visualizations indicate that Atticism is a phenomenon that the Second Sophistic did not simply mimic. Instead authors of the Imperial era recontextualize the linguistic past, an attitude that appears similarly in their self-identification, as I will present in chapter 5.

CHAPTER 5
«Γαλάτης ὢν ἑλληνίζειν»: Greekness, Latinity, and otherness in the world of the High Empire

A language is not just words. It's a culture, a tradition, a unification of a community, a whole history that creates what a community is. It's all embodied in a language.
Noam Chomsky

5.1 Introduction

The detailed metrical computation and presentation of data in chapters 3 and 4 that involved close inspection and analysis of the language indicate that Atticism is a phenomenon that conceptualizes proper diction. They also showcase that stylistic constructional systems can be revived, albeit modified per the exigencies of each era. This allows for formulations, adoptions of past elements, incorporation of new, or amalgamations. This concept is in tandem with the basic concept of the present study—language can be reformed and transformed into a medium of choice for anyone. In that sense, language itself is also transformative as it purveys the chance to transform oneself through it. The period of the High Empire is known for the literary current of the so-called Second Sophistic that is the multi-faceted point *par excellence* in the history of literary genres.[126] For one thing, we tend to use the nomenclature of a literary circle of erudite individuals instead of the century. The variegated nature of the phenomenon of the Second Sophistic has given rise to debates: Who belongs in this notional literary circle? Do we only consider rhetorical works? Should these works be construed/were they meant to be construed as literary creations with socio-political content or political propaganda veiled underneath a patina of literary dexterity? Language of course—the

---

[126] Philostratus was the first one to coin the term Second Sophistic in *VS* 1.481. For discussions on the Second Sophistic, see Anderson (1993), Bowersock (1969) 1; (1974), Bowie (1970); (1982); (1991), Bozia (2015) 1-15, Gleason (1995), Goldhill (2001) 8, Nesselrath (1990), Perry (1955), Schmitz (1997), Swain (1996), Whitmarsh (2001); (2005).

preponderance of Greek—has been extensively furnished in modern scholarship, contending Hellenic propaganda and literary espionage against Roman political supremacy. The renaissance of Atticism and authors' insistence on Attic purity has fueled the aforementioned thesis even more. My intention in this chapter is to discuss the theoretical ramifications of the metric results. More specifically, I explore the metalanguage of language itself and against this backdrop reconsider the issue of malleable identity to argue that the reinvention of Atticism is emblematic as well as the product of the reinvention of identity as quantified numerically in chapters 3 and 4. I survey the way the numerical descriptors, which indicate affinities between Classical and Imperial Atticism, transfer to the literary sphere and are then reinterpreted through historical and/or fictional characters who refashion language while also reconstructing themselves, in turn creating the model of the new "Attic" citizen.

My discussion is encapsulated in Philostratus's, the 3rd century CE sophist, statement about Favorinus, a Roman sophist and philosopher of the 2nd century CE, *Γαλάτης ὢν ἑλληνίζειν* (albeit a Gaul, he is hellenizing). This far the infinitive *ἑλληνίζειν* has been translated simply as "to speak Greek." I contend that the act of speaking Greek is twofold at the time. First, proper Greek diction involves the usage of correct Attic and second it carries with it the assumption of Greek behavior. Consequently, the message of the period is that hellenizing can be taught. Therefore, I suggest a different reading of Greekness and Latinity, one that encompasses a world of heterogeneity and ethnic multifocality even when it comes to *Hellenismos* and *Latinitas*. As shown in the previous two chapters and particularly in chapter 4 in figures 5, 6 and 7, there is at the time a process of reinvention. Classical Atticism is transliterated into Imperial Atticism, as the

blending of constructional characteristics is evident throughout orators of the 5th and 4th centuries BCE and those of the Imperial era. It is palpable that authors forego the bowdlerization of ethnicity; linguistic correctness does matter, but it lies closer to *paideia* than to ethnicity as birthright. This chapter considers the variegated nature of the citizens within the Empire. More specifically, moving beyond grammatical definitions, when an individual is described whose ethnic origins are Eastern but he is Hellenizing socially, how are we to quantify his Greekness, Latinity, or otherness? More importantly, how does the individual perceive and define his ethnic hybridity?

5.2 The multiethnical constituents of an Imperial Citizen: Anacharsis, Favorinus, and Dionysius's of Halicarnassus ethnography.

Τοσοῦτον δ' ἀπολέλοιπεν ἡ πόλις ἡμῶν περὶ τὸ φρονεῖν καὶ λέγειν τοὺς ἄλλους ἀνθρώπους, ὥσθ' οἱ ταύτης μαθηταὶ τῶν ἄλλων διδάσκαλοι γεγόνασιν, καὶ τὸ τῶν Ἑλλήνων ὄνομα πεποίηκεν μηκέτι τοῦ γένους, ἀλλὰ τῆς διανοίας δοκεῖν εἶναι, καὶ μᾶλλον Ἕλληνας καλεῖσθαι τοὺς τῆς παιδεύσεως τῆς ἡμετέρας ἢ τοὺς τῆς κοινῆς φύσεως μετέχοντας. (Isocrates, *Panegyricus* 50)

And so far has our city distanced the rest of mankind in thought and in speech that her pupils have become the teachers of the rest of the world; and she has brought it about that the name Hellenes suggests no longer a race but an intelligence, and that the title Hellenes is applied rather to those who share our culture than to those who share a common blood. (Translation by Norlin)

The convoluted nature of the typically ethnic nomenclatures is admittedly not just a product of Imperial times. This assumption may be tempting as it engages scholarly arguments in favor of Greek literary propaganda against Roman overbearingness, and it may have been more vocalized and formalized within literature, but it was certainly not new. The above passage from Isocrates proves that the idea of Hellenism as a lifestyle, social agenda, and edification was promoted long before the spread of the Roman Empire. Isocrates emphasizes on three keywords that embody the essence of notional

ethnicity, a hybrid between physical origins and *paideutic* training. He calls upon διάνοια, παίδευσις, and φύσις. Elsewhere and not within a nationalistic context, Plato in *Meno* says referring to a household slave that he is Greek and speaks Greek (Ἕλλην μέν ἐστι καὶ ἑλληνίζει, 82b4). Therefore, language and social conduct have been typical constituents of ἑλληνίζειν. Another intriguing observation is the references to teaching Greek even for Greeks. Plato in *Alcibiades*[127] and *Protagoras*[128] mentions the teaching of Greek. Considering that alongside the fact that ἑλληνίζειν bears the meaning of "speaking proper Greek" as defined in Aristotle's *Rhetorica*,[129] we acquire another aspect of Greek-speaking abilities, that they can be taught and that they need to be properly taught not only to foreigners.

Dionysius's of Halicarnassus Greek History of the Romans

Dionysius of Halicarnassus in his propagandistic Hellenized history of the Romans, explores further the notion of adopted cultural identity and through the negative definition of Eleans, explicating what they are not, clarifies what Greekness is. Dionysius foregoes the bowdlerization of ethnicity, asserting a more politicized and socially conceptualized definition of barbarism that does not pertain to ethnicity.[130] Embracing the notion of Kulturgrenzen, he impugns the Greekness of a Greek nation, all the while propounding the Greekness of the Romans and furnishing the idea of a formulatable identity, rather than one that has been assigned from birth.[131]

---

[127] Pl. *Alc*. 111a Οἷον καὶ τὸ ἑλληνίζειν παρὰ τούτων ἔγωγ᾽ ἔμαθον, καὶ οὐκ ἂν ἔχοιμι εἰπεῖν ἐμαυτοῦ διδάσκαλον, ἀλλ᾽ εἰς τοὺς αὐτοὺς ἀναφέρω οὓς σὺ φῂς οὐ σπουδαίους εἶναι διδασκάλους.

128 Pl. *Prot*. 328a εἶθ᾽, ὥσπερ ἂν εἰ ζητοῖς τίς διδάσκαλος τοῦ ἑλληνίζειν

[129] Arist. *Rh*. Ὁ μὲν οὖν λόγος συντίθεται ἐκ τούτων, ἔστι δ᾽ ἀρχὴ τῆς λέξεως τὸ ἑλληνίζειν· Cf. Rhet. 1413b; *Sophistici Elenchi* 182a.34 (Bekker page).

[130] On Greek literature as a sign of resistance again Romans, Whitmarsh (2013) discusses fictional works and their fascination with geographical beyondness. Cf. König/Whitmarsh (2007), Whitmarsh (2007); (2012). See also the note on Greek novelists.

[131] Cf. D. H. *Ant. Rom*. 4.26; 4.72; 7.72; 10.51; 14.6.

ἐπεὶ ἄλλοι γε συχνοὶ ἐν βαρβάροις οἰκοῦντες ὀλίγου χρόνου διελθόντος ἅπαν τὸ Ἑλληνικὸν ἀπέμαθον, ὡς μήτε φωνὴν Ἑλλάδα φθέγγεσθαι μήτε ἐπιτηδεύμασιν Ἑλλήνων χρῆσθαι, μήτε θεοὺς τοὺς αὐτοὺς νομίζειν, μήτε νόμους τοὺς ἐπιεικεῖς, ᾧ μάλιστα διαλλάσσει φύσις Ἑλλὰς βαρβάρου, μήτε τῶν ἄλλων συμβολαίων μηδ' ὁτιοῦν. ἀποχρῶσι δὲ τὸν λόγον τόνδε [ὡς ἀληθῆ εἶναι] Ἀχαιῶν οἱ περὶ τὸν Πόντον ᾠκημένοι τεκμηριῶσαι, Ἠλείων μὲν ἐκ τοῦ Ἑλληνικωτάτου γενόμενοι, βαρβάρων δὲ συμπάντων <τῶν> νῦν ὄντες ἀγριώτατοι. (D.H. *Antiquitates Romanae* 1.89)

For many others by living among barbarians have in short time forgotten all their Greek heritage, so that they neither speak the Greek language nor observe the customs of the Greeks nor acknowledge the same gods nor have the same equitable laws
by which most of all the spirit of the Greek differs from that of the barbarians nor agree with them in anything else whatever that relates to the ordinary intercourse of life. Those Achaeans who are settled near the Euxine sea are a sufficient proof of my contention; for, though originally Eleans, of a nation the most Greek of any, they are now the most savage of all barbarians. (Translation by Cary)

I believe that Dionysius's account of the Greek origins of the Romans does not need to be interpreted as a chimaera-like expectation to alleviate the painful reality of Greek subjugation. On the contrary, the passages quoted below should be read as a display of universality, a notion of an ecumenical society with cosmopolitan individual constituents, rather than the parochial and provincial consideration of city-state politics that in this time period would not account for the socio-political, linguistic, and cultural ferments.

ταῦτα διεξελθὼν ἐδίδασκεν αὐτούς, ὡς
ληλοφθορίαν. ταῦτα διεξελθὼν ἐδίδασκεν αὐτούς, ὡς χρὴ Λατίνους μὲν τῶν προσοίκων ἄρχειν καὶ τὰ δίκαια τάττειν Ἕλληνας ὄντας βαρβάροις· Ῥωμαίους δὲ τὴν ἁπάντων Λατίνων ἔχειν προστασίαν μεγέθει τε πόλεως προὔχοντας καὶ πραγμάτων ὄγκῳ καὶ τῇ πρ ονοίᾳ τοῦ δαιμονίου κρείττονι κεχρημένους ἐκείνων, δι᾽ ἣν εἰς τοσαύτην ἐπιφάνειαν προῆλθον… ἵνα δὲ μηδεὶς χρόνος αὐτοὺς ἀφανίσῃ, στήλην κατασκευάσας χαλκῆν ἔγραψ εν ἐν ταύτῃ τά τε δόξαντα τοῖς συνέδροις καὶ τὰς μετεχούσας τῆς συνόδου πόλεις. αὕτη δ ἱέμεινεν ἡ στήλη μέχρι τῆς ἐμῆς ἡλικίας ἐν τῷ τῆς Ἀρτέμιδος ἱερῷ κειμένη γραμμάτων ἔχ ουσα χαρακτῆρας [Ἑλληνικῶν], οἷς τὸ παλαιὸν ἡ Ἑλλὰς ἐχρῆτο. ὃ καὶ αὐτὸ ποιήσαιτ᾽ ἄν τις οὐ μικρὸν τεκμήριον τοῦ μὴ βαρβάρους εἶναι τοὺς οἰκίσαντας τὴν Ῥώμην. οὐ γὰρ ἂν Ἑλληνικοῖς ἐχρῶντο γράμμασιν ὄντες βάρβαροι. (D.H. *Antiquitates Romanae* 4.26)

After this he went on to show them that the Latins ought to have the command over their neighbours and, being Greeks, ought to give laws to barbarians, and that the Romans ought to have the leadership of all the Latins, not only because they excelled in the size of their city and the greatness of their achievements, but also because they, more than the others, had enjoyed the favour of divine providence and in consequence had attained to so great eminence… And to the end that no lapse of time should obliterate these laws, he erected a bronze pillar upon which he engraved both the decrees of the council and the names of the cities which had taken part in it. This pillar still existed down to my time in the temple of Diana, with the inscription in the characters that were anciently used in Greece. This alone would serve as no slight proof that the founders of Rome were not barbarians; for if they had been, they would not have used Greek characters.

τοῖς δὲ μηκέτι ποιεῖν ἐφ' ἑνὶ δυνάστη τὰ κοινὰ τὰς τυραννικὰς διεξιοῦσι παρανομίας, αἷς ἄλλοι τε πολλοὶ κατὰ τῶν ἰδίων πολιτῶν ἐχρήσαντο καὶ Ταρκύνιος τελευτῶν, ἀλλὰ τὸ συνέδριον τῆς
βουλῆς ἀπάντων ἀποδεῖξαι κύριον ὡς ἐν πολλαῖς τῶν Ἑλληνίδων πόλεων· οἱ δὲ τούτων μὲν οὐδετέραν
προηροῦντο τῶν πολιτειῶν, δημοκρατίαν δὲ συνεβούλευον ὥσπερ Ἀθήνησι καταστῆσαι, τὰς ὕβρεις καὶ τὰς πλεονεξίας τῶν ὀλίγων προφερόμενοι καὶ τὰς στάσεις
τὰς γινομένας τοῖς ταπεινοῖς πρὸς τοὺς ὑπερέχοντας ἐλευθέρᾳ τε πόλει τὴν ἰσονομίαν ἀποφαίνοντες ἀσφαλεστάτην οὖσαν καὶ πρεπωδεστάτην τῶν πολιτειῶν. (D.H. *Antiquitates Romanae* 4.72)

Others believed that they ought no longer to entrust the government to a single ruler, and they enumerated the tyrannical excesses which many other kings and Tarquinius, last of all, had committed against their own people; but they thought they ought to make the senate supreme in all matters, according to the practice of many Greek cities. And still others liked neither of these forms of government, but advised them to establish a democracy like at Athens; they pointed to the insolence and avarice of the few and to the seditions usually stirred up by the lower classes against their superiors, and they declared that for a free commonwealth the equality of the citizens was of all forms of government the safest and the most becoming.

τοῦτο καὶ εἰς ἐμὲ τὸ ἔθος ἐν Ῥώμῃ διέμενεν, ὡς ἐξ ἀρχῆς ἐγίνετο παρ' Ἕλλησιν· ἐν Ῥώμῃ διέμενεν, ὡς ἐξ ἀρχῆς Λακεδαιμονίων αὐτὸ καταλυσάντων. ὁ δὲ πρῶτος ἐπι-
χειρήσας ἀποδυθῆναι τὸ σῶμα καὶ γυμνὸς Ὀλυμπίασι δραμὼν ἐπὶ τῆς πεντεκαιδεκάτης ὀλυμπιάδος Ἄκανθος ὁ Λακεδαιμόνιος ἦν. τὰ δὲ πρὸ τούτων δι' αἰσχύνης εἶχον ἅπαντες Ἕλληνες ὅλα γυμνὰ φαίνειν ἐν ταῖς ἀγωνίαις τὰ σώματα, ὡς Ὅμηρος τεκμηριοῖ, μαρτύρων ἀξιοπιστότατός τε καὶ ἀρχαιότατος ὢν ζωννυμένους τοὺς ἥρωας ποιῶν. (D.H. *Antiquitates Romanae* 7.72)

This custom continued even to my time at Rome, as it was originally practised by the Greeks; but it is now abolished in Greece, the Lacedaemonians having put an end to it. The first man who undertook to strip and ran naked at Olympia, at the fifteenth Olympiad, was Acanthus the Lacedaemonian. Before that time, it seems, all the Greeks had been ashamed to appear entirely naked in the games, as Homer, the most credible and

the most ancient of all witnesses, shows when he represents the heroes as girding up their loins.

