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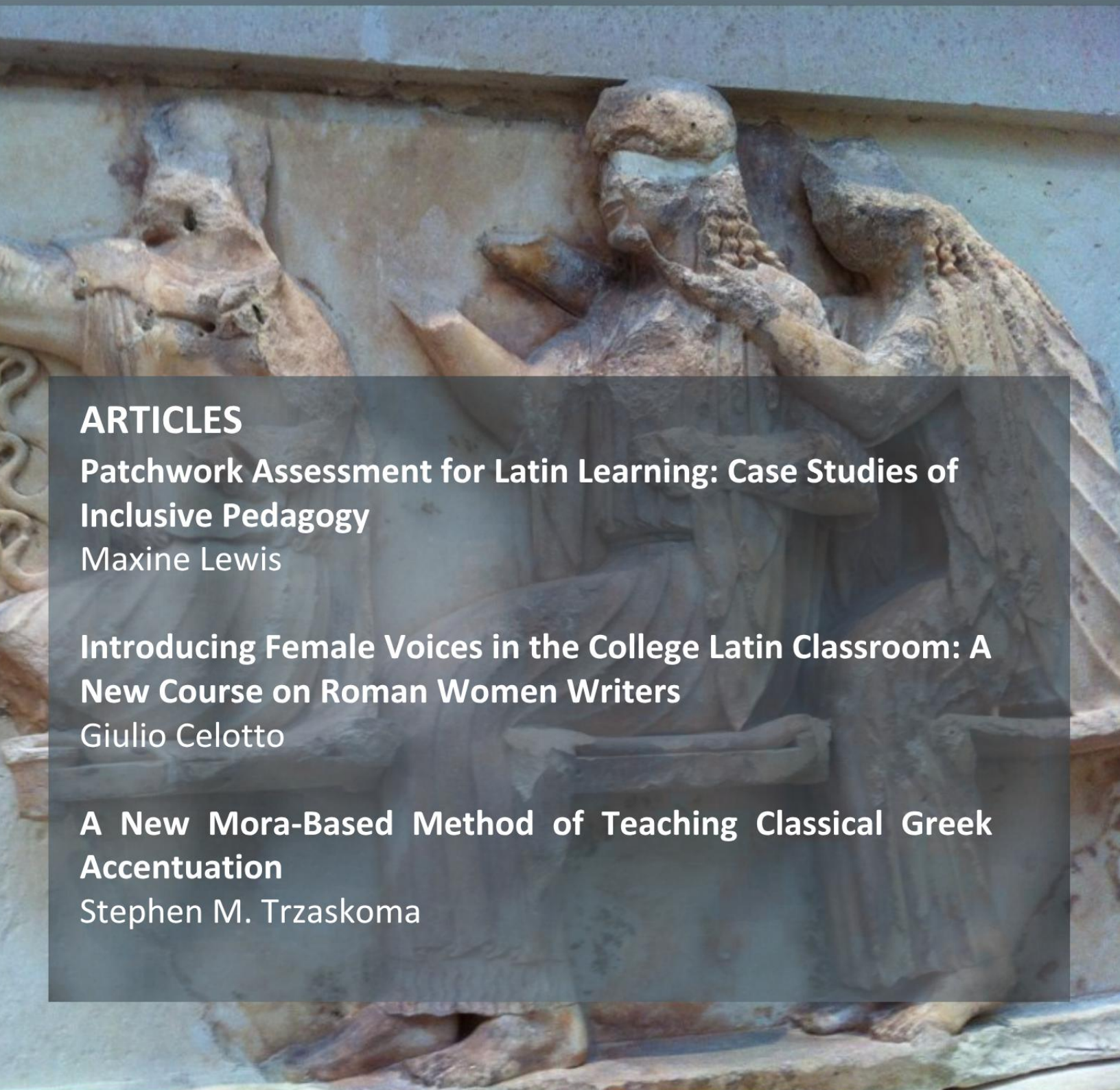

ARTICLES

Cover photo of the east frieze of the Siphnian Treasury at Delphi by Kristina Chew. Cover and Layout Design by Katie Alfultis-Rayburn.

TEACHING CLASSICAL LANGUAGES MISSION STATEMENT

Teaching Classical Languages (ISSN 2160-2220) is the only peer-reviewed electronic journal dedicated to the teaching and learning of Latin and ancient Greek. It addresses the interests of all Latin and Greek teachers, graduate students, coordinators, and administrators. Teaching Classical Languages welcomes articles offering innovative practice and methods, advocating new theoretical approaches, or reporting on empirical research in teaching and learning Latin and Greek. As an electronic journal, Teaching Classical Languages has a unique global outreach. It offers authors and readers a multimedia format that more fully illustrates the topics discussed, and provides hypermedia links to related information and websites. Articles not only contribute to successful Latin and Greek pedagogy, but draw on relevant literature in language education, applied linguistics, and second language acquisition for an ongoing dialogue with modern language educators. Teaching Classical Languages welcomes articles offering innovative practice and methods, advocating new theoretical approaches, or reporting on empirical research in teaching and learning Latin and Greek.

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EDITOR'S NOTE

Diuersae uarie uiae reportant. "Branching roads bring back by varied ways." The eleventh and last line of Catullus' poem 46 has echoed in my head while working on issue 14.1 of *Teaching Classical Languages*. The old friends he addresses who left for places far away from home (*longe quos simul a domo profectos*) return via different directions back to where they all began from. So do the three articles of this issue each approach the teaching of ancient languages by various means, to reach students who come to our classrooms via different paths.

Maxine Lewis' article "Patchwork Assessment for Latin Learning: Case Studies of Inclusive Pedagogy" explains how to implement a non-traditional approach to grading in which each student chooses assignments that best suit their interests and strengths. A sample of student feedback documents the benefits of patchwork assessment and the author's rubrics offer additional insights.

Giulio Celotto's article "Introducing Female Voices in the College Latin Classroom: A New Course on Roman Women Writers" demonstrates how to design such a Latin course. If you are considering teaching a similar class, the article clearly presents how to do so, while recounting how motivated students were to translate and learn about ancient women writers.

The third article by Stephen M. Trzaskoma, "A New Mora-Based Method of Teaching Classical Greek Accentuation," lays out both a rationale and the steps for teaching Greek accentuation based on morae. If you have ever seen students give up on understanding accentuation — or, worse, on learning Greek altogether— a mora-based method is worth at least considering.

These three articles offer ways to make the ancient language classroom a welcoming space for all, an enterprise all the more essential given the times we teach and live in. AI, LLMs, Google Translate, and a host of other software tools and Internet sites have turned translating and parsing

ancient language texts into just another cut and paste operation. On top of teaching grammar, syntax and vocabulary, we now find ourselves tasked with justifying why students should invest the time and energy into learning these fundamentals on their own, especially given that knowledge of ancient Greek and Latin is not a skill that leads to a guaranteed career path.

No matter how many spear-points are aimed our way, how high the waves rise while the winds blast over our heads, we forge on. I first read Catullus' poem 46 about "spring now ushering in milder warmth with cold sloughed off" (*iam uer egelidos refert tepores*) when I was in my last year of high school. I first taught the poem while in my first tenure-track position at the University of St. Thomas in St. Paul and as the mother of an autistic, intellectually disabled toddler. To provide our son with the best education and services for his many needs, my husband and I have traveled down many roads and taught at many schools (he is a historian of American religion and culture) in the Midwest, New Jersey, New York, and northern California. My one-year detour working for a Silicon Valley tech company proved unexpectedly of use when the Classics Department of Rutgers University asked me to teach online, asynchronous courses. As I discovered, I was well-prepared for these.

I have been teaching for Rutgers ever since and, this fall, will teach elementary ancient Greek as a fully online course. This is not something I could have envisioned doing or thought possible when I began teaching anymore than I would have believed that my son would one day have ridden over 75,000 miles on his bike with his dad. But he has, leading us on a panoply of adventures best described as *diuersus* like Catullus' roads or ποικίλος ("many-colored, diversified, spangled") in the way that Alcaeus refers to the throat of a certain long-winged bird in his fragment 345.2. To bring ancient Greek and Latin to as manifold an audience of students as possible is the important work that the three articles in this issue offer new ways of undertaking.

Many thanks to outgoing editor Yasuko Taoka, who did the initial editing of two of the articles for this issue, and to our Editorial Assistant, Katie Alfultis-Rayburn, whose work is prized and priceless.

NOTES ON CONTRIBUTORS

Dr. Maxine Lewis is a Senior Lecturer in Classics and Ancient History at Waipapa Taumata Rau The University of Auckland. She publishes on Latin literature and Roman history, its later reception, and inclusive teaching of Classics. In 2020 she won a New Zealand National Tertiary Teaching Excellence Award from Ako Aotearoa. Her book chapter on inclusive pedagogy appeared in the edited volume *From Abortion to Pederasty: Teaching Difficult Subjects in the Classics Classroom* (2014), and her article on running a spoken Latin club for students is in the 2022 special edition of *Classicum, Teaching Classical Languages*.

Giulio Celotto received his Ph.D. in Classics from Florida State University in 2017, and is currently serving as Assistant Professor of Classics, General Faculty, at the University of Virginia. His primary research interests focus on imperial Latin literature, that of the Neronian and Flavian age in particular. His first monograph, titled *'Amor belli': Love and Strife in Lucan's 'Bellum civile'*, was published with The University of Michigan Press in 2022. In addition, he has contributed articles on a variety of authors, such as Catullus, Vergil, Livy, Ovid, Seneca, Lucan, Persius, Statius, Juvenal, and Tacitus. Finally, he is the director of the interdisciplinary initiative "The Siren Project: Women's Voice in Literature and the Visual Arts," which was awarded the 2023 SCS Outreach Prize.

Stephen M. Trzaskoma serves as the Dean of the College of Arts & Letters and Interim Dean of the College of Natural & Social Sciences at California State University, Los Angeles. He has published widely on the surviving novels from Ancient Greece and on Greek and Roman myth and mythography, including critical studies, text-critical contributions and translations. He has a longstanding interest in the pedagogy of ancient languages, particularly at the elementary and intermediate levels, and has taught Ancient Greek and Latin for over 25 years at the college level.