κεφάλαιον δ' ἐστὶν ὧν ὑμῖν παραινῶ, πρέσβεις ἑλέσθαι τοὺς μὲν εἰς τὰς Ἑλληνίδας πόλεις τὰς ἐν Ἰταλίᾳ, τοὺς δ' εἰς Ἀθήνας· οἵτινες αἰτησάμενοι παρὰ τῶν Ἑλλήνων τοὺς κρατίστους νόμους καὶ μάλιστα τοῖς ἡμετέροις ἁρμόττοντας βίοις οἴσουσι δεῦρο. (D.H. *Antiquitates Romanae* 10.51)

The substance of my advice is that you choose ambassadors and send some of them to the Greek cities in Italy and others to Athens, to ask the Greeks for their best laws and such as are most suited to our ways of life, and then to bring these laws here.

μίαν δὲ πρᾶξιν οἰόμενοι <συνέχειν> ἅπαντας τοὺς κατὰ συγγένειαν ἢ φιλίαν προσήκοντας ἀλλήλοις τὴν τῶν ἀγαθῶν ἰσομοιρίαν, πολιτείαν ἔγνωσαν τοῖς κρατηθεῖσι χαρίσασθαι, πάντων μεταδόντες ὧν τοῖς φύσει Ῥωμαίοις μετῆν, οὐ τὴν αὐτὴν διάνοιαν λαβόντες τοῖς ἀξιοῦσι τῆς Ἑλλάδος ἄρχειν οὔτ' Ἀθηναίοις οὔτε Λακεδαιμονίοις· τί γὰρ δεῖ περὶ τῶν ἄλλων Ἑλλήνων λέγειν; Ἀθηναῖοι μέν γε Σαμίους ἀποίκους ἑαυτῶν ὄντας, Λακεδαιμόνιοι δὲ Μεσσηνίους ἀδελφῶν οὐδὲν διαφέροντας, ἐπειδὴ προσέκρουσαν αὐτοῖς τι, διαλυσάμενοι τὴν συγγένειαν οὕτως ὠμῶς διεχειρίσαντο καὶ θηριωδῶς, ἐπειδὴ τὰς πόλεις αὐτῶν ὑποχειρίους ἔλαβον, ὥστε μηδὲ τοῖς ἀγριωτάτοις τῶν βαρβάρων ὑπερβολὴν τῆς εἰς τὰ ὁμόφυλα παρανομίας παραλιπεῖν. Μυρία τοιαῦτα λέγειν ἄν τις ἔχοι ταῖς πόλεσι ταύταις ἡμαρτημένα, ἃ παρίημι, ἐπεὶ καὶ τούτων μεμνημένος ἄχθομαι· τὸ γὰρ Ἑλληνικὸν οὐκ ὀνόματι διαφέρειν τοῦ βαρβάρου ἠξίουν οὐδὲ διαλέκτου χάριν, ἀλλὰ συνέσει καὶ χρηστῶν ἐπιτηδευμάτων προαιρέσει, μάλιστα δὲ τῷ μηδὲν τῶν ὑπὲρ τὴν ἀνθρωπίνην φύσιν <εἰς> ἀλλήλους παρανομεῖν. ὅσοις μὲν οὖν τα ῦτα ἐπὶ πλεῖον ὑπῆρξεν ἐν τῇ φύσει, τούτους οἶμαι δεῖν λέγειν Ἕλληνας, ὅσοις δὲ τἀναντί α βαρβάρους. καὶ τὰς μὲν ἐπιεικεῖς καὶ φιλανθρώπους διανοίας τε καὶ πράξεις αὐτῶν Ἑλλ ηνικὰς εἶναι λογίζομαι, τὰς δ' ὠμὰς καὶ θηριώδεις, ἄλλως τε κἂν περὶ συγγενεῖς τε καὶ φί λους γίνωνται, βαρβαρικάς. (D.H. *Antiquitates Romanae* 14.6)

But believing that the one thing that holds together all who belong to one another by reason either of kinship or friendship is the equal sharing of their blessings, they decided to grant citizenship to the vanquished, giving them a part in everything in which the native-born Romans shared. Thereby they took a very different view from that held by those who laid claim to the leadership of Greece, whether Athenians or Lacedaemonians — what need is there to mention the other Greeks? For the Athenians in the case of the Samians, their own colonists, and the Lacedaemonians in the case of the Messenians, who were the same as their brothers, when these gave them some offence, dissolved the ties of kinship, and after subjugating their cities, treated them with such cruelty and brutality as to equal even the most savage of barbarians in their mistreatment of people of kindred stock. One could name countless blunders of this sort made by these cities, but pass over them since it grieves me to mention even these instances. For I would distinguish Greeks from barbarians, not by their name nor on the basis of their speech, but by their intelligence and their predilection for decent behaviour, and particularly by their indulging in no inhuman treatment of one another. All in whose nature these

qualities predominated I believe ought to be called Greeks, but those of whom the opposite was true, barbarians.

Throughout Dionysius's writings, his considerations of ethnicity transcend geographical constituencies. He presents Romans as being Romanized Greeks, and his attitude has been interpreted in modern scholarship as an attempt to alleviate the pain of subjugation.[132] However, should one view it from the opposite perspective, Dionysius also argues that Greeks also altered their lifestyle, adapted in a new lifestyle, which in several areas was preferable to the original Greek way, and bettered themselves. Through this evolutionary process that involved self-realization, adaptability, and self-actualization, the inhabitants of the Italian peninsula—the founders of Rome and consequently of the Empire—promoted internationalization. According to Dionysius's history, the first Romans exhibited the kind of open-mindedness that he preaches to his contemporaries—they respectfully preserved their origins, appreciated the new environment and challenges of their actual geographical location, and created a new self, an amalgamation of the old and the new.[133]

---

[132] An extended discussion on Dionysius's perception of race and racial hybridity, see Dench (2005) 234-264.

[133] The notion that an ethnic nomenclature is cognate with lifestyle and language rather than indicative of geography and location is pervasive throughout literature of those centuries. So when authors select the language in which they write, while discussing issues that pertain to lifestyle, social propriety, political stance, and a multitude of others, revolving around the current state of things, we inevitably notice the polyvalent nature of the state of affairs. More specifically, authors cannot be remiss of other nations, focusing solely on Romans or even Greeks; they cannot forego that political stability needs to take into account the transcultural identity of the Empire. Hence, we notice in all literary genres a redefinition of otherness, in that there is acceptance and simultaneous consideration of alterity. Modern scholarship has focused primarily on the Schadenfreude relationship between Roman and Greek culture and those who partake in each.[133] Gabba (1991) and Hartog (1991) discuss Dionysius's of Halicarnassus attitude towards Romans. Dio Chrysostom praises Rome in *Or*. 32, while he disapproves of its morality in *Or*. 21. Jones (1978) 126 calls Dio "more mercurial" than other authors as concerns his attitude towards Romans. See also Bowie (1991) 195-201. On Dio see also Gangloff (2007), 64-75; Moles (1995); Sidebottom (1996). See Swain (1990); Swain (1996) 66-100 who argues that the Greeks were still differentiating themselves from other ethnicities. On that topic, see also Castellani (2002); Preston (2001); Titchener (2002). On

Considerations of ethnicity and identity seem to have transcended the socio-political level. Wiater calls this process "creating an ethos: self-fashioning through texts."[134] The nomenclature "literary", though, tends to imply a more romantic view of the world. In the case of *Hellenismos* and *Latinitas*, it becomes a matter of political positioning, individual and subsequently collective self-realization and adaptation to a new reality. Reality for those authors is a complex system of concatenated and co-existing realities, which reflect on or are reflections of different aspects of life, ethnicity, geography, and language. In an era of multiple realities, orators, instead of being impeded by them, formulate an overarching one that they can refashion according to their ambitions. Ethnicity and geography are usually established; the one that someone may affect, which can in turn seemingly affect, albeit not change, the other two is language and by extension literature.[135] Therefore, orators flocking the upper tiers of the Empire, albeit not native Greeks or Romans and originating from the remote parts of their contemporary *oikoumene*, are determined to maneuver objective *realités*, scheming their own individual selves, while promoting a renewed international *ethos* of ethical amalgamation, cultural interactivity, and linguistic correctness.

The coexisting yet diametrically disparate superiority of Roman political authority and Greek cultural preponderance produces occasionally opposing, yet complementing identities. It also implies fluidity of the self along with limitless possibilities for formulation of a self. This process, however, assumes the involvement of the individual,

---

Aelius's Aristides attitude towards Rome, see Pernot (2008). Follet (1991) discusses Philostratus' promotion of Hellenic paideia through his focus on εὖ λέγειν and stresses that "*Mais parler un grec pur, sans accent, ne va pas de soi pour un Gaulois, un Italien, un Syrien, un Cappadocien. Le Celte Favorinus d'Arles (VS. 1.8), loué pour son εὐγλωττία, illustre le paradoxe Γαλάτης ὢν ἑλληνίζειν.*"

[134] Wiater (2011) 75

[135] On Greekness as cultural phenomenon, see Dubuisson (1982) 10, Hall (2002) 224, Said (2001) 290.

which by definition suggests a subjective factor, affected by experiences, expectations, and nationality. Consequently, the authorial accounts that have come down to us are diverse—supporting Roman political and/or linguistic authority, Greek linguistic supremacy, an amalgamation of Roman administrative genius and Greek culture, or inherent relations between Romans and Greeks that render any contemporary situation more viable.

Favorinus's multi-nationality

References to Greek *paideia* or speaking abilities are multiple and transgress any geographic constituent. Taking us back to the title of this chapter and the precept that ἑλληνίζειν becomes a matter of acquirable socio-political agenda, I would like to quote Philostratus's statement on Favorinus: "Γαλάτης ὢν ἑλληνίζειν" (*VS*, 489), comprehensively conceptualizing the idea of cultural identity. Favorinus has been used as an authorial persona in an oration that has been attributed to Dio Chrysostom as *Oration* 37, even though all signs suggest that Favorinus himself was probably the author. This work constitutes a significant attestation to the idea of *paideutic* ethnicity. The author claims that, albeit Roman of the equestrian order, he has thoroughly adopted to the language, thought, way of living, and appearance of the Greeks. He also suggests that he wishes not only to seem Greek, but to actually be Greek.[136]

εἰ δέ τις οὐ Λευκανὸς ὤν, ἀλλὰ Ῥωμαῖος, οὐδὲ τοῦ πλήθους, ἀλλὰ τῶν ἱπποτρόφων, οὐδὲ τὴν φωνὴν μόνον ἀλλὰ καὶ τὴν γνώμην καὶ τὴν δίαιταν καὶ τὸ σχῆμα τῶν Ἑλλήνων ἐζηλωκώς
ἵν᾽ αὐτῷ περιῇ ἓν ἀντὶ πάντων Ἕλληνι δοκεῖν τε καὶ εἶναι (*Or.* 37.25)

Well, if someone who is not a Lucanian but a Roman, not one of the masses but of the equestrian order, one who has affected, not merely the language, but also the thought and manners and dress of the Greeks.

---

[136] On identity and Roman citizenship, see Dench (2005) 93-151.

Aiming to achieve one thing at the cost of all else, namely, not only to seem Greek but to be Greek too.

There are several points of paramount importance that conceptualize the spirit of the period and the Second Sophistic. Favorinus is furnished as a cultural paradigm of ethnic and cultural diversity. He also showcases the cultural confidence that distinguishes this era. The fact that he contends that someone is able to redefine himself completely to the point that he literally becomes someone else is the spirit of the creativity of those times. The author epitomizes his argument by saying that there should be no distinction between birth origin and paideutic upbringing.

ὡς οὐδὲν τὸ παιδευθῆναι τοῦ φῦναι πρὸς τὸ δοκεῖν διαφέρει (*Or*. 37.27)

that culture is nowhit inferior to birth with respect to renown.

Lucian, for instance, as shown in chapter 4 in figures 20-22, 32, 36-42, proves to be the epitome of Hellenic *paideutic* upbringing, albeit not a native Greek. His adoption of purely Attic elements alongside his resourceful reinventions produce a unique amalgamation that can only be the product of paideia, not birth origin.

Paideutic identity, though, at the time could be bidirectional. The majority of the authors as well as current scholarship study the Hellenization of the Romans. The author of the oration suggests that there are also Greeks from the high social tiers who show inclination to the Roman ways. However, he does not elaborate on this type of influence.[137]

τῶν μὲν γὰρ Ἑλλήνων τοὺς ἀρίστους ἔστιν ἰδεῖν ἐκεῖσε πρὸς τὰ τῶν Ῥωμαίων πράγματα ἀποκλίνοντας (*Or*. 37.25)

for while the best of the Greeks over there may be see inclining toward Roman ways (Translation by Lamar Crosby)

---

[137] Rochette (1997) 211-256 presents Greek literary men who mastered Latin.

The final point of the oration is the author's assertion that anyone can and should aspire to Hellenization. He is proof that ethnic hybridity is attainable. Therefore, he incites the Romans to not be only concerned with their rank, an attitude that will prove reductive to their *paideia*. He also fosters the idea that Celts should pursue *paideia* regardless of their barbaric birth origins.

Ῥωμαίοις δέ,
ἵνα μηδ' οἱ τὸ ἴδιον ἀξίωμα περιβεβλημένοι τὸ παιδεύεσθαι πρὸς τὸ ἀξίωμα παρορῶσι· Κ ελτοῖς δέ, ἵνα μηδὲ τῶν βαρβάρων μηδεὶς ἀπογιγνώσκῃ τῆς Ἑλληνικῆς παιδείας, βλέπων εἰς τοῦτον. (*Or.* 37.27)

For Romans, so that not even those who are wrapped up in their own self-esteem may disregard culture with respect to real esteem; for Celts, so that no one even of the barbarians may despair of attaining the culture of Greece when he looks upon this man.

Redefinitions and resizing of identities, however, are not prone to unanimous acceptance. Particularly in the case of Hellenization, in which the constituents of language and comportment jointly influence individualism, while linguistic propriety has all the while been a point of contestation, ramifications are to be expected. More specifically, regarding Favorinus we notice an attempt for deracination, not simply of ethnic amalgamation. He assumes identities and suggests that ethnic pluralism can be achieved at no cost for any compartment of each person's individuality. This is not the opinion that Phrynichus the Attic fosters in his writings on the Attic verbs. *Au contraire*, in several occasions he makes the point to furnish Favorinus as an example of linguistic solecisms that are to be avoided and most importantly that are againt Attic propriety. I purvey the occasions below:

(163) Ἀφιερῶσαι· καὶ τοῦτο Φαβωρῖνος (fr. 130 Bar.). σὺ δὲ καθιερῶσαι λέγε.

174

Ἀφιερῶσαι. And this also Favorinus. However, you say καθιερῶσαι.

(172) Ἐξιδιάζονται· καὶ τοῦτο Φαβωρῖνος (fr. 132 Bar.) λέ-
γει κακῶς· ἰδιοῦσθαι γὰρ τὸ τοιοῦτον λέγουσιν οἱ ἀρχαῖοι.

Ἐξιδιάζονται. This also Favorinus says abusively. For the ancients say such a thing ἰδιοῦσθαι.

(185) Σταθερὸς ἄνθρωπος· οὕτως οὐ χρῶνται οἱ ἀρχαῖοι,
ἀλλὰ σταθερὰ μὲν μεσημβρία λέγουσι (Plat. Phaedr. 242 a) καὶ στα-
θερὰ γαλήνη, σταθερὸς δὲ ἄνθρωπος οὐδαμῶς, ἀλλ᾽ ἐμβριθής. οὐ καλῶς
οὖν Φαβωρῖνος (fr. 139 Bar.) „σταθερὸς ἄνθρωπος“ εἶπεν.

Σταθερὸς ἄνθρωπος. The ancients do not use it in this manner. However, they do say, on the one hand, σταθερὰ μεσημβρία and σταθερὰ γαλήνη, but not by any means σταθερὸς ἄνθρωπος, but ἐμβριθής. Therefore, Favorinus incorrectly said σταθερὸς ἄνθρωπος.

(207) Ὑστερίζειν τῷ καιρῷ οὐ λέγεται, ἀλλ᾽ ὑστερίζειν τοῦ
καιροῦ. Φαβωρῖνος (fr. 141 Bar.) δὲ οὐχ ὑγιῶς {καὶ} κατὰ δοτικὴν
συντάττει.

Ὑστερίζειν τῷ καιρῷ is not spoken, but rather ὑστερίζειν τοῦ
καιροῦ. So Favorinus unfittingly constructs it with dative.

(209) Στατὸς ὁ τῶν αὐλητῶν χιτὼν οὐ λέγεται, ὡς Φαβωρῖνος
(fr. 140 Bar.), ἀλλ᾽ ὀρθοστάδιος χιτών.

The chiton of the trumpeteers is not called Στατὸς, as Favorinus says, but ὀρθοστάδιος.

(213) Κορυφαιότατον· ἐνεκαλυψάμην εὑρὼν παρὰ Φαβωρίνῳ
(fr. 134 Bar.). λέγε οὖν κορυφαῖον.

I felt ashamed to find out that Favorinus says Κορυφαιότατον. Well you say κορυφαῖον.

(215) Διδοῦσιν· ἐν τῷ Περὶ εὐχῆς Φαβωρῖνος (fr. 8 Bar.) οὕτω
λέγει, δέον διδόασιν· τὸ γὰρ διδοῦσιν ἄλλο τι σημαίνει {τὸ δεῖν}.

Διδοῦσιν says Favorinus in the Περὶ εὐχῆς. Thus he speaks, even though it is right to say διδόασιν, for διδοῦσιν means something else.

(216) Προαλῶς· τοῦτο δοκεῖ μοι γυναικῶν εἶναι τοὔνομα.
ἀνιῶμαι δὲ ὅτι ἀνὴρ λόγου ἄξιος κέχρηται αὐτῷ Φαβωρῖνος (fr. 137
Bar.). τοῦτο μὲν οὖν ἀποδιοπομπώμεθα, ἀντ᾽ αὐτοῦ δὲ λέγωμεν προ-
πετῶς.

Προαλῶς. This seems to me to be a women's name. I am vexed that Favorinus, a man worthy of esteem, has used this. Let us set this aside then, and say προπετῶς instead.

(218)   Σύμπτωμα· πολλάκις εὗρον κείμενον παρὰ Φαβωρίνῳ ἐν
τῷ Περὶ ἰδεῶν λόγῳ (fr. 25 Bar.)· πόθεν δὲ λαβὼν ἔθηκεν, οὐκ οἶδα. χρὴ
οὖν συντυχίαν λέγειν ἢ λύσαντας οὕτω· „συνέπεσεν αὐτῷ τόδε γενέ-
σθαι". Δημοσθένης μέντοι ἐν τῷ Κατὰ Διονυσοδώρου (56, 43) ἅπαξ
εἴρηκε τοὔνομα.

Σύμπτωμα. I found this occuring in Favorinus very frequently in the work Περὶ ἰδεῶν. I do not know where he got it and used it. So people must say συντυχίαν or break it up thus:"συνέπεσεν αὐτῷ τόδε γενέσθαι." Indeed Demosthenes in his speech Κατὰ Διονυσοδώρου uttered this word once.

(228)   Πλόκιον· ἐπὶ ὑποθέσεως πεπλεγμένης οἱ εἰκαῖοι τιθέασιν.
θαυμάζω οὖν ὡς ὁ πρῶτος τῶν Ἑλλήνων δόξας εἶναι Φαβωρῖνος ἐχρή-
σατο ἐν συγγράμματι ἐπιγραφομένῳ Περὶ τῆς Δημάδους σωφροσύνης
(fr. 7 Bar.).

Πλόκιον. Careless people set it when it comes to a convoluted situation. So I am astonished seeing that Favorinus, who considers himself the first of the Greeks, used it in a treatise titled Περὶ τῆς Δημάδους σωφροσύνης.

(325)   Βρώσομαι κακῶς ὁ Φαβωρῖνος (fr. 131 Bar.), οἱ γὰρ
Ἀττικοὶ ἀντ' αὐτοῦ τῷ ἔδομαι καὶ κατέδομαι χρῶνται. ἄκριτον οὖν καὶ
ἀπόβλητον τῶν Ἀττικῶν φωνῶν τὸ βρώσομαι ῥῆμα.

Favorinus incorrectly says Βρώσομαι, for the Attics use ἔδομαι and κατέδομαι instead. Therefore, the verb βρώσομαι is uncertain and to be thrown away from the Attic utterance.

(416)   Πενητεῦσαι· ἰδεῖν δεῖ, εἰ Φαβωρῖνος (fr. 136 Bar.) χρώ-
μενος οὐκ ὀρθῶς χρῆται.

Πενητεῦσαι. You must see that Favorinus, even though he uses it, does not use it correctly.

(417)   {Ὑστερίζειν τῷ καιρῷ· οὐ λέγουσιν οὕτως, ἀλλ' ὑστε-
ρίζειν τοῦ καιροῦ. Φαβωρῖνος δὲ οὐχ ὑγιῶς κατὰ δοτικὴν συντάττει.}

Ὑστερίζειν τῷ καιρῷ. They do not speak it thus, but ὑστερίζειν τοῦ καιροῦ. So Favorinus does not syntax it correctly with dative.

(422)   Ἀπηρτισμένον, ἀπήρτικα καὶ τὰ ἀπὸ τούτων ἅπαντα
σόλοικα. ἀποτετέλεσται δὲ καὶ ἀποτετελεσμένον χρὴ λέγειν, ἄμεινον γάρ·

ἐκτὸς εἰ μή ποθεν τοῦτο εἰς Φαβωρῖνον (fr. 129 Bar.) ἦλθεν, ὅθεν οὐδεὶς
οἶδεν· ἀρχαῖοι μὲν γὰρ οὕτως οὐ λέγουσιν, ἐκεῖνος δέ· πλὴν εἰ μὴ εἴη εἷς.
ἡμεῖς οὖν ὡς οἱ ἀρχαῖοι, ἀλλὰ μὴ ὡς Φαβωρῖνος.

Ἀπηρτισμένον, ἀπήρτικα and all that derive from them are solecisms. One must say
ἀποτετέλεσται and ἀποτετελεσμένον instead, as it is better. Unless from some place or
other in Favorinus. He came, whence no one knows. For the ancients do not say it thus,
but that one does. Except if he was not one. Therefore, we shall speak as the ancients, but
not as Favorinus.

What Phrynichus brings forth is the idea that there is old and new Attic, a point
that corroborates the metric analysis and numerical results presented in chapters 3 and 4,
thus suggesting that these newly suggested claims to Atticism and by extension to
Hellenism cannot be granted approval. Infallibility does not reside amidst newly minted
Hellenes, and Favorinus is the prime example of an insubstantial and perhaps untenable
claim at the reappropriations of ethnicity.

Also, Apuleius in the introductory paragraph of the *Metamorphoses* notes that his
work is a product of his investment, as he has disbursed both time to achieve this level of
linguistic accomplishment in Greek and Latin. However, he self-consciously admits to
possible solecisms and barbarisms and asks that he be pardoned on account of his
trilingualism.

Hymettos Attica et Isthmos Ephyrea et Taenaros Spartiatica, glebae felices aeternum
libris felicioribus conditae, mea vetus prosapia est; ibi linguam Atthidem primis pueritiae
stipendiis merui. Mox in urbe Latia advena studiorum Quiritium indigenam sermonem
aerumnabili labore nullo magistro praeeunte aggressus excolui. En ecce praefamur
veniam, siquid exotici ac forensis sermonis rudis locutor offendero. Iam haec equidem
ipsa vocis immutatio desultoriae scientiae stilo quem accessimus respondet. Fabulam
Graecanicam incipimus. (Apul. *Met.* 1.1)

Hymettus near Athens; the Isthmus of Corinth; and Spartan Mount Taenarus, happy soil
more happily buried forever in other books, that's my lineage. There as a lad I served in
my first campaigns with the Greek tongue. Later, in Rome, freshly come to Latin studies
I assumed and cultivated the native language, without a teacher, and with a heap of pains.

So there! I beg your indulgence in advance if as a crude performer in the exotic speech of the Forum I offend. And in truth the very fact of a change of voice will answer like a circus rider's skill when needed. We're about to embark on a Greek tale.

Lucian's Anacharsis

The discussions on culture get convoluted when we comparatively consider the literary opinions put forward through the variegated literary genres. What they showcase is that similarly to the coexisting identities—products of multiple aspects of different identities—there can be coexisting cultures amalgamated from aspects of different cultures. Lucian, the second century sophist-orator, introduces in *Anacharsis* the homonymous character to the Athenian culture. The Scythian, though, questions the value of dramatic performances, and the dialogic treatise concludes with the assertion that one need not fully accept an entire culture, but simply select aspects that express his individuality. In the triptych that consists of *Scytha*, *Toxaris*, and *Anacharsis*, the Scythian character of Anacharsis represents the foreigner who becomes acquainted with Hellenic culture, wishes to partake in it, and eventually is so imbued with cultural maturity that he is in a position to espouse and preach socio-cultural hybridity.[138] The most important point to be made is that our theoretical elaboration on what it means to be *Hellen* are being furnished in the aforementioned works. Modern scholarly studies, including the present chapter, attempt to distinguish those characteristics that constitute ἑλληνίζειν. Lucian actually has already given a palette of elements—language, culture, athletics, social conduct, laws, burial customs, and in general lifestyle.

---

[138] For an extensive analysis of these works, see Bozia (2015) 67-78.

More specifically, in *Scytha* we read that Anacharsis, the known Scythian figure, was not the first one to migrate to the cradle of civilization. Toxaris was actually the first (Οὐ πρῶτος Ἀνάχαρσις ἀφίκετο ἐκ Σκυθίας Ἀθήναζε παιδείας ἐπιθυμίᾳ τῆς Ἑλληνικῆς, ἀλλὰ καὶ Τόξαρις πρὸ αὐτοῦ, 1). Anacharsis is the well-known figure of the propaganda of acculturation and the paradigm of the pervasive Hellenism against barbarism. Lucian by setting another figure next to Anacharsis, one who accepted Hellenization wholeheartedly, remolds both Anacharsis and Toxaris as experiential literary personas that are still given the opportunity to interact with Greek *paideia* and refine the parameters of their cultural modification. He engages, therefore, with three distinct aspects of Greek civilization, namely deportment and culture, religion, and (edificatory) entertainment. In *Toxaris sive Amicitia*, Toxaris clearly assumes the role of the newcomer-barbarian. He is called to defend his ethnic origin and, although foreign elements, such as worshipping practices, are blatantly apparent throughout the dialogue, the intellectual maturity of the Scythian showcases itself when Toxaris eulogizes Orestes and Pylades for not fearing to venture into the barbaric unknown, or when they are admitted to the Scythian pantheon as the spirits of friendhsip (φίλιοι δαίμονες, 7).

> ΤΟ: οὐ μὴν ἀλλὰ πρὸς τοὺς ζῶντας ἄμεινον οἰόμεθα πράξειν μεμνημένοι τῶν ἀρίστων, καὶ τιμῶμεν ἀποθανόντας, ἡγούμεθα γὰρ οὕτως ἂν ἡμῖν πολλοὺς ὁμοίους αὐτοῖς ἐθελῆσαι γενέσθαι (1).

> But that is not all: in honouring the dead we consider that we are also doing the best we can for the living. Our idea is that by preserving the memory of the noblest of mankind, we induce many people to follow their example.

The contradistinction is even more ostensibly perceptible when Mnessipus stereotypes the Scythians as an ethnic group, resorting to mundane ideas of barbarian cannibalism and *naiveté*.

179

Ὦ Τόξαρι, οὐ μόνον ἄρα τοξεύειν ἀγαθοὶ ἦσαν Σκύθαι καὶ τὰ πολεμικὰ τῶν ἄλλων ἀμείνους, ἀλλὰ καὶ ῥῆσιν εἰπεῖν ἁπάντων πιθανώτατοι (8)

Ah, Toxaris, so archery is not the only accomplishment of the Scythians, I find; they excel in rhetorical, as well as in military skill.

More interestingly, Toxaris proposes a different form of cultural manipulation; he suggests that Orestes and Pylades are considered Scythians due to their deeds.

οὐ γὰρ ἐξετάζομεν ὅθεν οἱ καλοὶ καὶ ἀγαθοί εἰσιν, οὐδὲ φθονοῦμεν εἰ μὴ φίλοι ὄντες ἀγαθὰ εἰργάσαντο, ἐπαινοῦντες δὲ ἃ ἔπραξαν, οἰκείους αὐτοὺς ἀπὸ τῶν ἔργων ποιούμεθα. (5)

We do not inquire into the nationality of noble souls: we can hear without envy of the illustrious deeds of our enemies; we do justice to their merits, and count them Scythians in deed if not in name.

Lucian clearly introduces the idea of cultural amalgamation, not necessarily of annexation, opening the possibilities for ethnic interaction and interactivity. The point that I would like to stress is that Toxaris repeatedly references his nationality. However, nowhere does he claim that he wishes to be Hellenized. As a matter of fact he is determined to showcase the supremacy of the Scythians against the Greeks in the matter of friendship.

Furthermore, he sets the social merits of Greeks on a different level, contending that it is their exceeding eloquence that has promoted the idea of socio-political excellence. *Au contraire*, Scythians may lack in verbal artistry but are unquestionably more dedicated to their friends. Lucian farcically explores the stereotype even further when Toxaris proposes that he lose an arm in case Scythians prove to be lesser friends. In turn Mnesippus suggests that he should then lose his tongue—Lucian all the while furnishing, propounding, and pushing the boundaries of socio-cultural propaganda.

Ὑμεῖς γάρ μοι δοκεῖτε τοὺς μὲν περὶ φιλίας λόγους ἄμεινον ἄλλων ἂν εἰπεῖν δύνασθαι, τἄργα δὲ αὐτῆς οὐ μόνον οὐ κατ' ἀξίαν τῶν λόγων ἐκμελετᾶν, ἀλλ' ἀπόχρη ὑμῖν ἐπαινέσαι τε αὐτὴν καὶ δεῖξαι ἡλίκον ἀγαθόν ἐστιν· ἐν δὲ ταῖς χρείαις προδόντες τοὺς λόγους δραπετεύετε οὐκ οἶδ' ὅπως ἐκ μέσων τῶν ἔργων. (9)

I can see that you are all admirably well qualified to talk about friendship: but when it comes to putting your words into practice, there is a considerable falling off; it is enough for you to have demonstrated what an excellent thing friendship is, and somehow or other, at the critical moment, you make off, and leave your fine words to look after themselves. (Translation by Fowler)

Scytha is also entitled Πρόξενος (the patron-protector). Lucian reintroduces Anacharsis, albeit a well established literary persona and the paradigm of cultural hybridity and Hellenization. Lucian, however, takes a step back and represents the molding of this figure and the entire process of acculturation. Anacharsis had to build his cultural confidence.