A New Mora-Based Method of Teaching Classical Greek Accentuation[1]

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ABSTRACT

This article presents a new way to conceptualize and teach Ancient Greek accentuation in introductory courses and to reintroduce the topic to more advanced learners. The method entirely replaces the traditional approach, which is derived from ancient grammarians' understanding of how the language's pitch accent interacted with syllables and does not allow a compact or coherent presentation of how accentuation works. Using the concept of the mora—an abstract linguistic measure of vowel length that is more fundamental to Ancient Greek phonology than syllables when it comes to accentuation—we can reduce most accentuation to four rules that can handle most words in the language but require far less time and effort from students to master. After laying out a rationale for the new system and detailing its four rules, which can be presented in only one or two class sessions, the article discusses how this system applies to the most common morphology and offers pedagogical considerations and suggestions. It then offers additional analyses and discusses ways to approach more advanced topics.

KEYWORDS

Ancient Greek, accentuation, mora, pitch accent, language pedagogy

1. Introduction and Rationale

Before taking up my current administrative post at California State University, Los Angeles, I taught for 23 years at the University of New Hampshire,

[1] I would like to express my gratitude to several colleagues who provided helpful insights into the approach delineated here and to the specifics of the presentation, especially Sue Curry, Wells Hansen, Wilfred Major and R. Scott Smith. I learned a lot also from my student "guinea pigs" that I tested this method on. Thanks are also due to both of *TCL*'s anonymous reviewers, who improved the presentation of the material substantially with thoughtful critiques and suggestions. All errors and infelicities, it should go without saying, are solely mine.

where I was the department's most frequent instructor of our introductory Ancient Greek sequence. In a pattern that emerged early in my time there, things would go swimmingly in the opening days of the academic year as students enjoyed the process of acquainting themselves with the alphabet and the sounds of the language. I never found students daunted by Greek at this stage. However, every autumn, a specter haunted the beginning Greek course, hovering just out of the sight of the students in those first two or three days: accentuation.

The introduction of this subject tended to immediately splinter a class of excited and uniformly confident learners into fractured groups with dramatically different experiences and outcomes. Some students at this point are hardly affected by the sudden arrival of complex rules and new terminology, but others struggle to greater, if varying, degrees. This breakdown in unity of experience means some are ready to take on the challenges of their first encounters with morphology, vocabulary and syntax, but others find every one of these tasks complicated by a lingering inability to become comfortable with accentuation.

This was more than just an inconvenience. Those struggling would often start skipping class meetings and sometimes even drop, intimidated by the students who seemed to get accentuation without effort. Assessment outcomes diverged radically. I know colleagues who, as a result, have simply taken to de-emphasizing accentuation or not teaching it at all.

For me, this is not an option. It is true that if many of us expect students to

complete only a single year of Greek study, we need to make choices about what to include or give time to and, perhaps, lower our expectations. And it is also the case that accentuation is not likely to be a critical factor in a student's ability to read the texts presented to them in a first-year textbook. On the other hand, my own experience leads me to believe that few strong readers of Greek in the long run—not just those who go to graduate school but those who take advanced undergraduate courses—are completely or significantly ignorant of accentuation.[2] An excellent command of accentuation should not be prioritized over acquisition of reading facility, morphology, vocabulary and syntax.[3] However, the idea that there must be a choice between accentuation and these other elements strikes me as a false dichotomy. I believe that this is a result of inadequate pedagogical

[2] I am aware that there are several possible explanations for this beyond the interpretation implicit in my statement that knowledge of accentuation helps to make people stronger readers of Greek.

[3] The journal's first referee points out that there are instructors who may feel that "students only need to pay attention to accents when they make for meaningful distinctions in meaning." I know some of these instructors, and, while their position is a reasonable one on some level, it is difficult for me to agree that this approach leads to the best *long-term* outcomes. Most generally, I would simply say that there is something strange about teaching students to read a language in which the standard orthography has obligatory marks—literally dozens and dozens on every page—and telling them to ignore these. Even in a typical first-year course there are many distinctions marked by different accents, for example, 1st-declension -άς vs. -ᾶς endings, ἀλλά vs. ἄλλα, infinitives in -ειν vs. -εῖν, contrasts such as φίλει vs. φιλεῖ, τίς vs τις (and all other such interrogative-indefinite contrasts), εἰμί vs. εἶμι, βουλεύσαι vs. βουλεῦσαι (vs. βούλευσαι), δίκαια vs. δικαία and κρίνω vs. κρινῶ. Once a student is reading Greek "in the wild," that is, outside of a textbook, these will only proliferate, to differing degrees depending on what is being read: ἄρα vs. ἆρα, ἦ vs. ἤ, βασιλεία vs. βασίλεια, τόμος vs. τομός, οἴκοι vs. οἶκοι, κήρ vs. κῆρ, οἵ vs. οἳ, πατρόκτονος vs. πατροκτόνος, κάλως vs. καλῶς. Dialectal texts will further multiply the possible such pairs (or triplets) encountered. I have no idea how decisions about which of these are (or are going to be) meaningful can be made in the first year of a student's encounter with Greek in any way that is not simply arbitrary. Ignoring accentuation certainly will not prepare students to handle these on the fly when reading unfamiliar texts with uncontrolled vocabulary.

approaches and resources rather than an inherent difficulty. Command of accent, or at least a decent attention to it, helps with the acquisition of morphology and vocabulary, just as it often presents important clues to syntax. The present proposal offers what I hope is an easier way to support more of our students to have readier access to all material.

Now, it may be that there are instructors of beginning Greek who have no trouble getting every student in their classes to master the basics of accentuation. I have never met one.[4] Although I have refined my approaches to presenting this material and have developed[5] or borrowed methods that are much more effective than those I used when I first started teaching, I continued right up to my last year of teaching Greek to see students drop the course in the first or second week due to the instability and inadequacy they felt from not controlling this material—material which, since it comes at the start of the course, in their minds (and in mine) ought

[4] And while my experience is obviously just my own, the not-very-encouraging encouragement one finds in elementary textbooks is, I think, indicative that I am far from alone. For example, Peek (2021: 131) reassures students, "If, when reading the above [material on accentuation], your head is left spinning, do not worry." Mastronarde (2013: 18) likewise tries to forestall serious concern: "The beginner should not be worried if the rules for accentuation given here seem complicated and difficult to master."

[5] The most effective traditional approach to basic accentuation I used is one I began developing in 2002 and brought to an essentially final form in 2005. I used it continually but in very slightly modified forms subsequently. It is based, like the present proposal, on trying to present Greek accentuation as a process, in this case a series of individual questions that apply to particular sub-scenarios rather than as a overarching set of rules, but it is thoroughly traditional. It was effective in my courses, but not effective enough. One advantage was that its traditional basis could travel with me as I changed textbooks on a regular basis as part of my search for one that I liked and that I felt my students could learn from. (I never did find one that was wholly satisfactory.) In 2016, my colleague Scott Smith made an excellent (and justly popular) video based on it for his students, when he took over duties as the instructor of our elementary Greek sequence for the year (https://www.youtube.com/watch?v=EWXU78SFQaQ&t=88s).

to be straightforward and manageable.

Students dropping Greek has long been a problem for the program at UNH, but it is an increasingly serious one at all institutions when some administrators—and I am richly aware of the situational irony that attends this sentence when its author occupies an administrative office—comb through enrollment data searching for "under-enrolled" offerings or those with high withdrawal rates. In some ways worse is the scenario in which a student is daunted by accents but does *not* drop the course, so that over the rest of the term they find it progressively more difficult to acquire morphology that brings with it additional rules, exceptions and irregularities about the topic they dread most, the squiggly marks over the letters. They may put in a great deal of effort but sometimes will not finish out the full year, lowering retention statistics and often dooming the following year's courses to anemic numbers.

In response to this situation, in October of 2021, I began to develop a new method for teaching accents based on the role of morae in Greek phonology.[6] I tried it out on some of my first-year students that year who learned initially by the traditional approach, as well as some additional plucky volunteers, both those in more advanced Greek courses and those who had not taken Greek at all. The

[6] To my knowledge, this is the first attempt to craft a mora-based explanation for accentuation in Greek that is accessible to non-linguists and can be used in a classroom setting. Textbooks and instructors sometimes refer to the mora and use it to lightly supplement the traditional explanation, as I will note below. But I am unaware of any equivalent system to the one I present here.

resulting approach requires no sophisticated linguistic knowledge or mental superpowers. Instead, to be ready to tackle accentuation with ease at the earliest stage, one need only learn two straightforward central rules, be able to count to four, know that a short vowel contains one mora, and a long vowel contains two morae and be taught what the circumflex and acute marks mean. With just this knowledge, a student can soon accent precisely and correctly most regular finite verb forms[7] and many nouns and adjectives in the language. All that, and we are still only on day three or four of the first term. And that is the point: it is not that this system suddenly makes every detail of accentuation perfectly clear, but that it replaces the basic elements of the core explanation of accentuation with something both simpler and more rational. With the addition of only two more rules and some lessons on how to read vocabulary entries, students can handle almost all regular accentuation in the language. This lowers the initial hurdle to understanding accentuation, provides a consistent basis for acquiring control of the details as the course moves along and has the additional benefit of being more closely related to how accentuation really works in Greek.

I first concentrate on the central components of the system and its four rules. I provide all the concepts necessary to understand the proposal and see how it is implemented. What is new is not the idea of morae or how accent marks relate to

[7] Except for those that undergo contraction, but their uncontracted forms can be accented perfectly.

them but the formulation of the four rules. Then, I provide further elaboration and details about the system, as well as some suggestions for presenting more advanced and detailed topics of accentuation in moraic terms. These details are essentially those that require explanation in the traditional method.

Almost all of the system can be taught in an introductory course in a single 50-minute session to students who have basic familiarity with accentuation and in two such sessions to those who know only the alphabet. The rest is information that will be necessary soon thereafter as students learn their first verbs and nouns. The level of detail presented here should not, I would think, ever appear in a classroom presentation to language learners.

2. The Traditional Method and the Promise of a Moraic Approach

First, let's review the usual syllable-based method and identify some of its challenges and then survey what advantages a moraic approach can bring by comparison.[8] If you prefer to dive right into the system, you can skip down to Appendix 4 and watch the videos linked there. If you are comfortable, as many of

[8] The ancient Greek grammarians could perceive morae and describe vowels in equivalent terms to morae. They, for instance, designated words or vowels or poetic feet, as τετράχρονος, that is, having "four timeslots," which is equivalent in our terminology to a word with four morae. However, they built most of their theoretical apparatus around the length of vowels and syllables rather than these timeslots. That is the underlying source of the complexity and confusion inherent in the traditional method of describing and teaching accents. A single mora carries the high tone in Greek, and since morae are contained inside syllables, talking about accenting syllables works if you create enough rules to account indirectly for the behavior of tone on the morae within them, but that adds complexity.

you will be, with not only Greek accents but also the concept of the mora—and if you don't need any convincing that the traditional approach is problematic and that there must be a better way—you can also proceed to Section 4 ("Overview of the System and the Four Rules").

The following is a summary of information from Probert (2003: 33–34) that encapsulates what is traditionally called the Law of Limitation (A–D), as well as its necessary adjunct, the *Sotêra* Rule (E):[9]

A. An acute cannot appear further back from the end than the antepenult.

B. A circumflex cannot fall further back from the end of a word than the penult.

C. If the ultima contains a long vowel or ends with a consonant cluster, an accent may not appear further back than the penult.

D. If the ultima has a long vowel, a circumflex may only fall on the final syllable.

E. If the ultima contains a short vowel and the penult a long one that is accented, the accent on that vowel must be a circumflex.

Note that these rules assume familiarity with the following background information: (a.) the alphabet, (b.) the difference between long and short vowels

[9] I will refer to the newest introductory Greek book in English at the time of the writing of this article, Peek (2021), so we can use it as an example of an textbook to compare to Probert's presentation: Probert's limitations are given by Peek (39) as four observations: 1: "An acute accent can appear on the antepenult, penult, or ultima." 2: "An acute accent can only appear on the antepenult if the ultima is short." 3: "A circumflex accent can appear only on long vowels and never accents the antepenult." 4: "A circumflex accent can appear on the penult if the penult is long and the ultima is short, abbreviated PLUS: PENULT LONG ULTIMA SHORT."

(including diphthongs), (c.) the names of the last three syllables, (d.) the shape of the acute and circumflex accents, and (e.) the restriction that the acute can fall on a long or short vowel but a circumflex only on a long one. Before accenting even many straightforwardly recessive words, we will also need students to know (f.) that final αι and οι count as short for purposes of accentuation.

Now, knowing some of these points is unavoidable. Under my proposal, you will still need to teach your students (a.), a modified form of (b.), (d.), a modified form of (e.), and (f.). Little of the preliminary knowledge required before learning accentuation can be dispensed with in my method. Moreover, as I will discuss below, I believe it can be useful to teach them (c.), in which case almost nothing is omitted. But all this information is fundamental for any successful student of Greek. It is what happens after the acquisition of this knowledge that really makes a difference.

To return to the traditional presentation, look back over the Law of Limitation and the *Sotêra* Rule and notice a few things. The first two rules are about what one *cannot* do with accentuation, while the last three are phrased as conditional sentences.[10] There is a reason we call most of it the Law of *Limitation;* it describes the restrictions on accents but does not give positive procedures for

[10] The fundamentally passive and limitative nature of the current method is a serious underlying problem with our pedagogies but one too infrequently acknowledged. For an exception, see Chew (2014), especially her remarks on methods "full of prohibitions," lists "of rules that cannot be broken," and, generally, "rules that are descriptive rather than prescriptive" (2014: 86). The proposed system is inherently and thoroughly prescriptive.

accenting a word. After memorizing all of its components perfectly, a student who also thoroughly understands their implications for what kind of accentuation is allowed in Greek can place an accent of the correct type on the correct vowel of exactly one kind of word in Greek: a monosyllable that contains a short vowel, for instance, ἅ, ἄν, γάρ, δέ, ἔν, μά, μέν, πρός, τά, τό, τόν. The rules can't even handle a long vowel in a monosyllable—they contain no guidance on why we have σῶν but κλώψ. Start adding in longer words and we don't get any further clarity on how to approach the resulting possibilities.

The list of monosyllables given in the previous paragraph is not a random collection; they are the 11 words that fit this description from the first 330 words of Plato's *Apology* after enclitics and proclitics are deleted and repeated wordforms are removed from the list, leaving 185 tokens.[11] That is, there are 11 out of 185 words, or 5.9%, that a student can accent after perfectly mastering rules A–E above.

Try this instead. Teach students basically the same preliminary information: (a.) the alphabet, (b.) that short vowels contain one mora (including usually (f.) final αι and οι) and that long vowels (including the other diphthongs) contain two morae, (d.) the shape of the acute and circumflex accents, and (e.) that an acute shows that a high pitch[12] falls on the only mora of a short vowel or the right one of

[11] A list of these is included as Appendix 3.

[12] The Greek accent was a language that used a single high tone on a word as the basis of its accentual system. In more traditional terms, this is usually referred to as "pitch" and the language as having a "pitch accent." I use "(high) tone" and "(high) pitch" interchangeably in this article. It

a long vowel while a circumflex shows that it falls on the left mora of a long one. Now teach them one additional thing, (g.) to count morae from the end of a word backwards and to use the notation μ1 for the first mora, μ2 for the second mora, μ3 for the third mora and μ4 for the fourth mora (one only needs the first three morae for this thought experiment).

So far, we've only added morae into the mix, taught a few concepts in a slightly new way, and added one transparent kind of notation to count morae. Now give the students a single provisional rule—don't get too attached to it, this is for illustrative purposes—and set them loose on the word list from the *Apology*.

• Put the high pitch on μ3 unless there are fewer than three morae,
in which case put it on the word's leftmost mora.

With that single rule, they will correctly accent 112 of those words, or 60.5%. If you teach them the traditional A–E, they will get their 5.9% guaranteed correct but then will have to make at least one guess—position or type of accent—on every single one of the remaining 94.1% of the words. Give them 50-50 odds on each word, and they will get a grand total of 53.0% correct. That doesn't sound too bad until you realize that the actual odds are nowhere near that because they will have to guess both position and type in some places. Take λόγους and εἶναι, which are

is true, as the second reviewer points out, that one does not need to explain what "pitch" is in the traditional system but one is obligated to in the new system. However, every recent textbook in English that I am familiar with does at least mention the original nature of the accent as one involving pitch, so I'm not sure this adds much cognitive load to the new system.

on the list. Since both words have only two syllables, students do have a 50% chance of getting the accent's placement correct on those. And if they keep A–E straight, they are in the clear if they choose the penult. But if they are looking at αὐτῶν and μηδείς, they are in more trouble. Even if they correctly select the ultima as the site of accentuation, they have another 50-50 guess awaiting them because they have no rule for how to accent a long ultima. And we haven't even gotten to words with three syllables, where the rules sometimes leave only a 33% chance of choosing the correct syllable.

Why does the new system get us so much further so quickly? Because 81 of the words in the sample simply accent μ3, another 20 of them only have two morae and accent μ2 and another 11 only have one mora and accent it. This reflects the distribution generally in Greek. High tone on μ3 is by far the most common outcome across the entire language in words that have three or more morae. To give some indication of how this makes a moraic system simpler at heart than a syllabic one, compare how we can describe the outcomes for recessive accent in words of three or fewer morae in terms appropriate to them. Note that we are talking about the same outcomes in either case; we are merely using different terminology.

What needs to be expressed in each case in the syllabic approach—namely what kind of accent and on which syllable—is an automatic consequence of moraic accentuation if you know what the accent marks mean and how to count.

Moraic Outcomes	Syllabic Outcomes
μ1 tone if there is only one mora	acute on the ultima of a monosyllable if its vowel is short
μ2 tone if there are only two morae	circumflex on the ultima of a monosyllable if its vowel is long *or* acute on the penult of a disyllable if its vowel is short
μ3 tone if there are only three morae	acute on the penult of a disyllable if the ultima has a long vowel *or* circumflex on the penult if its vowel is long *or* acute on the antepenult if the ultima is short.

Table 1. Comparison of Moraic Outcomes and Syllabic Outcomes

Now let us return to the provisional rule. If you're following along closely, you may object: "Ah, but they'll get αὐτῶν and μηδείς wrong by your rule too!" That is true. The provisional rule would give us *αὔτων and *μήδεις. Recall, however, that the rule is merely a provisional one designed to provide a glimpse of the potential of a moraic approach. I will refine it, and, besides, it is a simplification of only the first two of the four rules that form the core of the proposed system. For the moment, consider the effect of just this interim rule: by following a simple procedure that anyone can learn and that requires no guessing or convoluted mental gymnastics, your students will get λόγους and εἶναι correct, as well as 111 other words. *Without guessing.* And while you will improve your students' performance by teaching them further rules about how to accent a long ultima in the traditional

system, you will do the same under my proposal. By teaching students moraically, however, you will start them off closer to mastery with less effort, and you will be able to bring many more to a level of understanding that they can build on as they learn more wordforms and encounter inevitable details and exceptions.

I cannot stress this enough: we need to stop tormenting our students. Greek accentuation is considered by some a *rite de passage* of the undergraduate classics experience, but it is one perpetuated by the elect few (us) who succeeded at it themselves and now use it as one of several often bizarre and usually inequitable methods to select the next generation of initiates from the ever-decreasing pool of candidates who even care to try to join our club. My own view is that any impression we have that the traditional approach is a good way to teach accentuation is due entirely to survivor bias. Because some students, including you and me, get it, and a smaller subset even grasps it very quickly, we build our curricula in a way that sends the message, whether we intend to or not, that those who struggle are not cut out for Greek.

3. Necessary Background Information and Counting Morae

While much of the following will be familiar to experienced instructors, I wish to provide good coverage of the topic and lay out clearly what students need to know. I am also conscious that many readers may not be entirely comfortable with what others find elementary.