οἷα δὴ ξένος καὶ βάρβαρος οὐ μετρίως τεταραγμένος ἔτι τὴν γνώμη, πάντα ἀγνοῶν, ψοφοδεὴς πρὸς τὰ πολλά, οὐκ ἔχων ὅ τι χρήσαιτο ἑαυτῷ (3)

In no small perturbation of spirit; a foreigner and a barbarian, everything was strange to him, and many things caused him uneasiness; he knew not what to do with himself.

He is clearly attracted to the refined allurements of Hellenic paideia but is portrayed as disconcerted in his initial encounter with that is essentially a foreign culture. It is interesting to note that, even though in all the travels narrated in the Greek novel as well as in Philostratus's *Life of Apollonius*, the visitor is able to converse in Greek. Lucian makes a point to note that Anacharsis was unable to find someone who was speaking the same language. So Lucian redefines otherness and has Anacharsis converse with Toxaris in Scythian (Ἀλλὰ Τόξαρις Σκυθιστὶ προσειπὼν αὐτόν, "addressing him in the Scythian language", 4). The end of the story furnishes the realization of Anacharsis transformation into the literary model of ethnic hybridity. Lucian states that he actually

became a citizen (δημοποίητος γενόμενος, *Scyth.* 8). However, one needs to be mindful of one understated yet of pivotal importance remark about Toxaris. Albeit a self-counsciously minted Greek, his tombstone depicts him as holding his bow on the left hand and a book on the right. Lucian clearly introduces the readers to the idea of otherness and hybridity.

The aforementioned point encapsulates the spirit of the period and the balanced twofold individuality that Lucian suggests. This very thought is also the one that we should carry to the reading of *Anacharis*. Lucian does not grow complacent, for the process of ethnic syncresis, whether authorial or historical, is not simple. Lucian affords us the idea that an individual may be a successful amalgamation of multi-ethnic characteristics, origin and *paideia* being the two distinct contributing factors to one's individualization. Therefore, in addition to the process of acculturation, he also introduces the notion of enculturation. The Scythian characters need first to establish themselves as Scythians, identify their inherent characteristics and *Lebensstil*, reevaluate their priorities, quantify the importance of a Hellenic *paideia*, and then proceed with re educating themselves. Anacharsis, therefore, in the homonymous work refuses to acknowledge the exigency for athletics and dramatic performances, the two cultural pillars of Greek civilization. Clearly, the idea is that of *paideutic* elevation and not of cultural and ethnic annexation.

{ΑΝΑΧΑΡΣΙΣ}

Εἶδον, ὦ Σόλων, οὓς φὴς τοὺς τραγῳδοὺς καὶ κωμῳδούς, εἴ γε ἐκεῖνοί εἰσιν, ὑποδήματα μὲν βαρέα καὶ ὑψηλὰ ὑποδεδεμένοι, χρυσαῖς δὲ ταινίαις τὴν ἐσθῆτα πεποικιλμένοι, κράνη δὲ ἐπικείμενοι παγγέλοια κεχηνότα παμμέγεθες· αὐτοὶ δὲ ἔνδοθεν μεγάλα τε ἐκεκράγεσαν καὶ διέβαινον οὐκ οἶδ' ὅπως ἀσφαλῶς ἐν τοῖς ὑποδήμασιν. Διονύσῳ δὲ

οἶμαι τότε ἡ πόλις ἑώρταζεν. οἱ δὲ κωμῳδοὶ βραχύτεροι μὲν ἐκείνων καὶ πεζοὶ καὶ ἀνθρωπινώτεροι καὶ ἧττον ἐβόων, κράνη δὲ πολὺ γελοιότερα. καὶ τὸ θέατρον γοῦν ἅπαν ἐγέλα ἐπ' αὐτοῖς· ἐκείνων δὲ τῶν ὑψηλῶν σκυθρωποὶ ἅπαντες ἥκουον, οἰκτείροντες, οἶμαι, αὐτοὺς πέδας τηλικαύτας ἐπισυρομένους. (23)

An. Ah, I have seen the tragedians and comedians you speak of, at least if the former are men in heavy stilted shoes, and clothes all picked out with gold bands; they have absurd head-pieces with vast open mouths, from inside which comes an enormous voice, while they take great strides which it seems to me must be dangerous in those shoes. I think there was a festival to Dionysus going on at the time. Then the comedians are shorter, go on their own feet, are more human, and smaller-voiced; but their head-pieces are still more ridiculous, so much so that the audience was laughing at them like one man. But to the others, the tall ones, every one listened with a dismal face; I suppose they were sorry for them, having to drag about those great clogs. (Translation by Fowler)

Diogenes Laertius, *Lives of Philosophers and the Letters of Anacharsis*

Lucian is not the only one who feels the need for an Anacharsis as a model of interactivity between nations. In fact Anacharsis becomes a symbol of cultural awareness later in Diogenes Laertius in the *Lives of Philosophers*.[139] He is described as being δίγλωττος (bilingual) and as consciously wishing to adapt to Hellenic customs. After an extended stay in Athens, he returns to Scythia where he is despised for his alterity and is thereupon killed. He is quoted to say when derided by an Athenian for being from Scytha that: "To me my country is shameful, but you are a shame to your country." He does not deny his nationality; he chooses, though, to better himself (ἀμείμονα ἄνδρα γενέσθαι). In the works titled "*The Letters of Anacharsis*," he sets the issue of identity on a different level and, subsuming language itself and linguistic solecisms and barbarisms, contends that Scythians consider a speech as mean when the thought itself that is expressed is bad. He then proceeds to translate his argument to a philosophical level and argue that gods have not deprived Scythians of the ability to think wisely, something that the Greeks seem to think they have appropriated. In the letter, Anacharsis foregoes any attempt to

---

[139] See Kindstrand (1981) for a profound study of Anacharsis as a literary and historical figure.

claim linguistic perfectionism on behalf of foreigners, as everyone should be granted the right to perfect their own native language. He does expatiate on considering social solecisms—undermining exoterically the presupposed Greco-Roman thesis that linguistic propriety in either or both the above languages also determines a person's social and ethical status. The careful wordplays βαρβαρικός, σολοικισμός, διαλογισμός, βουλαί may create the illusion of insouciance on behalf of Anacharsis, while in fact he apprises the readers of the merits of ethics in a world where linguistic correctness has become synonymous or even occasionally relegated ethical and moral propriety.

Some may term this process obfuscation of social mores. I contend that it is a matter of clarification instead. Instead of feeling as Romans who speak Greek, or as Greeks under Roman rule, people parameterize their individuality differently—they define who they have become and thus describe their identity rather than their ethnicity. Despite how accustomed people were navigating through the variable social and ethical strata, using the *paideia* of their choice as a medium, the process still felt as having to be constructed or that needed to be presented as such. Lucian's *Somnium* attests to the literary artifices that were meant to position the *literati* amidst the Hellenized, cultured tiers of the society. In his narratologically manipulative and socially reconstructive dream, Lucian goes to great lengths to present the personified Education and Culture as opposed to the barbaric *techne* of Sculpting, while Παιδεία in her description of her traits unfailingly describes oratory.

Any study on Roman identity and Hellenic paideia cannot be oversimplified. How can there be a set view on hellenophilia, anti-Roman sentiments, and Lebensstil when we

consider Aulus Gellius and his appreciations of language, Lucian and his treatise on language in the *Battle between the Consonants*, Plutarch and his diversified accounts of Greek and Roman culture,[140] and Dionysius's of Halicarnassus *Roman Antiquities*, yet complemented with his treatises on Attic oratory. We should not discount, though, Cicero's *Brutus* and his embrace of Atticism. Of course, Dio's diplomatic and politically correct orations,[141] amended based on the geographical location of the orator, and Aelius Aristides's *Panathenaicus* and *Encomium to Rome* provide us with a picture of a new realism.[142] Administrative control over the provinces, Roman imperial identity, and other social aspects controlled by the Romans cannot be denied. However, there seems to be a literary truce, concomitant with the undeniable Roman political supremacy and Greek linguistic annexation. The obvious ambivalence that emerges from the aforementioned authors is indicative of their adaptability.

5.3 Conclusion

In conclusion, I contend that language is the medium *par excellence* not only of communication but also of self-asseveration. The period of the High Empire is the arena of multi-culturality that is intensified by the politicization and frequent embattlement of languages. Atticism, therefore, seems to bear a twofold significance—primarily as the mode of expression of 5th- and 4th-century Greeks and secondly as a chance to offer a space within which people could reinvent themselves but always in the safe context of the

---

[140] Jones (1971) passim. For a comprehensive analysis of Plutarch's political, philosophical, and religious perspectives, see also Barrow (1967), Swain (1996).

[141] Swain (1996) 162 describes the work as "the most important single expression of Greek elite views of living with Rome in our period, certainly the most detailed." See also Duff (1999), Jones (1971) 110-121. For earlier studies, see Desideri (1986) and Renoirte (1951). Valgiglio (1976) offers a mostly linguistic analysis.

[142] See Swain (1996) 254-298 and compare with Pernot (2008).

revered past. Additionally, the quantifiable conclusions of the previous chapters actually prove that there was indeed primary and secondary Attic, according to Moeris, or the Attic of the ancients, according to Phrynichus. The citizens of the High Empire consciously redefine themselves by adopting an amalgamation, appropriating linguistic correctness but also a newly fashioned language along with a newly fashioned self.

Chapter 6
Conclusion

The purpose of this study was manifold and multi-layered, as it is meant to bridge the chasm in our appreciation of three seemingly distinctly disparate fields of study—classical studies, computational linguistics, and computer science. My ultimate intention was to showcase that each of the three examines, studies, and contributes differently to individuals and consequently humanity as a whole. However, none of the three alone can ever achieve effective promotion of their goals without assistance from and collaboration with the other two. Classical studies work studiously on the human record. It is pertinent, though, to realize that full comprehension as well as preservation of that record requires more enhanced computational methods. Computational linguistics focuses on language. It is unreasonable, though, to claim that their approach is simply theoretical, as language is the premier medium of human communication, and its profound understanding is the only way to better comprehend other aspects of human life and civilization. Additionally human languages are models upon which computer languages and logistics have been based. Finally, computer science does offer enhanced methods and methodologies, providing us with quantifiable results. However, the point of study revolves around human needs and the enhancement of technology to serve them.

In this work I approached a topic deeply entrenched in classical studies and by extension the humanities, identity, and how it is shaped through language and social *mores*. Even though the basis of my argument and subsequent experimentation is based on close readings of Ancient Greek and Latin texts, my analysis and the core of my research was based on computational linguistics and computational methods. The majority of the study requires profound understanding of the language beyond the

philological reading, as I explore syntactical structures and constructions. Additionally, the results, albeit thought provoking, would essentially be meaningless without computational methods to purvey concrete numbers and visualizations.

Chapter 1 provides a discussion of the three aforementioned scholarly fields, which were pertinent for the study. I present the precepts of computational linguistics, corpus linguistics, and digital humanities so as to further explicate what prompts this work and how the confluence of three methodologies significantly enhances our apprehension of the issue at hand.

Chapter 2 serves a unique role. It is meant to give the philological background that in the ensuing chapters will be discussed, analyzed, questioned, and proved via traditional humanistic interpretations, computational analysis of language that affords us with the metalinguistic parameters of language, and a computational framework specifically designed to convey all the intricacies of the language and its socio-political bearings. Therefore, I approach Greekness, Latinity, and Atticism through the writings of Greek and Roman grammarians and lexicographers and provide the complete list of all the occurrences of the aforementioned notions.

Chapters 3 and 4 explicate further the reasoning behind the usage of the Perseids framework and the Prague annotation system. They then proceed to relate the metrics developed, the computational methods, and their subsequent visualization to quantify and objectify the previously purely theoretical inferences. The metric system was developed after careful consideration of the stylistic attributes of Ancient Greek. Therefore, each metric "measures" something pertinent in the formation of the language. The visualizations then afford us a more understandable and interpretable format of the

numerical results. For philologists, it is interesting to view the graphic presentation of humanistic ideas, and for the computer scientists the applicability of their methods on a topic that is predominantly philological and social.

Finally, chapter 5 recontextualizes the numerical results and their interpretations, as were acquired in chapters 3 and 4, and thus sets the parameters necessary to discuss them in conjunction with readings of literary texts of the period of the High Empire. My intention is to show how numbers are "translated" into a different "language," the language of the humanist.

In conclusion, I would like to note that the human factor is (or should always be) both the drive and the purpose of every field of study and inquiry. It is only then that one can embrace the significance in the diversity of knowledge and appreciate the uniqueness in each individual field as well as the exigency to set them all in a collaborative motion.

REFERENCES

Primary Editions and Translations

Bekker, I. 1933. *Harpokration at Moeris*. Berlin: Reimer.

Bury, R. G. 1933. *Sextus Empiricus with an English Translation in four volumes*. Cambridge, MA and London: Harvard University Press.

Caplan, H. 1954. *[Cicero] Rhetorica ad Herennium*. Cambridge, MA and London: Harvard University Press.

Cary, E. 1937. *The Roman Antiquities of Dionysius of Halicarnassus in seven volumes*. Cambridge, MA and London: Harvard University Press.

Dindorf, G. 1823. *Grammatici Graeci*. Leipzig: In libraria Kuehniana.

Goold, G. R. 1986. *Dio Chrysostom with an English Translaiton in five volumes*. Cambridge, MA and London: Harvard University Press.

Keil, H. 1961. *Grammatici Latini*. Leipzig: Teubner.

Kent, R.G. 1938. *Varro. On the Latin Language with an English Translation in two volumes*. Cambridge, MA & London: Harvard University Press.

Lamar Crosby, H. 1946. *Dio Chrysostom with an English Translation in five volumes*. Cambridge, MA and London: Harvard University Press.

Macleod, M.D. 1974. *Luciani Opera*. Oxford & New York: Oxford University Press.

Norlin, G. 1980. *Isocrates. Isocrates with an English Translation in three volumes*. Cambridge, MA & London: Harvard University Press.

Russell, D.A. 2001. *Quintilian. The Orator's Education with an English Translation*. Cambridge, MA & London: Harvard University Press.

Secondary Literature

Anderson, G. (1993) *The Second Sophistic: A cultural phenomenon in the Roman Empire.* London and New York: Routledge.

Bamman, D., Crane G. (2006) "The Design and Use of a Latin Dependency Treebank." In *Proceedings of the Fifth Workshop on Treebanks and Linguistic Theories (TLT 2006)*. Prague: ÚFAL MFF UK, 67-78.

Bamman D., Passarotti M., Crane G., Raynaud S. (2007) *Guidelines for the Syntactic Annotation of Latin Treebanks*, «Tufts University Digital Library», 2007.

Bamman, D., Passarotti, F., Busa, R., Crane, G. (2008) "The Annotation guidelines of the Latin Dependency Treebank and Index Thomisticus Treebank." *In Proceedings of the 5th SaLTMiL Workshop*. Morocco 2008, 71-76.

Bamman D. Mambrini, F., Crane, G. (2009) "An Ownership Model of Annotation: The Ancient Greek Dependency Treebank." In *Proceedings of the Eighth International Workshop on Treebanks and Linguistic Theories*. Milan 2009, 5-15.

Barrow, R.H. (1967) *Plutarch and his Times*. Bloomington: Indiana University Press.

Binongo, J.N. and Smith, M.W.A. (1999). "The Application of Principal Component Analysis to Stylometry." *Literary and Linguistic Computing* 14.1: 445-466.

Biville, F. (2002) "The Graeco-Romans and Graeco-Latin: a terminological framework for cases of bilingualism." In J.N. Adams & M. Janse & S. Swain, eds., *Bilingualism in ancient society*, 77-102. Oxford & New York: Oxford University Press.

Bohnet, B. (2010) "Top Accuracy and Fast Dependency Parsing is not a Contradiction." In Proceedings of the 23rd International Conference on Computational Linguistics, 89-97.