Very briefly, Ancient Greek—and in this whole following discussion I am referring in the main to the Attic dialect of the classical period and to the early stages of its descendant, Koine—was a language in which a distinction was constantly produced and perceived by its speakers between short and long vowels, which were made distinctive by how long it took to pronounce them. The letters ε and ο always represent short vowel sounds, while η and ω always long ones. The letters α, ι and υ represent both short (ᾰ ῐ ῠ) and long (ᾱ ῑ ῡ) vowels. Diphthongs[13] are long vowels in duration except, in most circumstances, αι and οι when they are at the very end of a word and are followed by no consonants.[14]

The ratio of the length of a short vowel to a long vowel is nominally 1:2. The modern linguistic unit by which vowel length is described is an abstract measure called a mora. Short vowels (including most final αι/οι) are one mora long—I will also refer to them as unimoraic—while long vowels and most diphthongs are two morae long, or bimoraic. (If you feel that "unimoraic" and "bimoraic" sound too technical, there is no need to use them in your pedagogy.) A mora is an abstract and relative measure in the sense that it is not like a second or a minute, which always take the same amount of time. Any vowel gets shorter the faster a speaker is talking and becomes longer in slower, more careful speech. The

[13] In the term diphthong, I also include the monophthongs represented by the digraphs ει and ου.

[14] These diphthongs, in other words, are short in χῶραι and ἄνθρωποι but long in χώραις and ἀνθρώποις. They are long in the optative forms of verbs, in contracted syllables and in various other words, many of them adverbs (such as the old locative case form οἴκοι).

point is the *perceived* ratio between short and long not the exact length of a mora.[15]

Syllables in Greek are built around vowels. Every syllable contains as its nucleus a single vowel or diphthong. So, we can say interchangeably that every vowel and every syllable in a Greek word is either unimoraic or bimoraic.

Ancient Greek was a restricted tone or pitch accent language. This means that it used tonal information but not with the complexity that fully tonal languages can, such as Mandarin (four tones), Igbo (three tones) or Cherokee (six tones), which can mark each syllable in a word with a different tone. Instead, Greek had a simpler tonal system in which it gave a single part of a word prominence through a tone higher than those on the other parts of the word. It was also a mora-timed language, which means that the "part" of words we are talking about giving prominence to is a mora[16] not a syllable. Mora-timed, pitch-accent languages are a relatively small class of world languages but nevertheless well attested. Japanese (at least in most of its dialects) has the most studied and well-known modern pitch accent language that is also based on morae in terms of vowel timing.[17]

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[15] The ratio 1:2 is nominal. Human beings are not machines, and a long vowel is rarely exactly twice as long as a short one, but speakers of languages with length distinctions counted by morae perceive long vowels as being about twice as long as short ones.

[16] Mora was introduced as a linguistic term for the study of Greek by Hermann (1801: 63–64) at the beginning of the 19th century. He already relates how a circumflex mark shows the accent falling on the left mora of a bimoraic vowel. That morae are more fundamental to accentuation in Greek than syllables is a more recent insight, one I believe can be credited to Golston (1990), who built upon the syllabic work of Sauzet (1989), who was responding to Steriade (1988), who also was assuming a syllabic basis for accentuation.

[17] Unlike the ancient Greek grammatical literature, the native Japanese linguistic tradition recognized the fundamental nature of morae. For example, the haiku poetic form, which is regularly

In the proposed system, in Greek, we count morae from the end of a word. The last mora in a word is thus "mora one," which I will abbreviate μ1. We will never have to worry about any morae other than μ4, μ3, μ2 and μ1.

Because of the limit of morae in a Greek vowel to two and the nature of the way tone is assigned to morae, we will never find a mora with the high tone earlier than the third syllable from the end of a word. That fact can be mentioned to students, but it does not have to be taught as a rule; it is merely the inevitable outcome of tone assignment and should be presented as such rather than as an additional "rule" to be memorized at the start. It is most useful to discuss it to introduce the names of the final three syllables if one chooses to do so. Teaching the traditional names of syllables is not necessary, but because existing textbooks and grammars constantly reference the ultima, penult and antepenult, I find it convenient to continue teaching the terminology. The two basic accent marks of Greek[18] show moraic-tonal information. The acute accent shows that the high tone is carried on the single mora of a short/unimoraic vowel (as έ and ό) or on the right mora (the one toward the end of a word) of a long/bimoraic vowel (as ή or ώ).[19] A circumflex accent shows that the high tone is carried on the left mora of a bimoraic

presented in Anglophone countries as a syllabic pattern of 5-7-5, is actually a moraic pattern consisting of five morae, seven morae and five morae.

[18] The grave accent is merely a replacement for final-syllable acute accent in multi-word phrases and does not need to be discussed until connected sentences or phrases are introduced.

[19] In other words, if you imagine the two morae in η as *ee* and the two morae in ω as *oo,* an acute accent shows *eé* and *oó* tone.

vowel (as ῆ or ῶ).[20]

4. Overview of the System and the Four Rules[21]

Before going on, it is necessary for me to give the details of what I am presenting. Anything unfamiliar in the wording of the following four rules will be explained.

There are two basic types of accentuation at work in Greek: recessive (where the tone is assigned away from the final mora of the word if possible) and processive (where the tone is pinned to the final mora no matter what). Rules 1 and 2 govern recessive accentuation, Rule 3 governs processive accentuation and Rule 4 covers those words in Greek in which some forms are recessive and some processive in the final syllable. Remember that we refer to the final/last mora at the end of a word as the first mora or mora one (= μ1).

- ***Rule 1: Recessive Accentuation*** assigns high tone to μ3 unless μ3 and μ2 are in the same vowel, when it goes on μ4.[22]

[20] That is, *ée* and *óo* tone.

[21] A disclaimer: the method I am presenting is purely didactic. It is inspired by the sophisticated understanding of Greek accentuation that has been developed by linguists over the last 30 years, but it does not utilize that understanding directly. It is based, on the contrary, on information about morae and accent that was already available to classicists in the 19th century. It was developed by starting with the outcomes of tone assignment and then reverse engineering an accurately predictive system that is compact, coherent and easy to teach and learn. In the process, it inevitably distorts, ignores and obscures the mechanisms at the heart of the language. We understand these imperfectly but well enough to know they are heavily mora-based, unlike the traditional explanation.

[22] That condition can only be met in the penult and only with a bimoraic vowel or diphthong in that position. You may, if you wish, rephrase this part of the rule explicitly in those terms, but I do not

- ***Rule 2:*** If the designated mora is ***unavailable*** because it does not exist or is to the left of the ***limit vowel***, the tone goes onto the next lower numbered mora.
- ***Rule 3: Processive Accentuation*** assigns high tone to μ1.
- ***Rule 4: Hybrid Accentuation*** occurs in words that mark for case[23] when the tone falls in the final or only vowel because no other morae are available; this results in NAV forms being processive (Rule 3) and GD forms recessive (Rules 1 and 2).[24]

Some of this will not make perfect sense yet because I am using one familiar term—***recessive accentuation***—in an unfamiliar way, and I am introducing four new concepts: the possibility of a mora being ***available*** or ***unavailable,*** the notion of a ***limit vowel***, the idea of ***processive accentuation*** and the term ***hybrid accentuation***. Each of these will become clearer as we go along, but none is

because I am trying to reduce the number of rules. In traditional approaches, this condition is met when there is a long penult before a short ultima (cf. Peek's PLUS acronym referenced in a note above).

[23] In Greek, this means nouns, adjectives and pronouns (and the definite article). The abbreviations used in this rule are: NAV = nominative, accusative and vocative; GD = genitive and dative.

[24] To return to our earlier thought experiment with Plato's *Apology*, with the four rules and a perfect knowledge of limit vowels (including details that will later be discussed, such as contraction), if one assumes that everything is recessive except for known processive nominals by Rule 4, 176 of 185 (95.1%) of words in the sample are accented correctly. The nine words incorrectly accented are particles, conjunctions and adverbs with inherently processive accentuation (δή, ἐάν, ἐπειδάν, ἤ, καί, μή and ὡς), as well as two fused enclitic phrases involving some of these words (μήτε and ὥσπερ). I assume in this article that καί is bimoraic in order to skew the statistics *away* from my system (the figure rises to 95.7% if we assume that the -αι counts as short here). Of course, no one will have a perfect knowledge of limit vowels, but this theoretical maximum of predictable accentuation is a strength of the system.

complicated. The price of the slightly new or different terminology is worthwhile, as it allows us to unify explanations of accentuation while moving through the morphology and replacing what in the traditional approach are one-off rules, as well as concepts such as "persistent" accentuation with limited explanatory power.

I have presented the traditional method above in five rules, just one more than my proposal, but you should note that the two sets of rules cover very different ranges and scopes. My four rules describe essentially all of accentuation in Greek aside from exceptions and details; the five traditional rules only handle the most basic restrictions on the placement of accents on recessive words. In other words, you need to add many more rules to the five to account for all the scenarios that will be handled just by my four. For example, my rules already account for the alternation of acute and circumflex in forms of the definite article and other ultima-accented words such as τοῦ vs. τούς, θεᾶς vs. θεάς and ὁδοί vs. ὁδοῖς, as well as the difference in accentuation for most inflectional variants of words such as ἀγών vs. ἀγῶνος.

Recessive Accentuation (Rule 1)

This is the fundamental and most common kind of accentuation in Greek and most words show it in all or some of their forms. The default position for tone in recessive minimally trimoraic word forms is μ3, but in one scenario, when μ3 and μ2 are in the same vowel, which is explicitly incorporated into Rule 1, μ4 receives the high tone. This part of the rule accounts for words such as ἄνθρωπος,

παιδεύουσῐν, ἀλήθειᾰ and the like:[25]

Figure 1. Words with high tone on μ4 because μ3 and μ2 are in the same vowel

Students, when learning Rule 1, will have now encountered both scenarios in which a recessive word can carry an accent on the antepenult, that is, μ4 tone, as in these words, and μ3 tone in γράφομεν and those like it. I urge anyone who would use my approach to resist the temptation to try to encode outcomes of the system in ways that will seem like additional rules to students. For instance, at this point, it would be possible to say something like, "In recessive words, the antepenult will be accented if the ultima is short," but I believe this is a mistake. I have found it better to frame these patterns as observations rather than rules, noting for students that because the system produces consistent results in the same situations, patterns will emerge, and I encourage them to seek them out. They then pick up on these patterns and internalize them, leading them naturally to wider understanding and the formulation of their own ways of knowing and shortcuts.

[25] In the examples that follow where μ4 is in the same syllable with the fifth mora, I show that mora in parentheses. This is merely to acknowledge that students will sometimes wonder about that mora precisely because it is in the same syllable as the accented one. It is a good opportunity to discuss with them that Greek tone is assigned to morae and not to syllables and that the system is only relevant to the last four morae. For students already familiar with the traditional method, it also gives them an actual explanation for why a circumflex can never appear on an antepenult, something that they otherwise only experience as a stipulation (Rule B in the presentation of the traditional method I gave earlier). Henceforth, I will not mark the fifth mora since it is never relevant.