Bowersock, G.W. (1969) *Greek Sophists in the Roman Empire*. Oxford: Clarendon Press.

Bowersock, G.W. ed., (1974) *Approaches to the Second Sophistic: Papers presented at the 105th to the Annual Meeting of the American Philological Association.* University Park: Pennsylvania State University.

Bowie, E.L. (1970) "Greeks and their Past in the Second Sophistic." In *Past and Present* 46: 3-41.

——— (1982) "The Importance of Sophists." In *Yale Classical Studies* 27: 29-59.

——— (1991) "Hellenes and Hellenism in Writers of the Early Second Sophistic." In S. Said, ed., *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque*, 183-204. Leiden and New York: Brill.

Bowie, E. (1991) "Hellenes and Hellenism in Writers of the Early Second Sophistic." In S. Said, ed., *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque*, 183-204. Leiden & New York: Brill.

Bozia, E. (2015) *Lucian and his Roman Voices. Cultural Exchanges and Conflicts in the Late Roman Empire*. New York & London: Routledge.

Bozia, E. (2015) "Measuring Tradition, Imitation, and Simplicity: the case of Attic Oratory." In F. Mambrini, M. Passarotti, C. Sporleder, eds., *Proceedings of the Workshop on Corpus-Based Research in the Humanities*. Warsaw 2015, 23-29.

E. Bozia. (2016). Atticism: the language of 5th-century oratory or a quantifiable stylistic phenomenon? In Celano, G. (ed.) Special Issue on Treebanks. *Open Linguistics* 2.1. https://doi.org/10.1515/opli-2016-0029

Burdick, A., Drucker, J., Lunenfeld, P., Presner, T., Schnap, J. (2012) *Digital Humanities*. Cambridge, MA & London: MIT Press.

Burrows, J.F. (2002) " 'DELTA': a measure of stylistic difference and a guide to likely authorship." In *Literary and Linguistic Computing* 17.3: 267-287.

Burrows, J.F. (2006) "All the Way Through: Testing for Authorship in Different Frequency Strata." In *Literary and Linguistic Computing* 22.1: 27-48.

Castellani, V. (2002) "Plutarch's 'Roman' Women." In E.N.Ostenfeld, ed., *Greek Romans and Roman Greeks*, 142-55. Aarhus: Aarhus University Press.

Celano, G. A and Crane, G. 2015) "Semantic Role Annotation in the Ancient Greek Dependency Treebank." In M. Dickinson et al., eds., *Proceedings of the Fourteenth International Workshop on Treebanks and linguistic Theories* (TLT14), 26-34.

Celano, G. (2014) Guidelines for the Ancient Greek Dependency Treebank 2.0. (https://github.com/PerseusDL/treebank_data/blob/master/AGDT2/guidelines/Greek_gu idelines.md

Church, K. And Mercer, R.L. (1993) "Introduction to a special issue on computational linguistics using large corpora." In *Computational Linguistics* 19.1: 1-24.

Crane, G., Lüdeling, A. (2012) "Introduction to the Special Issue on Corpus and Computational Linguistics, Philology, and the Linguistic Heritage of Humanity." In *ACM J. Comput. Cult. Herit.* 5.1:1-5.

Daneš, F. (1964) "A Three-level Approach to Syntax." In J. Vachek, ed., Travaux *Linguistiques de Prague 1: L' École de Prague d'aujourd' hui*, 225-240. Prague: Éditions de l' Académie Tchécoslovaque des Sciences.

Darányi, S., Wittek, P., Dobreva, M. (2012) "Using Wavelet Analysis for Text Categorization in Digital Libraries: a first experiment with Strathprints." In *International Journal on Digital Libraries* 12.1: 3-12.

Debusmann, R., Kuhlmann, M. (2010) "Dependency Grammar: classification and exploration." In M. W. Crocker, J. Siekmann, eds., *Resource-Adaptive Cognitive Processes*, 365-388. Berlin & Heidelberg: Springer.

Deegan, M., Mccarty, W. (2011) *Collaborative Research in Digital Humanities*. Farnham, Surrey, UK & Burlington, VT: Ashgate.

De Jonge, C.C. (2008) *Between Grammar and Rhetoric*. Leiden and Boston: Brill.

Dench, E. (2005) *Romulus' Asylum. Roman Identities from the Age of Alexander to the Age of Hadrian*. Oxford & New York: Oxford University Press.

Desbordes, Fr. (1991) "Latinitas: Constitution et Évolution d'un Modèle de l'identité Linguistique." In S. Said, ed., *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque*, 33-47. Leiden & New York: Brill.

Desideri, P. (1986) "La vita politica cittadina nell'impero: lettura dei *praecepta gerendae rei publicae* e dell' *an seni res publica gerenda sit*." In *Athenaeum* 74: 371-81.

Digital Humanities Manifesto 2.0. (=DHM) (2011) http://www.humanitiesblast.com/manifesto/Manifesto_V2.pdf Accessed October 15th, 2016.

Dihle, A. (1977) "Der Beginn des Attizismus." In *A&A* 23: 162-177.

Dik, H. (1995) *Word Order in Ancient Greek: a pragmatic account of word order variation in Herodotus*. Amsterdam: J.C. Gieben.

Dligach, D., Nielsen, R. D., Palmer, M. (2010) "To Annotate more accurately or to annotate more." In *Proceedings of the 4th Linguistic Annotation Workshop*, 64-72.

Douglas, A.E. (1956) "A Ciceronian Contribution to Rhetorical Theory." In *Eranos* 55: 18-26.

Dubuisson, M. (1981) "Utraque Lingua." In *AC* 50: 274-286.

——— (1982) "Remarques sur le vocabulaire grec de l'acculturation." In *RBPh* 60: 5-32.

Duff, T. (1999) *Plutarch's Lives: exploting virtue and vice*. Oxford & New York: Oxford University Press.

Eder, M. et al. (2013) "Stylometry with R: a suite of tools." In *Digital Humanities 2013 Conference Abstracts*. Lincoln 2013, 487-489.

Ferrer I Cancho, R. et al. (2004) "Patterns in Syntactic Dependency Networks." In *Physical Review* E69. 5: 051915(1)-051915(8).

Ferrer I Cancho, R. (2010) "Network Theory." In P.C. Hogan, ed. *The Cambridge Encyclopedia of Language Sciences*, 555-557.

Firbas, J. (1992) *Functional Sentence Perspective in Written and Spoken Communication*. Cambridge, UK: Cambridge University Press.

Fitzpatrick, E., ed. (2004) *Corpus Linguistics Beyond the Word. Corpus Research from Phrase to Discourse*. Amsterdam and New York: Rodopi.

Follet, S. (1991) "Divers Aspects de l'Hellénisme chez Philostrate." In S. Said, ed., *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque,* 205-215. Leiden & New York: Brill.

Fromheide, H., Hovy, D. and Søgaard, A. (2014) "Crowdsourcing and Annotating NER for Twitter#drift." In *Language Resources and Evaluation Conference (LREC) 2014*, 2544-2547. Reykjavik, Iceland.

Gabba, E. (1991) *Dionysius and the History of Archaic Rome.* Berkeley & Los Angeles: University of California Press.

Gangloff, A. (2007) "Peuples et Préjugés chez Dion De Pruse et Lucien de Samosate." In *Revue des Études Grecques* 120: 64-86.

Garretson, G., O'Connor, M.C. (2004) "Between the Humanist and the Modernist: Semi-automated Analysis of Linguistic Corpora." In E. Fitzpatrick, ed., *Corpus Linguistics Beyond the Word. Corpus Research from Phrase to Discourse*, 87-104. Amsterdam and New York: Rodopi.

Garside, R., Leech, G., McEnery, A., eds. (1997) *Corpus Annotation. Linguistic Information from Computer Text Corpora*. London & New York: Longman.

Gelzer, Th. (1979) "Klassizismus, Attizismus und Asianismus." In O. Reverdin, B. Grange, eds., *Le Classicisme à Rome aux 1ers siècle avant et après J.-C.*, 1-41. Entetriens sur L'Antiquité Classique. Tome XXV. Vandeoeuvres-Genève.

Gleason, M.W. (1995) *Making Men.* Princeton: Princeton University Press.

Goldhill, S., ed. (2001) *Being Greek under Rome: Cultural Identity, the Second Sophistic and the Development of Empire*. Cambridge: Cambridge University Press.

Gonzalez, S. B., Passarotti, M. (2014) "Challenges in Enhancing the Index Thomisticus Treebank with Semantic and Pragmatic Annotation." In V. Enrich, E. Hinrichs, D. De Kok, P. Osenova, A. Prepiorkowski, eds., *Proceedings of the Thirteenth International Workshop on Treebanks and Linguistic Theories (TLT-13)*. December 12-13, 2014, Tübingen, Germany, Department of Linguistics, University of Tübingen, Germany, 265-270, 2014.

Gorman, V.B., Gorman, R.J. (2016). "Approaching Questions of Text Reuse in Ancient Greek Using Computational Syntactic Stylometry." In Celano, G. (ed.) Special Issue on Treebanks. *Open Linguistics* 2.1.

Goudriaan, K. (1989) *Over classicisme. Dionysius van Halicarnassus en zijn program van welsprekendheid, cultuur en politiek.* Unpublished diss. Vrije Universiteit Amsterdam.

Grabska-Gradzińska, I., Kulig, A., Kwapień, J., Oświęcimka, P., Drożdż, S. (2013) "Multifractal Analysis of Sentence Lengths in English Literary Texts." In *AWERProcedia Information Technology & Computer Science* 03, 1700.

Graps, A. 1995. "An Introduction to Wavelets." In *IEEE Computational Science and Engineering* 2.2: 50-61.

Hajič, J. (1998) "Building a syntactically annotated corpus: The Prague Dependency Treebank." In E. Hajičová, ed., *Issues of Valency and Meaning. Studies in Honor of Jarmila Panevová*, 12-19. Prague Karolinum, Charles University Press.

Hajič, J., Böhmová, A., Hajičová, E., Vidová Hladká, B. (2000) "The Prague Dependency Treebank: A three-level annotation scenario. In A. Abeillé, ed., *Treebanks: Building and Using Parsed Corpora*, 103-127. Amsterdam: Kluwer.

Hajič, J., Panevová, J., Hajičová, E., Sgall, P., Štěpánek, J., Ševčiková-Razímová, M. (2006) "Prague Dependency Treebank 2.0. In *Linguistic Data Consortium, Philadelphia*. CD-ROM, CAT: LDC2001T10.

Hajičová, E., Sgall, P., Zeman, D. (2004) "Issues of Projectivity in the Prague Dependency Treebank." In *Prague Bulletin of Mathematical Linguistics* 81:5-22.

Hana, J., Rosen, A., Škodová, S., Stindlová, B. (2010) "Error-tagged Learner Corpus in Czech." In *Proceedings of the 4th Linguistic Annotation Workshop (LAW IV), Uppsala,* 11-19.

Hana, J., Štěpánek, J. (2012) "Prague Markup Language Framework." In Proceedings of the 6th Linguistic Annotation Workshop, 12-21.

Hall, J. (2002) *Hellenicity: Between ethnicity and culture*. Chicago.

Hartog, F. (1991) "Rome et la Grèce: les choix de Denys d'Halicarnasse." In S. Said, ed., *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque, Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque,* 149-167. Leiden & New York: Brill.

Haverinen, K., Ginter, F., Laippala, V., Kohonen, S., Viljanen, T., Nyblom, J., Salakoski, T. (2011) "A dependency-based analysis of Treebank annotation errors." In *Proceedings of the International Conference on Dependency Linguistics*, 115-124.

Hellwig, P. (2003) "Dependency Unification Grammar." In V. Agel, L.M. Eichinger, H.W. Eroms, P. Hellwig, H. J. Heringer, H. Lobin, eds., *Dependency and Valency*, 593-635. Berlin & New York: Walter de Gruyter.

Hockey, S. (2004) History of humanities computing. In S. Schreibman, S. Siemens, J. Unsworth, eds., *A Companion to Digital Humanities*, 289-305. Oxford: Blackwell.

Hollingsworth, C. (2012). "Using Dependency-Based Annotations for Authorship Identification." In Sojka, P., Horák, A., Kopeček, I., Pala, K. (eds.) *Text, Speech and Dialogue. TSD 2012. Lecture Notes in Computer Science*, vol 7499, 314-319. Springer, Berlin, Heidelberg.

Hovy, D., Plank, B., Søgaard, A. (2014) "When POS datasets don t add up: Combatting sample bias." In *Language Resources and Evaluation Conference (LREC) 2014*, 4472-4475. Reykjavik, Iceland.

Innes, D.C. (1989) "Augustan Critics." In G.A. Kennedy, ed., *The Cambridge History of Literary Criticism*, 245-273. Vol.I: Classical Criticism. Cambridge.

Jones, C.P. (1971) *Plutarch and Rome*. Oxford.

——— (1978) *The Roman World of Dio Chrysostom*. Cambridge, Mass: Harvard University Press.

Jensen, K. (2014) "Linguistics and the Digital Humanities." In *Mediekultur* 2014, 57: 115-134.

Kilburn, K. (1913) *Lucian*. Vol.6.: Cambridge, MA & London: Harvard University Press.

Kindstrand, J.F. (1981) *Anacharsis. The Legend and the Apophthegmata*. Uppsala: Almqvist & Wiksell.

Kirby, J.T. (1997) "Ciceronian Rhetoric: Theory and Practice", in *Roman Eloquence*, ed. W. J. Dominik. New York & London, 13-31.

Kirk, J.M. (1994) "Teaching and Language Corpora: The Queen's approach." In A. Wilson and T. McEnery, eds., *Corpora in Language Education and Research: A Selection of Papers from TALC '94*, 29-51. Lancaster: Unit of Computer Research on the English Language.

König, J., Whitmarsh, T. (2007) "Introduction." In J. König & T. Whitmarsh, eds., *Ordering knowledge in the Roman Empire*, 3-39. Cambridge & New York: Cambridge University Press.

Kübler, S. And Zinsmeister, H. (2015) *Corpus Linguistics and Linguistically Annotated Corpora*. London & New York: Bloomsbery.

Leech, G.N. (1991) "The State of the Art in Corpus Linguistics." In K. Aijmer and B. Altenberg, eds., *English Corpus Linguistics: studies in honor of Jan Svartvik*, 8-29. London: Longman.

Leech, G. N. and Fligelstone, S. (1992) "Computers and Corpus Analysis." In C.S. Butler, ed., *Computers and Written Texts*, 115-140. Oxford: Blackwell.

Lezius, W. (2002) "Ein Suchwerkzeug für syntaktisch annotierte Textkorpora. Ph.D. thesis, IMS, University of Stuttgrart, December. Arbeitspapiere des Instituts für Maschinelle Sprachverarbeitung (AIMS), 8.4.

McDonald, R., Nivre, J. (2007) "Characterizing the Errors of data-driven dependency parsing models." In *Proceedings of the Conference on Empirical Methods in Natural Language Processing and Natural Language Learning*, 122-131.

Majidi, S., Crane, G. (2014) "Human and Machine Error Analysis on Dependency Parsing of Ancient Greek." In *Digital Libraries (JCDL), 2014 IEEE/ACM Joint Conference on Digital Libraries*.

McEnery, T., Xiao, R., Tono, Y. (2005) *Corpus Based Language Studies*. London & New York: Routledge.

Mambrini, F., Passarotti, M. (2012) "Will a Parser Overtake Achilles? First Experiments on Parsing the Ancient Greek Dependency Treebank." In *Proceedings of the 11th Workshop on TLT*. Lisbon 2012, 133-144.

Mambrini, F. et al. (2013) "Non-projectivity in the Ancient Greek Dependency Treebank." In *Proceedings of the 2nd International Conference on Dependency Linguistics*. 2013, 177-186.

Mambrini, F. (2016) "The Ancient Greek Dependency Treebank: Linguistic Annotation in a Teaching Environment." In G. Bodard & M. Romanello, eds., *Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange & Public Engagement*, 83-99. Ubiquity Press: London.