Unavailable Morae and the Limit Vowel (Rules 2 and 4)

Recessive accentuation is governed by both Rule 1, which shows default tone assignment, and Rule 2, which explains when default tone assignment is not followed because the appropriate mora is unavailable. First, morae are not available for tone assignment when they do not exist. For instance, the following words do not have a third mora, so by Rule 2 they carry the tone on μ2 instead:

Figure 2. Words with default tone assignment on μ2

Likewise, the following words meet the condition for μ4 tone laid out in Rule 1 (because μ3 and μ2 are in the same vowel), but μ4 does not exist, so μ3 gets the tone instead:

Figure 3. Words with default tone assignment on μ3

This brings us to the most mysterious part of the Greek accentual system.[26]

[26] Not the most mysterious part of the new system that I am proposing but of the actual underlying processes of tone assignment in Ancient Greek word formation. No one has been able to account adequately for all its variations and exceptions. And while Chandler included the basic rules of accentuation in his famous characterization of Greek accent, he was referring more generally to the question of how words come to have recessive, persistent or other accentual patterns (1862: iv): "To affix these signs correctly is a work of no small difficulty, and for our guidance we find either principles so vague that they cannot be applied, or rules so numerous that they cannot be remembered." Probert (2003: 81–104) is the best practical overview of the patterns of accentuation in nouns and adjectives, graded helpfully from those with no exceptions to those with many, with additional discussion of more word types in the subsequent chapter (105–132). Probert (2006) is the best recent technical treatment of word formation involving certain suffixes (ρο, τo, νο, λο and μο)

Many words are long enough to have enough morae for tone assignment to take place according to Rule 1, but all morae to the left of a particular vowel in them are unavailable for the tone. Take these examples:

Figure 4. Words with tone assignment on μ3 due to the limit vowel

These meet the condition for μ4 tone, and they have a fourth mora, but they do not assign tone there. We are accustomed to think of these as words with "persistent" accent. Introducing the terminology of the limit vowel (which is not a linguistic concept but my pedagogical one) helps to clean this category up. The essential point is that because the ναι and μει syllables contain the limit vowels, these words are, for accentual purposes, ~~Ἀθη~~ναῖος and ~~ση~~μεῖον (which is why they are accented like χῶραι and δῶρᾰ, which are of the same syllabic-moraic shape). One thing to stress early and often for students is that most simple finite verb forms have no limit vowel.[27]

The limit vowel of a nominal word (nouns, adjectives and pronouns) is almost always regularly predictable from the first element of its vocabulary entry,

in nouns and adjectives and the resulting accentuation. I will later make some remarks upon word formation and accent.

[27] By simple, I mean uncompounded. As we will be shown, the processes of compounding, contraction, augmentation and reduplication set limit vowels for finite verb forms.

which is usually the nominative singular.[28] As we do now with "persistent" accent, we simply look for the accented vowel in that form. Take σημεῖον, σημείου, τό. The nominative has an accent on the second vowel from its start—the one in the syllable μει. Therefore, that is the limit vowel. In θάνατος, θανάτου, ὁ, the accent in the nominative singular is on the vowel in θᾰ), so that alpha is the limit vowel. The difference between talking about persistence and a limit vowel is that persistence is explained as an accent trying to stay on the same vowel,[29] while "limit vowel" refers to the limit of recession away from μ1, which is a clearer way of talking about how tone is being assigned in this system.[30] The accent does not start out somewhere and then cling to that position; rather, every word form in Greek is dynamically accented according to underlying principles. This is most obvious in verbs, but the production of any inflected form works the same way. The accent that is expressed is due to the interaction of those principles, which are encoded in this proposal as the four rules and determined by the arrangement of morae in the word and the presence or absence of limitation to recession in the form of word length or a limit vowel.

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[28] 3rd-declension adjectives such as εὐδαίμων, εὔδαιμον are an exception, where the neuter nominative singular, listed second, reveals that the limit vowel is in the first syllable. In a somewhat related but inverted way, the accentuation of the neuter nominative singular in a participial entry such as παιδεύων, παιδεύουσα, παιδεῦον confirms that the limit vowel as it appears in the masculine (-ευ-) is, indeed, correct.

[29] Groton's language (2013: 23) is a good example: "the location of the accent in the nominative singular shows where the accent wants to stay or 'persist.'"

[30] The concept of the limit vowel also allows us to simplify the explanation of the accentuation of contractions, making it consistent with the discussion here rather than a separate topic.

Students should be trained, when encountering a new vocabulary entry for a nominal, to identify out of habit what the limit vowel is and to consciously note its position in terms of whether it is the final vowel, the next to last vowel or the one before that, because it will have a different effect in each position. This is where I find the traditional names of syllables convenient to keep using with my own students, but, again, these names are not actually necessary.

In the 1st and 2nd declensions, the limit vowel will remain in the same named syllable as the nominative singular. So, in the examples from above, in Ἀθηναῖος and σημεῖον, the limit vowel in all cases and numbers is positioned in the penult, and in θάνατος, the limit vowel is always in the antepenult. The same is true in some but by no means all 3rd-declension nouns. The effect of the limit vowel varies by its position in a particular form, as follows:

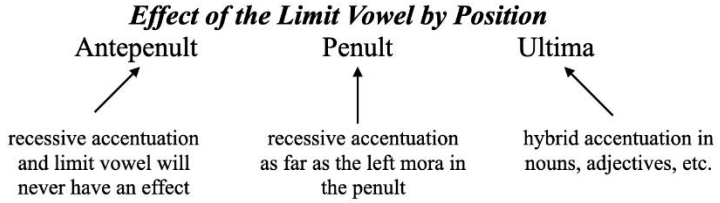

Figure 5. Effect of the limit vowel varies by its position

If the limit vowel is in the antepenult in a word form, it will have no effect and can be ignored.[31] If it is in the penult, its effect is to limit recession to the leftmost mora in the vowel in that syllable. In more technical terms, this means that any high tone that is supposed to be expressed (by Rule 1) on the rightmost mora of the antepenult will appear on the leftmost mora of the penult instead. Another way to put this is that a limit vowel in the penult has the effect of forcing the tone onto the next lower numbered mora if the mora that is supposed to get the tone is in the antepenult.

The ultima is a very different realm of accentuation in Greek in the case of nominals. If the limit vowel of such a word is the final vowel of the word (or if the word only has one vowel), that is the condition for which we need Rule 4, and for Rule 4, we need Rule 3.

Processive and Hybrid Accentuation (Rules 3 and 4)

There is one other kind of accentuation in Greek besides recessive. I call this processive,[32] and it is defined in Rule 3. Some words and word forms simply always assign the high tone to μ1. The reason for this is part of word formation processes deep in the history of the language and there is no point trying to explain them to students (especially since we cannot really explain them at all). For

[31] I vacillate between describing this as a limit vowel with no effect and saying—to be more consistent with the way I talk about most finite verb forms—that these are words without a limit vowel.

[32] This term is now rarely used to talk about Greek accent and normally refers to the Doric dialect's tendency to have the accent positioned rightward by one syllable in some forms in comparison with Attic. For instance, the Doric 3pl aorist active indicative form of λαμβάνω is ἐλάβον compared to the Attic ἔλαβον. I use "processive" in a different but more precise and restrictive sense here.

instance, the particles δή and μή show processive accentuation. If they were recessive, they would be *δῆ and *μῆ. In these two examples, the words are inherently processive, as many adverbs, conjunctions, particles, and prepositions are.[33] In nouns, adjectives, pronouns and the definite article, when the limit vowel is in the ultima or there is only one vowel, some cases are processive and others recessive and the word flips back and forth predictably between the two. This is what I term hybrid accentuation (hybrid in the sense that a single paradigm can combine both recessive and processive accentuation). Hybrid accentuation is defined in Rule 4: in words that have endings to mark case and where the tone occurs on the final vowel, NAV forms are normally processive and GD forms are recessive. Here, as I noted above, NAV stands for "nominative, accusative and vocative" and GD for "genitive and dative."[34] Notice that this applies only to inflected forms with *case*. Finite verb forms, when the accent is limited to the final or only syllable, remain recessive within that limit.

Consider ἀγών, ἀγῶνος, ὁ. The limit vowel is in the syllable γω(ν), as we see from the nominative singular. In that form, the limit vowel is positioned in the

[33] Compare inherently recessive words in these categories such as οὖν, νῦν and ἦ.

[34] I do not want to get bogged down by exceptions and special circumstances, but it is perhaps worth noting here that *neuter* monosyllables of the 3rd declension show recessive accentuation in NAV forms, such as nominative singular φῶς (as opposed to φώς, which is masculine). One should not get the impression that this sort of complexity is the result of the system proposed here—it must be detailed and explained in the traditional system too, usually along the lines of "3rd-declension monosyllables with a long stem vowel usually have an acute in the nominative singular in masculines and feminines but a circumflex in neuters."

ultima, and nominative forms have hybrid accentuation by Rule 4, for which grammatical information is needed to determine whether we have recessive or processive tone. And the rule tells us that nominative forms activate *processive* accentuation, and you will note that ἀγών does indeed have an acute accent indicating the high tone is on μ1. I mentioned above that in many 3rd-declension nouns, the position of the limit vowel will not be in the same "named" syllable in all forms, and we see the truth of that here. So, while it is in the ultima of the nominative (and vocative) singular—and so those forms have processive accentuation—in the genitive singular and other forms, the limit vowel is in the penult, which will mark the limit of recession. We do not worry about hybrid accentuation in the penult, where accent can only be recessive. In other words, in the other forms of ἀγών where the tone is not limited to the final vowel, we just follow Rules 1 and 2. Where it is in the final vowel, Rule 4 applies. In the genitive singular ἀγῶνος, for instance, we have μ3 tone. Though the form meets the condition for μ4 tone (because μ3 and μ2 are in the same vowel, as in Rule 1), μ4 is unavailable since it is to the left of the limit vowel. In the genitive plural ἀγώνων, μ3 tone occurs by Rule 1 just as we expect because the limit vowel does not come into play since the third mora is not to the left of it.

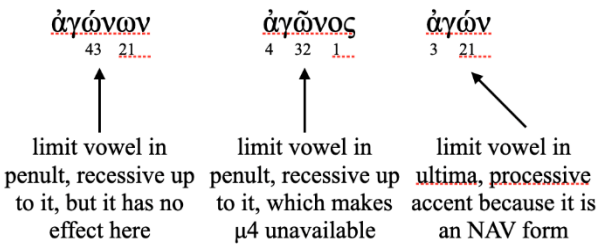

Figure 6. 3rd-declension noun with varying position of the limit vowel

Tone on μ1 when μ1 is the Only Available Tone

When a short vowel in the ultima carries the accent, the contrast between recessive and processive accentuation is neutralized because the only possible tone is μ1. In nouns and similar forms with case, we know which is happening based on the NAV/GD divide.[35] In the case of other sorts of words, however, it simply makes no difference and cannot be determined. Is δέ recessive with μ1 tone (because there are no other available morae) or processive (with automatic μ1 tone)? That is the sort of question about the deeper mechanisms of the language that this didactic presentation cannot treat, and, in fact, cannot be answered.

The Power of the Four Rules

With the first two rules, students can accent almost every uncontracted and regular finite verb form they are likely to encounter early, and any uncontracted

[35] As an illustration, consider the processive nominative singular form ποταμός with the recessive genitive singular form παιδός. Just looking at the two, we see no difference. We can only tell that the former is processive and the other recessive because we know how grammatical information (that is, case endings) informs Rule 4.

and regular nominal form in which the limit vowel is not in the ultima.[36] With the third rule, students can understand why some indeclinables have μ1 tone instead of μ2, although it does not help them avoid the necessity of memorizing the tone on these words. The greatest benefit of Rule 3 comes only with the clarification provided by Rule 4, which allows most of the rest of nominal forms in the language—including those of the definite article, which are likely to be learned first or at least very early—to be understood and accented correctly.

Syllables Again

Syllables can play a role in understanding Greek accentuation in several places in the system—most notably when μ3 and μ2 are in the same syllable and in word forms where the limit vowel is in the final syllable—but they are mostly just convenient because, as containers of morae, they can be used as a shorthand to describe how morae are arranged in a word. The basic tone assignment processes of Greek, however, are based primarily on morae, so if you start from a syllabic description, you must invent rules to account for the discrepancy between what we can see on syllables and what is happening underneath the surface in terms of morae.[37] Adding moraic information to a fundamentally syllabic presentation thus

[36] Leaving aside things like contract nouns, the so-called Attic 2nd declension (which underwent quantitative metathesis and accentual leveling) and unusual paradigms such as 3rd-declension monosyllables. Of course, obligatory μ2 tone on the genitive plural forms of all 1st-declension nouns must still be taught either as a rule or explicitly as a contraction.

[37] Upon presenting this system to colleagues I have been met sometimes with disbelief that we can really dispense with all the traditional rules of limitation. Below, I will give a quick demonstration

gives very little advantage despite its apparent promise.[38] This is something I have heard fellow instructors say over the years as they express their disappointment that talking about morae in their classes was interesting to some of the students but otherwise pointless or at least ineffectual in increasing understanding. However, the approach taken here of layering syllabic information and terminology into a fundamentally moraic presentation, rather than *vice versa,* gives us a much more productive and sensical blend.

With regard to syllables, one more point is worth making: the traditional explanation is characterized as one in which the ultima plays a special role, even as "controlling" the placement of accentuation. While it is true that my system recognizes that when the limit vowel is *in* the final syllable, the accentual system varies between recessive and processive accentuation in nominals, the idea of its being a controlling syllable is very different. The reason the ultima seems to control

of why they are unnecessary because the accentual outcomes they describe are automatically predicted by the four rules given here.

[38] For example, Allen's (1973: 234–239) notion of contonation (a combination of the high tone and its immediate drop), which is sometimes brought into the teaching of Greek accents, is a refinement of earlier observations and allows us to stipulate that "not more than one mora may follow the contonation" (237), that is, not more than one mora may occur before the end of a word after the fall of the high tone of the pitch accent. While this is true enough, it provides little advantage because it does not tell us whether the number of post-contonation morae will be one or zero in any given word. It is really just a restatement in moraic terms of parts of the Law of Limitation. It allows for a slightly simpler presentation but is not a formulation that provides any practical benefit beyond assuring students that the rules are not entirely random. The mostly decorative function of morae in this approach is obvious, for instance, from Mastronarde's (2013) fine introductory textbook, which brings it into the presentation of accentuation. There, Allen's rule is described as "a single general principle" that explains the "apparently complex 'rules' of Greek accentuation" (18). For a principle given such importance, however, it is curious that the word mora appears only on pages 18–21 of a 444-page book. Besides, any time one needs to use scare quotes around the very word "rules" when presenting a set of rules, it is obvious that there is a larger problem.

the traditional system is just that every word has an ultima by definition, and the number of morae in that syllable automatically affects the possible number and arrangement of morae that can be spread across the syllables to the left. This is a pretty bland statement on the surface, and it is meant to be. The ultima does not control anything; simple math does. If there are two morae in the vowel in the ultima (μ2 and μ1), then μ3 and μ2 cannot be in the same vowel, so μ4 tone is never possible. And anticipating the count becomes second nature after a while. Once you count the morae in the ultima, you will quickly know what possibilities there are. Is μ1 alone in the ultima? Then be on the lookout for μ2 and μ3 sharing the penult for possible μ4 tone. Are μ2 and μ1 together in the ultima? Then you'll never need to worry about μ4 tone because the penult can't have μ2 and μ3 together. That looks like "control," but it is just counting.

5. Advantages

The approach described here does not magically make every aspect of learning Greek accentuation simpler and easier. However, it does have multiple advantages over the traditional approach, both conceptual and practical. I have mentioned some and will detail others below, but it may be convenient to summarize the main ones here.

- We can align our teaching approaches more faithfully with the way that accentuation worked in Greek as a living language during the

period before the pitch accent changed to the stress accent found in late antiquity and Modern Greek.

- The system can be presented as explanatory rather than descriptive (although it is, as I have noted, not truly explanatory in a linguistic sense).
- The system can be presented at different paces and in different configurations, as instructors prefer. All four rules can be taught together; or Rules 1 and 2 can be taught together or serially, with Rules 3 and 4 coming later; or Rule 1 can be broken into two parts (μ3 default tone + μ4 tone under one condition), as can Rule 2 (morae unavailable due to word length + unavailable due to limit vowel); etc.[39]
- The basis of the system has at its core an active orientation toward placing tone where it belongs rather than passively describing where accents cannot go.
- It establishes the notion of a "default" placement for tone in Rule 1, which allows students in doubt both a starting point and, when stumped, a strategy beyond mere guesswork.
- There is a small and coherent set of mechanisms that work together

[39] As *TCL*'s first referee hints to me, this could be particularly helpful in pre-collegiate settings, where a slower pace of presentation may be more desirable.

in tone placement rather than a collection of rules about location and type of accent that do not form a system in any real sense. Rather, the explanation here logically shows how location and type of accent result from consistently interoperating rules. For instance, the alternation between acute and circumflex in the penult is a natural outcome of the formulation of the rules and does not require additional rules or scenario-based restrictions.

- The system *qua* system emphasizes process over simple memorization.
- It encompasses many more of the phenomena of Greek accentuation in many fewer rules.
- Much information that must be treated as exceptions will come later in most courses, after students have a strong grasp on the basic system. For example, the accentuation of final syllables in 1st- and 2nd-declension nouns is part of this system. It is exceptional in the traditional approach.
- It lays a foundation for understanding further advanced topics in accentuation with a coherent presentation of concept and vocabulary. To give some examples: the notion of processive accentuation unites in a single explanation all final-syllable acute accents on long vowels (and short ones, as well, although this

makes little practical difference); moreover, the idea of a limit vowel not only explains what is usually seen as "persistence" on the penult, but when it is combined with processive/hybrid accentuation, it also shows why ultimas and penults behave accentually differently in nominals; we will that the limit vowel will also simplify how we can talk about contraction, as well as integrate with how we can present the mobile accents of 3rd-declension monosyllables.

- It gives students constant practice with vowel lengths, which will be crucial for those going on to read verse texts.
- It makes clear the underlying and distinctive difference between acute accentuation and circumflex accentuation, a contrast fundamental to how the Greeks understood tone.[40]

6. Initial Presentation of the Material to Students

Because I am no longer teaching Greek, I have not yet had the occasion to base an introductory class's entire learning of accentuation around this system since I have always used existing textbooks that employ the traditional method. In

[40] A related point is that the frequent correlation of circumflex accent to a lack of full recession in the system increases students' continual awareness of the operation of the rules, just as in many classrooms students are already taught that circumflexes are often good clues that contraction is taking place.

presenting it to a variety of students of different levels, including those who know no Greek, in small groups and individually, I have found it takes very little time to teach them to count morae. I will give more detailed pedagogical considerations but want to stress that one can be very flexible about how to present mora-counting and the basics. For instance, in the very opening lesson one can either give them a mix of words showing everything from μ4 to μ1 tone to show variety and an overview, or one can present word forms with only μ3 tone, which will be the default tone, in preparation for presenting or having them inductively figure out the basis of Rule 1. For instance, in line with the first practice, I sometimes put the following type of μ3-tone words on a worksheet or whiteboard: παιδεύω, παιδεύεις, γράφει, γράφομεν, παιδεύετε, χώρᾳ, χῶραι, χώραις, λόγου, λόγους, δῶρον, δώρων and δῶρᾰ. It is also possible, if one wants to tie accentuation more closely to morphology and verbs are introduced first, to present only the first finite verb forms with μ3 tone from whatever the initial paradigms will be.[41]

In these first stages, I have students mark the morae visually by writing numbers underneath each vowel and then have them tell me which mora carries the high tone in each word form. This accustoms them to identifying long and short vowels, converting that information to mora counts and seeing how acutes and

[41] The first five forms in the present and future active indicative paradigms of non-contract ω verbs all have μ3 tone (the 3pl forms in ουσιν have μ4 tone by what will be the second part of Rule 1). All six forms in the present middle-passive and future middle indicative do, as well. The forms that do not show μ3 tone show μ4 tone and together all these paradigms perfectly exemplify what will be our Rule 1.

circumflexes relate information about morae and tone. For example:

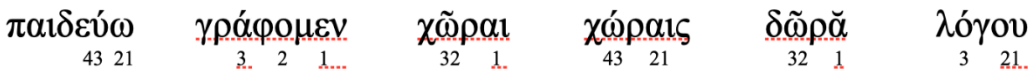

Figure 7. Words with morae counts indicated

The students pretty quickly catch on that all these forms carry the high tone on μ3 if at this first stage I only show them forms with that accentuation.[42] The alternative, giving them a mix of forms from across the range of possibilities, allows them, on the other hand, to practice with accent marks showing many more scenarios. I see the advantages of both approaches but would not venture to say which is better. It will depend on how an instructor wishes to present the other materials—inductively or not; all at once as a system or revealed over the first chapters of the semester; and so on.