Martens S., Passarotti M. (2014) "Thomas Aquinas in the TüNDRA: Integrating the Index Thomisticus Treebank into CLARIN-D." In N. Calzolari et al., eds., *Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC 2014)*. May 26-31, 2014, Reykjavik, Iceland, European Language Resources Association (ELRA), 767-774.

McCarty, W. (2014) *Humanities Computing*. Basingstoke: Palgrave Macmillan.

McGillivray, B. Passarotti, M. (2009) "The Development of the *Index Thomisticus* Treebank Valency Lexicon." In *Proceedings of the EACL 2009 Workshop on Language Technology and Resources for Cultural Heritage, Social Sciences, Humanities, and Education-LaTeCH-SHELT&R 2009*, 43-50.

Mel'čuk, I. (1988) *Dependency Syntax: theory and practice*. Albany: University of New York Press.

Mírovský, J. (2006) Netgraph: A tool for searching in Prague Dependency Treebank 2.0. In *Proceedings of the 5th Workshop on Treebanks and Linguistics Theories (TLT 2006)*, 211-222.

Moles, J. (1995) "Dio Chrysostom, Greece, and Rome." In D. Innes, H. Hine, C. Pelling, eds., *Ethics and Rhetoric*, 177-92. Oxford: Oxford University Press.

Nesselrath, H.G. (1990) "Lucian's Introductions." In D.A. Russell, ed., *Antonine Literature*, 111-40. Oxford: Clarendon Press.

Norden, E. (1898) *Die antike Kunstprosa vom VI. Jh. V. Chr. Bis in die Zeit der Renaissance*. Leipzig: Teubner.

O'Sullivan, N. (1992) *Alcidamas, Aristophanes and the Beginnings of Greek Stylistic Theory*. Stuttgart.

Pajas, P., Štěpánek, J. (2009) "System for Quering Syntactically Annotated Corpora." In Proceedings of the ACL-IJCNLP 2009 Software Demonstrations, Suntec, Singapore, 3 August 2009, 33-36.

Passarotti, M. (2010) "Leaving Behind the Less-resourced Status." In Proceedings of the 7th SaLTMiL Workshop, Malta 2010, 27-32.

Passarotti M. (2011) "Language Resources. The State of the Art of Latin and the Index Thomisticus Treebank Project." In M.S. Ortola, ed., *Corpus anciens et Bases de données, «ALIENTO. Échanges sapientiels en Méditerranée»*, N°2, Nancy, Presses universitaires de Nancy, 2011, 301-320.

Passarotti M. (2012) "From Treebanks to Lexical Entries. Clustering the Index Thomisticus." In J. Radimský, ed., *Actes du 31e Colloque International sur le Lexique et la Grammaire*, České Budějovice, Université de Bohême du Sud a České Budějovice (République Tchèque), 2012, 143-147.

Passarotti M. (2014) "From Syntax to Semantics. First Steps Towards Tectogrammatical Annotation of Latin." In K. Zervanou, C. Vertan, eds., *Proceedings*

of the 8th Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities (LaTeCH) @ EACL 2014. April 26, 2014. Gothenburg, Sweden, Gothenburg, Sweden, The Association for Computational Linguistics, 2014, 100-109.

Passarotti, M. et al. (2014) "A Statistical Investigation Into the Corpus of Seneca." In *Proceedings of The 17th International Colloquium on Latin Linguistics*, Rome, Italy 2013, 1-16.

Passarotti, M. (2014) "The Importance of Being sum. Network Analysis of a Latin Dependency Treebank." *In Proceedings of La Prima Conferenza Italiana di Linguistica Computazionale*. Pisa 2014, 291-295.

Passarotti M. (2015) "What you can do with linguistically annotated data. From the Index Thomisticus to the Index Thomisticus Treebank." In V. Roszak Piotr, eds., *Reading Sacred Scripture with Thomas Aquinas. Hermeneutical Tools, Theological Questions and New Perspectives*, 3-14. Belgium: Brepols Press.

Pernot, L. (2008) "Aelius Aristides and Rome." In W.V. Harris, B. Holmes, eds., *Aelius Aristides between Greece, Rome, and the Gods*, 175-201. Leiden: Brill.

Perry, B. E. (1955) "Literature in the Second Century." In *Classical Journal* 50.7: 295-298.

Postal, P. (1965) "Constituent Structure: A study of contemporary models of syntactic description." *Foundations of Language* 1.4: 346-353

Preston, R. (2001) "Roman Questions, Greek Answers: Plutarch and the construction of identity." In S. Goldhill, ed., *Being Greek under Rome: cultural identity, the Second Sophistic and the development of* Empire, 86-122. Cambridge & New York: Cambridge University Press.

Radermacher, L. (1899) "Studien zur Geschichte der antiken Rhetorik IV: Ueber die Anfänge des Atticismus." In *RhM* 54: 351-374.

Renoirte, Th. (1951) *Les "Conseils Politiques" de Plutarque. Une lettre ouverte aux Grecs* à l'*epoque* de Trajan. Louvain: Publications universitaires - Bibliothèque de l'Université.

Rohde, E. (1886) "Die asianische Rhetorik und die zweite Sophistik." In *RhM* 41: 170-190.

Rochette, B. (1997) *La latin dans le monde grec*. Bruxelles: Latomus.

Said, S. (ed) 1991. *Ἑλληνισμός: Quelques jalons pour une histoire de l'identité grecque*. Leiden & New York: Brill.

Said, S. 2001. "The Discourse of identity in Greek rhetoric from Isocrates to Aristides." In I. Malkin, ed., *Ancient perceptions of Greek ethnicity*, 275-299. Cambridge, MA: Harvard University Press.

Sampson, G., McCarthy, D. (2004) *Corpus Linguistics: readings in a widening discipline*. London & new York: Continuum International.

Santorini, B. (1990) *Part-of-speech tagging guidelines for the Penn Treebank Project*. Department of Computer and Information Science, University of Pennsylvania, 3rd revision, 2nd printing. ftp//ftp.cis.upenn.edu/pub/treebank/doc/tagguide.ps.gz

Schmidt, W. (1887-1897) *Der Atticismus in seinem Hauptvertreten* (5 vols.). Stuttgart.

Schmitz, T. (1997) *Bildung und Macht: zur sozialen und politischen Funktion der zweiten Sophistik in der griechischen Welt den Kaiserzeit.* München: Beck.

Schreibman, S., Siemens, R., Unsworth, J., eds. (2004) *A Companion to Digital Humanities*. Oxford: Blackwell.

Schwartz, E. (1905) "Dionysios von Halicarnassos." In *Paulys Real-Encyclopädie der classisischen Altertumswissenschaft*, 934-961. Band 5. Stuutgart: J.B. Metzler.

Sgall, P. (1969) *A Functional Approach to Syntax in Generative Description of Language*. New York: American Elsevier Pub. Co.

Sgall, P., Hajiˇcová, E., Panevová, J. (1986) *The Meaning of the Sentence in its Pragmatic Aspects*. Dordrecht: Reidel.

Sidebottom, H. (1996) "Dio of Prusa and the Flavian Dynasty." In *Classical Quarterly* 46.2: 447-456.

Simon, S.H. (2001) *XML.* New York: McGraw-Hill Professional.

Svensson, P. (2010) "The Landscape of Digital Humanities." In DHQ 4.1

Swain, S. (1990) "Hellenic Culture and the Roman Heroes of Plutarch." In *Journal of Hellenic Studies* 110 : 126-145.

_____ (1996) *Hellenism and Empire*. Oxford: Clarendon Press.

Terras, M., Nyhan, J., Vanhoutte, E., eds. (2014) *Defining Digital Humanities*. Farnham, Surrey, UK & Burlington, VT: Ashgate.

Tesnière, L. (1959) *Éléments de syntaxe structural*. Paris: Editions Klincksieck.

Teubert, W., Čermáková, A. (2007) *Corpus Linguistics. A Short Introduction*. Continuum: New York & London.

Titchener, F.B. (2002) "Plutarch and Roman(ized) Athens." In E.N.Ostenfeld, ed., *Greek Romans and Roman Greeks*, 136-41. Aarhus: Aarhus University Press.

Tognini-Bognelli, E. (2001) *Corpus Linguistics at Work*. John Benjamins: Amsterdam.

Uryupina, O., Plank, B., Severyn, A., Rotondi, A., Moschitti, A. (2014) "SenTube: a corpus for sentiment analysis on Youtube social media." In *Language Resources and Evaluation Conference (LREC) 2014*, 4244-4249 Reykjavik, Iceland.

Usher, S. (1974) *Dionysius of Halicarnassus*. Cambridge, MA: Harvard University Press.

Valgiglio, E. (1976) *Plutarco: Praecepta Gerendae Reipublicae*. Milan:Cisalpino-Goliardica.

Vidakovic, B., Mueller, P. *Wavelets for Kinds. A Tutorial Introduction*. http://www.diku.dk/users/jda/biosignal/kidsA.pdf (Accessed November 20th, 2016)

Wiater, N. (2011) *The Ideology of Classicism*. Berlin & New York: DeGruyter.

Wilamowitz-Moellendorff, U. (1900) "Asianismus und Attizismus." In *Hermes* 35: 1-52.

Wisse, J. (1995) "Greeks, Romans, and the Rise of Atticism." In J.G.J, Slings, S.R., Sluiter, I., eds. *Greek Literary Theory After Aristotle*, 65-82. Amsterdam: VU University Press.

Whitmarsh, T. (2001) *Greek Literature and the Roman Empire*. Oxford: Clarendon Press.

——— (2005) *Second Sophistic.* Oxford: Oxford University Press.

——— (2012) "Philostratus." In I.J.F. De Jong, ed., *Space in ancient Greek literature*, 463-479. Leiden: Brill.

——— (2013) "Resistance is futile? Greek literary tactics in the face of Rome." In P. Schubert, P. Ducrey, P. Derron, eds., *Les Grecs Héritiers des Romains*, 57-78. Entetriens sur l'Antiquité Classique. l Tome LIX. Vandoeuvres-Genève.

Wynne, M., ed. (2005) *Developing Linguistic Corpora: a guide to good practice*. Oxford: Oxbow Books.

Yatsko, V.A. (2014) "Computational Linguistics or Linguistic Informatics?" In *Automatic Documentation and Mathematical Linguistics* 2014 48.3: 149-157.

APPENDIX

1. **The documentation of the Application Programming Interface developed for the needs of this study.**

NodeMetric Class

```
void NodeMetric(name)
```

This class creates a node-based metric for syntactically annotated sentences as presented by E. Bozia, "Measuring Tradition, Imitation, and Simplicity:The case of Attic Oratory", In Proceedings of the Workshop on Corpus-Based Research in the Humanities (CRH), 2015, pp. 23-29.

Example:
```
var m=new NodeMetric('Number of nodes');
m.weight=function(n)
{
return 1;
};
m.metric=function(n)
{
return 1;
};
```

Parameters:

        name - A string with a name that describes the metric.

Returns:

        void

Methods

```
void weight(node)
```

This is a callback method that you can set to define how the weight will be calculated for each node of a syntactically annotated sentence. It will be automatically called iteratively for each node of a given sentence when you apply this metric to the sentence using the method metric.apply(sentence). It is initially set to return always the value 1.

Parameters:

        node - An input node given as a TreebankSentence object.

Returns:

        void

```
void metric(node)
```

This is a callback method that you can set to define how the metric will be calculated for each node of a syntactically annotated sentence. It will be automatically called iteratively for each node of a given sentence when you apply this metric to the sentence using the method metric.apply(sentence). It is initially set to return always the value 0.

Parameters:

     node - An input node given as a TreebankSentence object.

Returns:

     void

---

void **setDefaultWeights**(type)

This method sets a default weight function to this metric. There are four preset weight functions you can choose from: NodeMetric.ALL_ONE (returns 1 for all nodes), NodeMetric.ROOT_ONE_OTHERS_ZERO (returns 1 only for the root node), NodeMetric.UNIFORM_SUM_TO_ONE (returns 1/num_of_nodes for all nodes), and NodeMetric.LEAVES_ONE_OTHERS_ZERO (returns 1 only for the leaf nodes).

Parameters:

     type - A constant value that corresponds to the type of a preset weight function. It must be one of the following: NodeMetric.ALL_ONE, NodeMetric.ROOT_ONE_OTHERS_ZERO, NodeMetric.UNIFORM_SUM_TO_ONE, and NodeMetric.LEAVES_ONE_OTHERS_ZERO.

Returns:

     void

---

void **setWaveletWeights**(n,k)

This method sets a normalized Haar wavelet weight function to this metric.

Parameters:

     n - The order of the wavelet.

     k - The shift of the wavelet. k must be between 0 and 2^n-1.

Returns:

     void

---

number **apply**(sentence)

This method applies this metric to a given syntactically annotated sentence. It iteratively calculates the weighted metric for each node and returns the sum.

Parameters:

     sentence - An input sentence given as a TreebankSentence object.

Returns:

     number - A number with the value calculated by applying this metric to a given sentence.

TreebankSentence Class

```
void TreebankSentence(parent)
```

This class defines and controls the structure of a syntactically annotated sentence. Object of this class are generated by the TreebankFile class when you load a particular treebank file formatted as an XML tree. It should be noted that in a syntactically annotated sentence each node is also a TreebankSentence element.

Parameters:

parent - An optional input argument with the parent of the node to be constructed given as a TreebankSentence object.

Returns:

void

Methods

```
string getRelation()
```

This method returns the relation of this node with its parent node (for example "ATR").

Parameters:

none

Returns:

string - The relation of this node.

```
string getLemma()
```

This method returns the lemma of this node.

Parameters:

none

Returns:

string - The lemma of this node.

```
string getPosTag()
```

This method returns the pos. tag of this node.

Parameters:

none

Returns:

string - The pos. tag of this node.

```
number getId()
```

This method returns the id of this node, which is the order of the word in the sentence starting from 1.

Parameters:

      none

Returns:

      number - The id of this node.

TreebankSentence **getRoot**()

This method returns the root node of the syntactical tree to which this node belongs.

Parameters:

      none

Returns:

      TreebankSentence - The root node object.

TreebankFile **getFile**()

This method returns the treebank file object to which this node belongs.

Parameters:

      none

Returns:

      TreebankFile - The treebank file object.

Boolean **isLeaf**()

This method returns true if this node is a leaf otherwise returns false.

Parameters:

      none

Returns:

      boolean - The returned value.

boolean **isRoot**()

This method returns true if this node is the root node otherwise returns false.

Parameters:

      none

Returns:

>*boolean* - The returned value.

integer **getNumOfChildren**(height)

This method returns the number of children of this node.

Parameters:

>*none*

Returns:

>*integer* - The number of children.

TreebankSentence **getParent**()

This method returns the node object of this node's parent or null of this node is the root.

Parameters:

>*none*

Returns:

>*TreebankSentence* - The object of the parent node.

Array **getChildren**()

This method returns an array with the children of this node.

Parameters:

>*none*

Returns:

>*Array* - An array with the children of this node given as TreebankSentence objects.

number **getWidth**()

This method returns the width of the tree starting from this node as the root. It is calculated as the maximum number of nodes that belong to the same generation.

Parameters:

>*none*

Returns:

>*number* - The width of the tree.

number **getMaxFamilyWidth**()

This method returns the size of the largest family of the tree that starts from this node as the root. It is calculated as the maximum number of children that one node can have in this tree.

Parameters:

> *none*

Returns:

> *number* - The width of the largest family.

---

number **getHeight**()

This method returns the height of the tree starting from this node as the root. It is calculated as the maximum number of generations in this tree.

Parameters:

> *none*

Returns:

> *number* - The height of the tree.

---

number **getNumOfWords**()

This method returns the words in the tree that starts form this node as a root. The nodes that do not contain words (such as punctuation nodes) are not counted.