Within just a few minutes, most students have this down but will still make slips. The main obstacle in my experience is imperfect knowledge of vowel lengths, so I mark or explain ambiguous vowels with breves and macrons and allow them access to a chart of unimoraic versus bimoraic vowels so they can concentrate on acquiring skill and confidence with morae rather than having it be a mere matter of

[42] Demonstrating just this much of a moraic understanding to students who have already studied the traditional method can also be revelatory. These words show four different "kinds" of accentuation in syllabic terms: an acute on an antepenult where the ultima is short (γράφομεν), an acute on a long penult before a long ultima (παιδεύω, χώραις), a circumflex on a long penult before a short ultima (χῶραι, δῶρᾰ) and an acute on a short penult (λόγου). In moraic terms, however, they all have the same accent: μ3 tone. One student described this as "taking an X-ray of Greek words," allowing us to see beneath the surface appearance This is just one way in which the moraic approach is not only simpler but more exact than the traditional one.

memorization. Once they are comfortable, you can go through many examples very rapidly to solidify their command. I also find that the αι/οι rule usually needs frequent reinforcement at this stage.

If I have only given them μ3 tone, I then give them *unaccented* words and ask them to mark the words to show μ3 tone. In other words, I give them λῡε, ἐγρᾰφετε, λογων, δωροις or whatever, and they produce λῦε, ἐγράφετε, λόγων and δώροις. I find it helpful to give them a mix of words with acutes and circumflexes so they are prepared for both Rules 1 and 2. Some students will already be able to count morae without writing in the mora numbers below the words, but others will prefer to use that expedient until they get the hang of it. Weaning them from it quickly should be a goal. That does not take more than a single class session in my experience, although some students will be shakier than others. Once most of them feel comfortable, you are ready either to teach them the first rules of accentuation or to have them inductively determine them for themselves.

7. Further Pedagogical Considerations

Reference material will be given as an appendix in order to demonstrate the behavior of various kinds of representative words and their subclasses, as well as to consider more advanced topics such as accentuation of enclitics and contraction. The basic system has been laid out here in the previous sections. I believe that in almost every aspect it is as least as economical as the traditional system and I hope

more streamlined in most ways.

In terms of order and grouping of information, every instructor will have their own preferences and will be using a particular textbook, which may not always allow those preferences to be followed. I find that students familiar with the alphabet can, in about the time of a typical class period, learn about morae, how they relate to long and short vowels and what the acute and circumflex accent mean. They can also reliably and repeatedly identify which mora has the high tone on a series of words (I often show them only μ3 words at first). I usually let them divine that μ3 is the default rather than presenting it as a rule. I then show them words that have only two morae in some forms and three in others (like λόγος) and let them come up with the basics of Rule 2 as it applies to words of limited length. Then I round out the lesson by giving them words where μ4 tone alternates with μ3 tone (as in ἄνθρωπος and ἀνθρώπου) in the hopes that from multiple examples they will derive the second half of Rule 1, that μ4 tone occurs when μ3 and μ2 occur together. They usually do. Thus, my initial presentation is limited at first only to Rules 1 and 2 because I prefer to introduce finite verb paradigms first. Thus, this first lesson will prepare them to accent the present active and middle-passive indicative paradigms perfectly and there is no need yet for the other two rules. If you do not get to μ4 tone before those verb paradigms are presented, you can use them to teach that lesson when you get to the third person plural active forms in ουσῖν (and the middle-passive forms in ομαι, εται and ονται with their μ4 tone, if you introduce

those early).

Rules 3 and 4 can be taught together later when the definite article and some nouns will require them, but in general instructors have a lot of leeway. I prefer to let students master Rules 1 and 2 before making things more complex, especially because this builds the constant assurance that there is a consistent logic to the system and a default kind of accentuation. One advantage to the way the rules are formulated is that the individual rules can be further broken down into discrete topics if that is desirable. In fact, even before rules are worked on, the topics of counting morae, identifying how tone is revealed through accent marks and assigning accent marks to show tones can be introduced separately. When getting to the rules, Rule 1 has two outcomes, and μ3 tone can be taught and thoroughly mastered before the condition that brings about μ4 is introduced, which is my usual approach. Rule 2 can be taught through words that are limited by the length of the word without worrying about the limit vowel portion of it, which is harder to grasp and makes no real sense until nouns are learned through vocabulary entry. And while I prefer to let students derive the rules (or at least Rules 1 and 2) inductively from examples, I have also just presented the rules as rules to some students, and this seemed to go perfectly well. It is really about how you want your students to approach the material and their own learning.

Sequencing material should be driven not by accentuation but by the order in which an instructor wishes to present new morphology and concepts. That will

suggest ways and appropriate occasions to discuss accentuation and bring in new material. Because the definite article is so important and common, it makes complete sense to me—despite the fact that it is the most complicated part of the basic system—to teach its paradigm (where one must also talk about the proclitic forms) soon after students are comfortable with Rules 1 and 2. This means either introducing Rules 3 and 4 then or later using the article to explain them. Either way they can understand hybrid accentuation and what happens when tone is restricted to the ultima, which will be necessary to handle nouns from the start unless the instructor goes out of their way to curate the words students will get as early vocabulary. This would not necessarily be productive since no textbook that I know of is organized to present nouns by accentual patterns. In terms of the definite article, the masculine and feminine accusative plural forms τούς and τάς show processive accentuation beautifully, and there are plenty of common 1st- and 2nd-declension nouns with the same accentuation to pair with the article to show Rules 3 and 4 working consistently.

More generally, there are other pedagogical considerations to take into account. We occasionally got students in the elementary course at UNH who had had a year of Greek in high school or at another institution where accentuation was not taught at all or was merely skimmed over. We also had our own students who did not quite grasp the importance or ubiquity of accents and have only obtained an imperfect command of the traditional system. For reasons I cannot quite explain, in

my experience it is remarkably difficult for many such students to backfill their knowledge of accentuation by being presented again with the traditional method. I can say I have had much better luck taking them through the material again by the moraic method laid out here. For instance, one of our 2nd-year students, who was struggling with accentuation despite being otherwise quite strong in Greek, grasped the moraic method almost immediately and reported to another instructor that it was "mind-blowing." Admittedly, this is mere anecdote, but it accords with my broader experience, namely that students grasp the systematic nature of accentuation and can see a consistent operation of explanatory rules, and this gives them confidence that the congeries of descriptive conditions that make up the Law of Limitation and the *Sotêra* Rule does not always provide them.

While some students may not see it as an advantage, the moraic system also demands and inculcates a greater awareness of vowel length throughout the language. In the traditional method, the length of the ultima matters all the time, but that of the penult only when it is accented. The moraic method, through the constant but simple process of counting morae back, creates greater familiarity with patterns across the language, and shows the difference between forms like ἄνθρωπος and φιλόλογος, where we currently say they are both words that accent the antepenult because the ultima is short. We can now see that the former has μ4 tone and the latter μ3. Meanwhile, we can also see where the traditional explanation makes like phenomena seem unlike, as in a paradigm such as that of σημεῖον, where

μ3 tone emerges on every form but some have acutes and others have circumflexes.

Unlike the traditional pedagogy, this new method is fundamentally oriented toward active accentuation, which is particularly important in courses that emphasize composing of Greek phrases and sentences. The system begins with a rule that tells students where to place an accent on a word as a default starting position by putting the high tone on μ3 (Rule 1). That may not end up being the correct place for the accent on a particular word after all, but it gives students a greater sense of control and the feeling that the system is an actual system. The traditional pedagogy, by contrast, starts students off with a set of rules that they cannot apply until someone tells them where to accent a word in the first place. With the proposed system, there is also comfort to be derived from the fact that the combination of accent marks and knowledge of vowel length gives one the ability to read the exact mora with the high tone every single time without exception in Greek. Students do not get that sense of precision and consistency from the traditional system, especially because additional exceptions pile on almost immediately after the basic rules. For example, the accentuation of the definite article usually comes early, but in the traditional method they have zero conceptual preparation for it. Moreover, it—like ultima-accented words of the 1st and 2nd declensions—has to be presented as an exception rather than as a fundamental part of a systematic understanding. The new system incorporates this information into its core rules and provides a basis and a terminology upon which additional

knowledge and more advanced concepts can be layered. It does so with a consistency of theory and terminology that will be applicable to almost everything they encounter ahead.

That leads me to point out that the consistency of the new method generally reduces guessing and confusion. If students *do* have to guess, that guess does not have to be random. Because of the way tone is described as being assigned to morae in this system, the following strategy can and should be taught to students and employed by them when they are in doubt. It will seem familiar because it is the "provisional rule" I gave toward the start of this article: "Put the high tone on μ3 unless there are fewer than three morae, in which case put it on the word's leftmost mora."

There are two reasons to teach them this strategy. First, they will sometimes forget the limit vowels of words and where contractions happen, as well as similar details. This precept points them to a default position which nets them results better than random chance and reinforces that the system is rational. Second, this practice often also allows instructors to tell the difference between what is potentially a random guess (tone on a mora other than μ3 in words that have one) and what is likely an informed one (tone on μ3).

More generally, for all students, the unity of principle and method encoded in the mora-based rules also means that diagnosing accentual problems is much simpler. When they are faced with accenting a form, those taught by the traditional

method often not only guess at accentuation but guess blindly, frequently producing not only the wrong accentuation but an impossible one. They simply cannot keep all the rules in the traditional method active in their minds at once to alert them to the impossibility of a form even when they realize as soon as the mistaken form is pointed out to them. The moraic approach gives them a unified consistent approach to accenting new or unfamiliar forms. That means that the true nature and cause of student errors can be determined with greater precision.