Parameters:

> *none*

Returns:

> *number* - The number of words.

---

number **getNumOfNodes**()

This method returns the nodes in the tree that starts form this node as a root.

Parameters:

> *none*

Returns:

> *number* - The number of nodes.

---

string **getForm**()

This method returns the form of this node.

Parameters:

none

Returns:

> *string* - The form of this node.

---

string **toString**(input_flags)

This method exports this sentence as a string.

Parameters:

> *input_flags* - The exported string can be generated by a comination of the following flags using binary addition: TreebankSentence.NO_PUNCTUATION (does not include punctuation in the result), TreebankSentence.WITH_ARTIFICIAL (includes punctuation in the result), TreebankSentence.GREEK_TO_LATIN (transliterates the result to the latin alphabet using 1-1 character mapping). Example:
sentence.toString(TreebankSentence.WITH_ARTIFICIAL|TreebankSentence.GREEK_TO_LATIN);

Returns:

> *string* - The exported sentence.

Array **apply**(metrics,print)

This method applies one or more given metrics to this sentence. Optionally it can print out the results.

Parameters:

> *metrics* - A given metric or an array of metrics as NodeMetric object(s).

> *print* - An optional boolean flag for printing out the results. The default value is false.

Returns:

> *Array* - An array of numbers with the values calculated by applying the given metrics to this
sentence.

TreebankFile Class

void **TreebankFile**()

This class defines and controls the contents of a treebank file given as an XML tree in the metreex.org database.

Example:
```
var t=new TreebankFile();
t.onload=function()
{
t.apply(metrics,true);
};
t.load('an_XML_file_id');
```

Parameters:

> *none*

Returns:

> *void*

Methods

```
string getTitle()
```

This method returns the title property of this file.

Parameters:

> *none*

Returns:

> *string* - The title of this file.

```
number getNumOfSentences()
```

This method returns the number of sentences in this file.

Parameters:

> *none*

Returns:

> *number* - The number of sentences in this file.

```
TreebankSentence getSentence(i)
```

This method returns a particular sentence from this file.

Parameters:

> *i* - The sequential number of the sentence in need, starting from 0.

Returns:

> *TreebankSentence* - The sentence returned as a TreebankSentence object.

```
number getNumOfNodes()
```

This method returns the total number of nodes in this file calculated as the sum of the number of nodes of each sentence in this file.

Parameters:

> *none*

Returns:

> *number* - The total number of nodes in this file.

```
Array apply(metrics,print)
```

This method applies one or more given metrics to all sentences in this file. Optionally it can print out the results.

Parameters:

metrics - A given metric or an array of metrics as NodeMetric object(s).

print - An optional boolean flag for printing out the results. The default value is false.

Returns:

Array - An array of array of numbers with the values calculated by applying the given metrics to all sentences in this file.

```
void onload()
```

This is a callback method that will be called when this treebank file is loaded. It is initially empty.

Parameters:

none

Returns:

void

```
void load(id)
```

This method loads a treebank file given as an XML treebank file in the metreex.org database. When the loading is complete the onload() method will be called if it was previously defined.

Parameters:

string - The id of the treebank file to be loaded.

Returns:

void

Eleni Bozia, Ph.D.
Assistant Professor of Classics, University of Florida
Associate Director, Digital Epigraphy & Archaeology project

Department of Classics   Tel.: +1 (352) 392 2075
University of Florida   Fax +1 (352) 846 0297
PO Box 117435   E-mail: bozia@ufl.edu
Gainesville, FL 32611-7435   Web: http://plaza.ufl.edu/bozia
USA   http://digitalepigraphy.org

Areas of Research	Imperial Greek and Latin Literature; Ethnicity and National Identity; Literary and Cultural Theories; Digital Humanities

Employment	2015- present Assistant Professor, Department of Classics, University of Florida
	2016 Institut für Informatik, Digital Humanities, Universität Leipzig, Visiting Scholar (Gast Facultät)
	2015 Visiting Scholar, Fondation Hardt, Vandoeuvres-Genève
	2015 Visiting Scholar, American Academy in Rome
	2014 Institut für Informatik, Digital Humanities, Universität Leipzig, Visiting Scholar (Gast Facultät)
	2012-2015 Department of Classics, University of Florida, Part-time Visiting Lecturer
	2009-2012 Department of Classics, University of Florida, Part-time Adjunct Lecturer
	2005-2009 Department of Classics, University of Florida, Teaching Assistant

Education	Dr. Phil. in Digital Humanities, Institut für Informatik, Universität Leipzig, 2014-present
	Ph.D. in Classical Philology, University of Florida, 2005-2009
	Summer School Fellow, American Academy in Rome, 2007
	MPhil in Classical Philology, University of Glasgow, 2003-2004
	B.A. in Classical Philology, Aristotle University of Thessaloniki, 1999-2003

Books	*Lucian and his Roman Voices: Cultural Exchanges and Conflicts in the Late Roman Empire*, Routledge Monographs in Classical Studies, Routledge, New York and London, 2015. ISBN: 978-1-13-879675-1. Attic Oratory and its Imperial Revival: Quantifying Theory and Practice. (Status: 4 chapters completed)

Articles and Book Chapters (Peer-reviewed)	E. Bozia. "Ektypa and 3D models of Ektypa: the reality(ies) of a digital object" In Di Giuseppantonio Di Franco, P., Galeazzi, F., Vassallo, V. (eds.) Authenticity and Cultural Heritage in the Age of 3D Digital Reproductions. MacDonald Institute of Archaeology. Cambridge University Press. (forthcoming 2017) E. Bozia. "Reviving Classical Drama: Virtual Reality and Experiential Learning in a traditional classroom." In Foka, A. (ed.) Technology in the Study of the Past. Special Issue in Digital Humanities Quarterly (forthcoming) E. Bozia. Atticism: the language of 5th-century oratory or a quantifiable stylistic phenomenon? In Celano, G. (ed.) Special Issue on Treebanks. *Open Linguistics* 2.1. (2016) https://doi.org/10.1515/opli-2016-0029 E. Bozia. *«Γαλάτης ὢν ἑλληνίζειν»:* Greekness, Latinity, and otherness in the world of the Second Sophistic. In Johansson, M. (ed). Special Issue on the Second Sophistic. Eranos. (forthcoming) E. Bozia. "Ekphrasis as a literary and visual artifice." (under review) E. Bozia. "Visits by Petronius, Apollonius, Theocritus, and Moschus to the *Ekphrasis*." (under review) E. Bozia, A. Barmpoutis. 2016. "Augmenting the Workspace of Epigraphists: An Interaction Design Study." In Liuzzo, P.M., Mambrini, F., Orlandi, S., Santucci, R. (eds.) Digital and Traditional Epigraphy in Context. Proceedings of the EAGLE 2016 International Conference on Digital and Traditional Epigraphy in Context. 27-29 January 2016. Rome, Italy. Sapienza Università Editrice. 171-182. E. Bozia. 2016. "Assessing the Role of Digital Libraries of Squeezes in Epigraphic Studies." In Liuzzo, P.M., Mambrini, F., Orlandi, S., Santucci, R. (eds.) Digital and Traditional Epigraphy in Context. Proceedings of the EAGLE 2016 International Conference on Digital and Traditional Epigraphy in Context. 27-29 January 2016. Rome, Italy. Sapienza Università Editrice. 373-378. A. Barmpoutis, E. Bozia, D. Fortuna. 2015. "Interactive 3D digitization, retrieval, and analysis of ancient sculptors, using infrared depth sensors for mobile devices", Proceedings of the 9th International Conference on Human-Computer Interaction Vol.

9178. IV, 3-11.

R. Farmer, D. Eastop, E. Bozia, A. Barmpoutis. 2015. "'Shape-from-shading' to document and examine lace, seals and metal." *Journal of Institute Conservation* 38.1.41-53.

E. Bozia. "Measuring Tradition, Imitation, and Simplicity: the case of Attic Oratory." 2015. *Proceedings of the Workshop on Corpus-Based Research in the Humanities*. Mambrini, F., Passarotti, M., Sporleder, C. (eds.). 23-29.

M. Lamé, G. Sarullo, F. Boschetti, M. Dellepiane, E. Bozia, A. Barmpoutis, S. Rosmorduc. 2015. "Open–Access Epigraphy: The Issues of Partnering Traditional with Digital." *LEXIS: Poetica, retorica e comunicazione nella tradizione classica* 33. 9-30.

E. Bozia, A. Barmpoutis. 2015. "Life and Afterlife of archaeological sources: electronic preservation, dissemination, and study of Latin inscriptions." *Proceedings of the Italic Inscriptions and Databases Workshop, Rome 23 September 2014. Instituto Svedese Di Studi Classici a Roma. Archeologia e Calcolatori 26*. 30-32.

E. Bozia, A. Barmpoutis, R. Wagman. "Open-Access Epigraphy: Electronic Dissemination of 3D Digitized Epigraphic Material." *Proceedings of the International Conference on Information Technologies for Epigraphy and Digital Cultural Heritage in the Ancient World*. Orlandi, S., Santucci, R., Casarosa, V., Liuzzo, P.M. (eds.). Sapienza Università Editrice. 2014. 421-435.

A. Barmpoutis, E. Bozia, and R. S. Wagman. "A novel framework for 3D reconstruction and analysis of ancient inscriptions." *Journal of Machine Vision and Applications*, 21(6), 2010, pp. 989-998.

G. Rocca, G. Sarullo, E. Bozia, A. Barmpoutis, "Tracce di sabinita nel Lapis Satricanus?" *Alessandria* 3 (2009), pp. 67-10.

E. Bozia, G. Sangco, R. Wagman, "A new dedication by Diogenes and other unpublished inscriptions from Epidauros." *ZPE* 160 (2007), 120-22.

E. Bozia, "Should Thucydides' view of the causes of the Peloponnesian war be modified?" in *European History: Lessons for the 21st century*, Gregory T. Papanikos & Nicholas C.J. Pappas (eds.), (Athens, 2006).

Plenary Talks and Invited Presentations	Plenary speaker at the symposium on "Capturing the Senses: Digital Methods for Sensory Archaeology", Lund University, June 2017, Sweden.
	Invited Speaker at the SunoikisisDC 2017 Planning Seminar, Alexander von Humboldt-Lehrstuhl für Digital Humanities, Institut für Informatik, Universität Leipzig, December

2016

Invited Speaker at the eHumanities Seminar, Alexander von Humboldt-Lehrstuhl für Digital Humanities, Institut für Informatik, Universität Leipzig, November 2016, Germany.

Digital Reconsiderations of Classical Studies: the visual language and metalanguage of ancient sources. In IEEE Conference on Virtual Reality. Greenville, SC. 19-23 March 2016.

Invited Speaker at the Workshop on Linguistic and Syntactical Annotation and Treebanking, Alexander von Humboldt-Lehrstuhl für Digital Humanities, Institut für Informatik, Universität Leipzig, December 2015, Germany.

Invited Speaker at the "Texte Messen -- Messungen Interpretieren" Workshop, Universität Freiburg, July 2015, Germany.

Plenary speaker at the "Challenge the Past / Diversify the Future – A Critical Approach to Visual and Multi-Sensory Representations for History and Culture", University of Gothenburg, March 2015, Sweden.

Invited Speaker at the HumLab Workshop Series in Umeå University, Umeå University, March 2015, Sweden.

Invited Speaker at the Workshop "The Cornell Expedition, 1907-1908: Deep Past and Digital Futures." Cornell University, February 2015, Ithaca NY, USA.

Invited Speaker for the Moser Memorial Lecture at Dickinson College. Dickinson College, February 2015, Carlisle PA, USA.

Invited Speaker at the Department of Classics, University of Florida, October 2014, Gainesville, USA.

Invited Speaker at the "Electronic Preservation of Epigraphic Material", Workshop on Italic Inscriptions, Databases and GIS, Swedish Institute, September 2014, Rome, Italy.

Invited Speaker at the Open Philology Worskshop, Universität Leipzig, July 2014, Leipzig, Germany.

Invited Speaker at the Dagstuhl Seminar on Computational Humanities, Universitat des Saarlandes, July 2014, Schloss Dagstuhl, Germany. (Invitation declined with thanks)

Invited Speaker. Université Lyon II-Maison de l'Orient et de la Meditérranée, June 2014, Lyon, France.

Rothman Speaker Series, Center for the Humanities and the Public Sphere, University of

Florida, March 2014, Gainesville, USA.

Invited Speaker at the Institute for Classical Studies Seminar Series, University of London, July 2013, London, U.K.

Invited Speaker at the Leipzig e-Humanities Seminar, December 2012, Universität Leipzig, Germany.

Panelist in "The author meets the critics: C. W. Marshall, The stagecraft and performance of Roman Comedy." in the 32nd Comparative Drama Conference, Loyola Marymount University, March 2008, CA, USA

Conference Presentations (Peer-reviewed)

E. Bozia, A. Barmpoutis. Augmented Reality for Epigraphy: How to bring holograms of inscriptions to your classrooms. 15th International Congress of Greek and Latin Epigraphy (CIEGL), University of Vienna. Vienna, Austria. 28 August- 1 September 2017.

E. Bozia. Evaluating Attic, Imperial Greek, and Roman Oratory: Towards a schema of rhetorical constructions. Workshop on: Classical Philology goes Digital. Universität Potsdam. Potsdam, Germany. 16-17 February 2017.

E. Bozia. Metrical Evaluations of the Attic Dialect: A constructivist approach. Workshop on: How to Do Things with Millions of Words. University of British Columbia. Vancouver, Canada. 2-4 November 2016.

E. Bozia. (Panel Organizer and Chair). "Ethnic, gender, and *paideutic* otherness from Ctesias of Cnidus to the Second Sophistic." Displacement in Language, Literature, and Culture. Mississippi State University. 29 September-2 October 2016.

E. Bozia. Hellenized Romans and Romanized Greeks: Who are the foreigners after all? Displacement in Language, Literature, and Culture. Mississippi State University. 29 September-2 October 2016.

E. Bozia. Digital Reconsiderations of Classical Studies: the visual language and metalanguage of ancient sources. In IEEE Conference on Virtual Reality. Greenville, SC. 19-23 March 2016.

E. Bozia (Panel Organizer and Chair). "Assessing the Role of Digital Libraries of Squeezes in Epigraphic Studies: Digitization, Visualization, and Metadata." EAGLE 2016 International Conference on Digital and Traditional Epigraphy in Context. Sapienza-Università di Roma, January 2016, Rome, Italy.

E. Bozia, A. Barmpoutis. "Augmenting the Workspace of Epigraphists: An Interaction Design Study." EAGLE 2016 International Conference on Digital and Traditional Epigraphy in Context. Sapienza-Università di Roma, January 2016, Rome, Italy.

E. Bozia. "Measuring Tradition, Imitation, and Simplicity: the case of Attic Oratory." Workshop on Corpus-Based Research in the Humanities. December 2015, Warsaw, Poland.

E. Bozia. "How important is *Quellenforschung* for the study of the Second Sophistic: research issue or conundrum?" Colloquium on the Second Sophistic. University of Gothenburg. October 2015, Gothenburg, Sweden.

E. Bozia. "Petronius's *ekphrasis* and its reincarnation in the Greek Novel", International Conference on the Ancient Novel, University of Houston Downtown, September-October 2015, Houston, USA.

E. Bozia, A. Barmpoutis. "The significance of 3D models of ektypa for automatic analysis of lettering techniques." 21st Annual Meeting of the European Association of Archaeologists, Glasgow, September 2015, UK.

A. Barmpoutis, E. Bozia. "Interactive 3D digitization, retrieval, and analysis of ancient sculptors, using infrared depth sensors for mobile devices. "17th International Conference on Human-Computer Interaction, Los Angeles, August 2015, USA.

E. Bozia. A. Barmpoutis. "Reviving classical drama: Virtual reality and experiential learning in a traditional classroom", Open Greek and Latin Project of the Open Philology Project, Universität Leipzig, December 2014, Leipzig, Germany.

E. Bozia, A. Barmpoutis, R. Wagman "Open-Access Epigraphy: Electronic Dissemination of 3D Digitized Epigraphic Material", *International Conference on Information Technologies for Epigraphy and Digital Cultural Heritage in the Ancient World* (EAGLE), September 2014, Paris, France.

E. Bozia,"Dio Chrysostom, Lucian of Samosata, and the Christian Apologists: Religious Conflicts or Encounters?", 14th conference of the Fédération Internationale des Associations des Études Classiques, August 2014, Bordeaux, France.

E. Bozia, "Avatars in Classics: Reconstructing the Circumstance of Performance in Ancient Greece.", 38th Comparative Drama Conference, April 2014, Stevenson University, Baltimore, MD, USA.

E. Bozia, A. Barmpoutis, R. S. Wagman, "The First Online 3D Epigraphic Library.", 14th International Congress of Greek and Latin Epigraphy, September 2012, Humboldt University, Germany.

E. Bozia, A. Barmpoutis, R. S. Wagman, "Digital Epigraphy Toolbox.",Digital Humanties Project Meeting, National Endowment for the Humanties, September 2011, Washington, DC, USA.

E. Bozia, "Lucian's and Gellius' Literary and Social Realities.", 13th congress of the Federation Internationale des Associations d' Etudes Classiques, August 2009, Berlin, Germany.

E. Bozia, "The elegiac motif of the *exclusus amator* in Lucians' *De Mercede Conductis*", Classical Association and Classical Association of Scotland, April 2009, Glasgow, UK.

E. Bozia, A. Barmpoutis, R. S. Wagman,"An Efficient Method for Digitizing Squeezes and Performing Automated Epigraphic Analysis. ", APA 140th Annual Meeting, January 2009, Philadelphia, USA.

E. Bozia "Seneca's Medea, the next step after Plautus in Roman Drama.", 32nd Comparative Drama Conference, Loyola Marymount University, March 2007, CA, USA.

E. Bozia, A. Barmpoutis, R. S. Wagman, "Application of 3D Technologies for the Analysis of Ancient Inscriptions.", 13th International Congress of Greek and Latin Epigraphy, September 2007, University of Oxford, UK.

E. Bozia,"Aristophanes' Ecclesiazousae: A eulogy of or an attack against Athenian construction of gender?", 31st Comparative Drama Conference, Loyola Marymount University, March 2007, CA, USA.

E. Bozia, "Does Aristophanes' Ecclesiazousae serve to reinforce or to undermine the Athenian construction of gender?", Conference on Ancient Drama, July 2007, Wellington, New Zealand (Invitation declined with thanks).

E. Bozia, "Was the Athenian Empire despotism?",ATINER International Conference on European History, Dec. 2006, Athens, Greece.

E. Bozia, "Do Hellenistic Engagements with epic poetry have anything in common?",CAMWS-SS, Nov. 2006, Memphis, Tennessee, USA.

E. Bozia, "Petronius', Apollonius', Theocritus' and Moschus' Visit to the Ekphrasis", CAMWS, April 2006, FL, USA.

E. Bozia, "Terence and Plautus: Dramatists for the Reader or the Audience?", 30th Comparative Drama Conference, Loyola Marymount University, March 2006, CA, USA.

E. Bozia, "Should Thucydides' view of the causes of the Peloponnesian war be modified?", ATINER International Conference on European History: From Ancient to Modern, December 2005, Athens, Greece.

E. Bozia, "How far is it possible to reconstruct the circumstances of the presentation on stage of problematic Aristophanic passages? A comparative study between the Fifth Century Theatre in Athens and Aristophanic Comedy.", 29th Comparative Drama Conference, California State University, March 2005, CA, USA.

Grants Awarded	January 2017, Digitizing the Epigraphic Collection of Università Ca'Foscari. Role: Consultant. Agency: Università Ca'Foscari, Venice, Italy. In Collaboration with: Dipartimento di Studi Umanistici, Università Ca'Foscari, Venice, Italy. Award: 70,000.00 euros. April 2016, Digital Roman History: The first 3D collection of inscriptions from Rome, Spain, North Africa, and the Eastern Mediterranean from the *Corpus Inscriptionum Latinarum*. Role: Consultant. Agency: Berlin-Brandenburgische Akademie der Wissenschaften. In Collaboration with: Corpus Inscriptionum Latinarum. Award: 20,000 euros. October 2014, E-STAMPAGES. Role: Co-Investigator. Agency: French Ministry for Higher Education and Research. In collaboration with Université Lyon 2 and Maison de l'Orient et de la Méditerranée. Award: 53,500 euros. June 2011, Digital Epigraphy Toolbox. Role: Co-Investigator. Agency: National Endowment for the Humanities, Office of Digital Humanities (HD-51214-11). Award: $50,000.
Grants and Awards Sponsored	Prof. Raquel Miranda y Jorge Ferrari, Universita Nacional de la Pampa, Argentina, Fulbright Scholar (awarded) Graduate Students application for Conference Organization, Grant for Workshop and Speaker Series, Center for the Humanities and the Public Sphere, 2017 (under review) Timothy Scott Willis, University Scholars Program, 2015-16 (awarded)
Pending Grant Applications	May 2017, Strategic Opportunities Grant. Role: Co-principal Investigator. Agency: UF Smathers Libraries. (submission process) January 2017, Open-source 3D data harvesting and inter-linking framework for libraries. Role: Principal Investigator. Agency: National Endowment for the Humanities. Award: $315,000.00 (under review)
Honors and Awards	Research Fellowship for Young Researchers, Fondation Hardt, Vandoeuvres-Genève, 2015 Humanities Enhancement Scholarship Grant, University of Florida, 2015-16 Library Enhancement Program in the Humanities, Center for the Humanities and the Public Sphere, University of Florida, 2015

International Educator of the Year, College of the Liberal Arts and Sciences, University of Florida, 2015

Travel Awards, College of Liberal Arts and Sciences, and Department of Classics, University of Florida, 2005, 2006, 2007, 2009, 2012, 2013, 2014, 2015, 2016

Rothman Summer Fellowship in the Humanities, Center for the Humanities and the Public Sphere, University of Florida, 2013

e-Humanities Innovation Award, 2nd place, University of Leipzig, 2012

Mary A. Sollman Scholarship, American Academy in Rome, 2007

CIEGL Bursary, University of Oxford, 2007

Nadyezhda Semerdjieff Scholarship for research in Classical Studies, 2007

Joseph Jay Deiss Memorial Fellowship for Summer Study in Italy, 2007

Recognition for teaching achievement, Center for Greek Studies, University of Florida, 2007

Certificate of Outstanding Achievement, University of Florida, 2005-2007

Graduate studies grant, Gerondelis Foundation Inc., 2007

Rothman Scholar, University of Florida, 2006

Teaching Assistantship, Department of Classics, University of Florida, 2005-2009

CA Bursary, Classical Association of England and Wales, 2004

Solicited Reviews	S. Harrison and C. Stray (eds.) Expurgating the Classics: Editing out in Greek and Latin, (London, 2012), in The Classical Review (forthcoming) S. A. Gurd, Work in Progress: Literary Revision as Social Performance in Ancient Rome, (Oxford, 2012), in The Classical Review 63.2 (2013) C. W. Marshall, The stagecraft and performance of Roman Comedy. (Cambridge, 2006), in Text and Presentation 4 (2007), 241-5.

Professional Activity and Service- Intramural	University Curriculum Committee, University of Florida, 2016-present Smathers Libraries Search Committee for Classics, Philosophy, Religion Librarian, Member, 2016-17

(University Level)	Organizing Committee for 'The Humanities and Technology Conference', University of Florida, 2014
	Mentor in the 'University Minorities Mentors Program', 2013-14; 2015-16
	Faculty Advisor for the Greek American Student Association, University of Florida, 2012-2014
Professional Activity and Service- Intramural (Departmental Level)	Teaching Assistant Coordinator, Department of Classics, University of Florida, 2016-present
	Curriculum Committee Member, Department of Classics, University of Florida, 2016-present
	Ph.D. and MA qualifying Greek exam grader, Department of Classics, University of Florida, Fall 2016
	Chair of Digital Worlds Institute Search Committee, for Assistant-In in Digital Arts and Sciences, 2016
	Faculty Advisor for ESPhi, Classics Honors Society, 2015-16
	Organization of the Rothman Distinguished Lecture by Prof. Maurizio Forte, Duke University, March 2016.
	Organization of the Rothman Distinguished Lecture by Prof. Eric Rebillard, University of Florida, February 2015.
	Graduate Assistant Advisor, Fall 2013
	Organizing committee for a conference in honor of David Young, 2010
	Organizing Committee Member-UF/FSU Annual Colloquium, 2009
Professional Activity and Service- Intramural (College Level)	Advisory Board Member, Center for the Humanities and the Public Sphere, 2013-16
	Advisory Board Member, Digital Humanities Certificate, University of Florida, 2014-present
	Member of the Center for Greek Studies, University of Florida, 2010-present
Professional Activity and Service-	Editor in Chief of the Digital Epigraphy and Archaeology corpus ISSN: 2374-3824, 2014-present

Extramural	Associate Director of the Digital Epigraphy and Archaeology Project at the University of Florida, 2007-present
	Reviewer in Digital Humanities Quarterly, 2014-present
	Reviewer in Bulletin of the Institute for Classical Studies, 2016-present
	Reviewer for the Journal of Platonic Tradition, 2016- present
	Reviewer for the Classical Journal, 2017-present
	Organizing Committee member of the Synoikisis program in Europe, Center for Hellenic Studies, Washington DC- Universität Leipzig, 2017, Leipzig, Germany.
	Organizing Committee member of the Synoikisis program in Europe, Center for Hellenic Studies, Washington DC- Universität Leipzig, 2016, Leipzig, Germany.
	Organizing Committee member of the Synoikisis program in Europe, Center for Hellenic Studies, Washington DC- Universität Leipzig, 2015, Leipzig, Germany.
	Steering Committee member, Workshop on Greek and Latin in an Age of Open Data, Universität Leipzig, December 2014, Leipzig, Germany
	External Reviewer of NEH, 2011
	Reviewer of American Academy in Berlin, 2011
	Staff Member, CAMWS Annual Conference, 2006
Professional Activity and Service- Outreach	Outreach and Fundraising committee for the Center for Greek Studies, 2011-present
Undergraduate Supervision	Timothy Russell-Wagner, Computer Science and Information Department, Undergraduate Thesis, 2016-17
	Timothy Scott Willis, Classics Department, University Scholars Program, 2015-16
Graduate Committee Service	You Mo, MA in Digital Arts and Sciences, Chair of the Committee 2016-2017
	Alberto De Simoni, MA in Classics, Reader 2016-2017

Nicole Reyes, MA in Digital Arts and Sciences, Reader 2016-2017

Caleb Milligan, English Department, External Committee Member, 2016-present

Phillip Allen, Department of Spanish and Portuguese Studies, External Committee Member, 2017-present

Languages	<u>Spoken</u> Modern Greek English French Italian (basic) German (basic) <u>Read</u> Modern Greek English French German Ancient Greek Latin

---

Teaching Experience

Spring 2017-CLT3291-Ancient Drama
      DIG6837-Digital Tools for the Arts and Humanities
      DIG4905- Digital Tools for the Arts and Humanities
Fall 2016-GRW6931-Studies in Greek and Latin Literature
Spring 2016-LNW3220-The Ancient Novel (Petronius, Satyricon & Apuleius, Metamorphoses)
      DIG6905-Digital Tools for the Arts and Humanities
      DIG4905- Digital Tools for the Arts and Humanities
Fall 2015 – GRW4305 – Ancient Greek Novel (Longus, Daphnis and Chloe)
Spring 2015 – GRK1130 – Beginners Greek I
Fall 2014 - CLA3114 - Greece Yesterday and Today
     GRK1131 - Beginners Greek II
Spring 2014 - GRK1130 - Beginners Greek I
Fall 2013 – GRW3301 – Greek Drama (Sophocles, Oedipus Rex & Euripides, Medea)
     CLT3291 – Classical Drama (Aeschylus, Sophocles, Euripides: selections)
     GRK1131 – Beginners Greek II
Spring 2013 - CLA3114 - Greece Yesterday and Today
      GRK1130 - Beginners Greek I
Fall 2012 – LNW3220 – The Ancient Novel (Apuleius, Metamorphoses)
     CLT3291 – Classical Drama (Aristophanes, Menander: selections)
     GRK1131 – Beginners Greek II
Spring 2012 - CLA3114 - Greece Yesterday and Today
     GRK2201 - Intermediate Greek II

GRK1130 - Beginners Greek I
Fall 2011 - CLT3291 - Greek Drama (comedy and tragedy: selections)
GRK2200 - Intermediate Greek
GRK1131 - Beginners Greek II
Spring 2011 - LNW3360 - Roman Satire (Juvenal & Martial)
Fall 2010 - GRW2211 - Attic Prose from Plato to Lucian
GRW3102 - Ancient Greek Novel (Chariton, Callirhoe)
CLA3114 - Greece Yesterday and Today
Spring 2010 - LNW3490 - Medieval Latin: Pagans and Christians in the Roman Empire
CLA3114 - Greece Yesterday and Today
Fall 2009 - GRW2211 - Attic Greek Prose from Plato to Lucian
GRK1131
Spring 2009 - LNW2321 - Introduction to Vergil: Readings from the Aeneid and the Georgics
GRK1130
Fall 2008 - LAT1104 - Beginners Latin III: Wheelock's Latin and Vergil's Aeneid
GRK1131
Spring 2008 - LNW2630 - Latin Love Poetry: Ovid's Amores and Propertius' Monobiblos
GRK1130
Fall 2007 - LNW2560 - Readings in Latin Literature: Metamorphosis in the Ancient World- Ovid's Metamorphoses and Apuleius' Golden Ass
GRK1131
Spring 2007 - LAT1122 - Beginners Latin III: Wheelock's Latin and Vergil's Aeneid
GRK1130
Fall 2006 - LAT1121 - Beginners Latin II
GRK1131
Spring 2006 - LAT1121 - Beginners Latin II
GRK1130
Fall 2005 - LAT1120 - Beginners Latin I
GRK1131
Summer 2005 - GRE1131 - Accelerated Ancient Greek II: Euripides' Medea
Spring 2005 - GRK1131
GRK1130

Parts of chapters 3, 4, and 5 have appeared or are forthcoming in the following peer-reviewed publications

1. E. Bozia. "Measuring Tradition, Imitation, and Simplicity: the case of Attic Oratory." 2015. *Proceedings of the Workshop on Corpus-Based Research in the Humanities*. Mambrini, F., Passarotti, M., Sporleder, C. (eds.). 23-29. http://crh4.ipipan.waw.pl/files/9814/4973/5451/CRH4_proceedings.pdf

2. E. Bozia. 2016. Atticism: the language of 5th-century oratory or a quantifiable stylistic phenomenon? In Celano, G. (ed.) Special Issue on Treebanks. *Open Linguistics* 2.1. https://doi.org/10.1515/opli-2016-0029

3. E. Bozia. "Γαλάτης ὢν ἑλληνίζειν»: Greekness, Latinity, and otherness in the world of the Second Sophistic." *ERANOS* (fortcoming 2017)

Selbständigkeitserklärung

Hiermit erkläre ich, die vorliegende Dissertation selbständig und ohne unzulässige fremde Hilfe angefertigt zu haben. Ich habe keine anderen als die angeführten Quellen und Hilfsmittel be-nutzt und sämtliche Textstellen, die wörtlich oder sinngemäß aus veröffentlichten oder unveröf-fentlichten Schriften entnommen wurden, und alle Angaben, die auf mündlichen Auskünften beruhen, als solche kenntlich gemacht. Ebenfalls sind alle von anderen Personen bereitgestell-ten Materialen oder erbrachten Dienstleistungen als solche gekennzeichnet.

Ort, Datum

Unterschrift