Finally, I want to reiterate that mora-counting and the new terminology employed here—while simple and straightforward—can seem at first sight more complicated to *instructors* than it really is. This is due, I believe, to their long familiarity with the traditional method and their success in learning through it. I have also encountered reactions from colleagues who instantly consider all the complexities of accentuation and how this system applies to them. Just a few minutes of trying out the rules and seeing how they apply usually suffices to show the simplicity and accuracy of the system and helps them get over some of that initial resistance. Certainly, this system is not complicated for students coming to it for the first time. They don't carry the baggage that we do as their instructors, and they can acquire the basics extremely quickly in the early stages and practice repeatedly until mora-counting becomes second nature. To stress a point made earlier, this makes adding in the inevitable subsequent rules and new morphology significantly easier across a whole course. The cognitive load of accentuation is

both lower and more distributed.

Appendix 1 includes a sample one-page handout that briefly introduces morae and the rules that have been presented above. It is likely too dense for most classes, at least to go through very quickly, but I hope it will be a helpful reference for both instructors and students. It was designed to introduce the moraic method to students already familiar with the traditional approach. I would not expect students to learn the system on their own from this.

8. More about Morae and Accent Marks

Nothing is made more complicated by a moraic approach, and where there are details to discuss or exceptions to be pointed out, they are usually the same ones that must be dealt with in teaching based on the traditional system.[43] For instance, contraction always requires an elucidation of how the accents of the uncontracted and contracted forms are related, and by any account the mobile accentuation of 3rd-declension monosyllables will need explanation.

I have noted that forms that on the surface look to be displaying quite different accentuation can actually be showing identical accentual patterns (and vice versa) when viewed moraically. We, therefore, need to train our students to read moraic information from accentuation quickly and automatically. This means

[43] Probert (2003: 81–104) provides the best accentual overview of nominal classes, noting many exceptions. She further discusses more word types in the following chapter (105–132).

building quick review and reinforcement into a course from the day that accentuation is introduced to the last class meeting. It can be as simple as having the students run through the vocabulary list in a chapter and call out what mora is carrying the high tone on each form in the noun and adjective entries—also a good opportunity to have them identify the presence of limit vowels—or incorporating questions about accentuation into low-stakes assessments in the early classes.

There is no need to teach students the following chart,[44] but they will soon come to know that the accent marks, particularly the circumflex, show moraic information quite clearly. There are only five possible surface accentual configurations in Greek: an acute on one of the last three syllables or a circumflex on one of the last two. Three of these five show you exactly which mora is carrying the high tone, and the other two narrow things down to a two-mora range.[45]

	Antepenult	Penult	Ultima
Acute	μ4 or μ3	μ3 or μ2	μ1
Circumflex		μ3	μ2

Table 2. Accent marks and position of morae

[44] At least, I see no reason to do so since the goal is to concentrate on getting them comfortable with a simple process that they can follow and that requires very little memorization. This information can be conveyed over time.

[45] The ambiguous cases are easily resolved by looking at the mora count of the vowel following the accent. If there is an acute on the antepenult, it shows high tone on μ4 if the penult is bimoraic (ἄνθρωπος) and on μ3 if the penult is unimoraic (γράφομεν). If there is an acute on the penult, it shows high tone on μ3 if the ultima is bimoraic (χώρᾱ, λόγου) and μ2 if the ultima is unimoraic (λόγος). However, teaching this explicitly at the start (or ever) adds apparent complexity, and I do not see much point to it, at least early on. It's just "more rules," which is what I am trying to avoid. The real point is that if you know your vowel lengths, the accents are unambiguous.

The three times an accent mark tells you directly and automatically what mora the tone is on without your needing to count them are: a circumflex on the penult, as in δῶρον, instantly shows you μ3 tone; a circumflex on the ultima, as in ποταμοῦ, shows you μ2 tone; and an acute on the ultima always shows you μ1 tone, as in στρατηγέ or κλώψ.

The Circumflex as Clue

Here is an important detail about the circumflex that emerges from the situation above: this accent mark on a form indicates that something is interfering with full recession as described in Rule 1. That is, it discloses a phenomenon is occurring such as contraction in the syllable (as in 1st-declension genitive plurals like χωρῶν from χωράων) or that Rule 2 is in effect because the word in question does not have the mora available that is designated for assignment of the high tone (e.g., χῶραι, which would have the tone on μ4 if it existed, and σημεῖον, where μ4 is unavailable because of the limit vowel). Another way to put this is that when you see a circumflex, it is an indication that by Rule 1 the word's high tone is "supposed" to go on a mora before the one it ends up on, but something stopped it from getting there (non-existence, contraction or another manifestation of the limit vowel). Take as examples some word forms in which by Rule 1 the tone should go on μ4: the compound verb ἀπῆν, where μ4 should have tone but the tone cannot recede to the left of the augment; χῶραι, where μ4 does not exist; and φιλεῖσθε,

where μ4 exists in the antepenult but the accented contracted syllable acts as the limit vowel. Unimoraic vowels cannot show this information, of course; λόγος, which has μ2 tone, the accent alone does not tell you that μ3 does not exist, although it is obvious with even a cursory evaluation of the vowels in the word and their lengths.

9. The Other Rules and Why We Do Not Need Them

Can four rules and close attention to vocabulary entries really allow us to handle so many scenarios about what accents go here, what accents cannot go there and what kind of accent they will be? Can we really do without the strictures and guidelines of the Law of Limitation and the *Sotêra* Rule, which have been fundamental to the experiences and understanding of every modern learner of Ancient Greek? This has been the most frequent skeptical question I've received from instructors with whom I have spoken about this system. I will give a quick proof of their superfluity. Using the imaginary wordform βιβωβος, I present here are all the possible outcomes that could ever eventuate from tone assignment following the four rules, regardless of whether βιβωβος is a noun, a verb, or whatever.

If βιβωβος . . .

> . . . is inherently processive, its accentuation will be βιβωβός.
>
> Compare Ἑλληνιστί.

. . . has its limit vowel in the ultima and this is an NAV form, its accentuation will also be the processive βιβωβός. Compare ποταμός.

. . . has its limit vowel in the ultima and this is a GD form or a finite verb, its accentuation will also be βιβωβός, but it will be recessive in formal terms. Compare χειρός and δός.

. . . has the ω in the penult as its limit vowel, its accentuation will be the recessive βιβῶβος (μ3 tone because μ4 is off-limits, so tone goes one mora later). Compare Ἀθηναῖος.

. . . has a limit vowel in the antepenult or no limit vowel because it is a finite verb, its accentuation will be βίβωβος (μ4 tone because μ3 and μ2 share the penult). Compare ἄνθρωπος and παίδευε.

If we use as an example a word with a bimoraic ultima, such as βιβωβων, then if it . . .

. . . is inherently processive, its accentuation will be βιβωβών (μ1). Compare ἰδού.

. . . has its limit vowel in the ultima and this is an NAV form, its accentuation will also be the processive βιβωβών. Compare ἀγών.

. . . has its limit vowel in the ultima and this is a GD form, its accentuation will be the recessive βιβωβῶν (μ2 tone). Compare ποταμῶν.

. . . has the ω in the penult as its limit vowel, its accentuation will

> be the recessive βιβώβων (μ3 tone by default; μ3 and μ2 do not share the penult, so μ4 tone is impossible; and μ3 is not off-limits because it is not beyond the limit vowel). Compare σημείου.
>
> . . . has a limit vowel in the antepenult (βι) or has no limit vowel because it is a finite verb, it will also be βιβώβων. Compare ἀνθρώπου and παιδεύω.

There are no other possibilities. It is simply impossible for βιβώβος or βιβῶβων or βίβωβων ever to occur.[46] And if we change the shape of these nonsense words slightly to vary the quantity of the vowel in the penult to a short—βιβοβος and βιβοβων—there will still be no way in which following the new system can produce an illicitly accented form because the former will always turn out as βίβοβος, βιβόβος or βιβοβός and the latter as βιβόβων, βιβοβών or βιβοβῶν but never βίβοβων.[47] We do not need to teach or be taught what illicit outcomes of accentuation are because illicit accentual outcomes cannot occur by Rules 1–4.

[46] βιβώβος shows μ2 tone, but if the limit vowel is the ω, it ought to show μ3 tone since recession always occurs to the leftmost mora of the limit vowel. If ω is not the limit vowel, then the tone will appear on μ4 (βίβωβος). βιβῶβων shows μ4 tone but μ3 and μ2 do not share a syllable, so this is not possible. βίβωβων shows μ5 tone, which is never permitted.

[47] βίβοβων shows μ4 tone, but μ3 and μ2 are not in the same vowel, so this is not a possible accentuation.

10. Additional Considerations and Accenting Additional Morphological Categories

For almost all nouns in the 1st and 2nd declensions, the only information one needs to take note of is whether the effect of a limit vowel must be observed, and, in cases where it is in the final syllable, the proper application of hybrid accentuation by Rule 4. In traditional terms, this is merely the necessary work of determining whether a word has "persistent" accentuation in the penult or ultima and, if the latter, how to follow additional rules to decide between a circumflex and acute accent. Most 3rd declension nouns are similarly straightforward, even when in inflection the number of syllables varies, so long as it is made clear that the limit vowel remains the same through such changes.[48] Similarly, all but a very few simple and uncontracted finite verb forms just follow Rules 1 and 2. Below, I treat some deviations from this across word classes.

In discussing my proposed system with colleagues, I have been asked for reference charts to show moraic-tonal information in order that those less familiar with morae can check their understanding. These can be worked out by anyone, but to save others time, I include some of these charts in an appendix. They are not meant to be exhaustive but merely a way to see at a glance how prevalent and

[48] In other words, in the paradigm of a word like κῆρυξ, where the limit vowel of this disyllabic form is the eta, it remains the eta in the trisyllabic forms such as κήρυκος. In traditional terms, this is typically framed through the identification of the syllable of persistence remaining the same through a count forward from the beginning of the word. In other words, in both κῆρυξ and κήρυκος, the first syllable from the start of the word is where the accent attempts to persist.

typical accentuation by Rule 1 (and Rule 2) is and the consistent results of applying it.

The 1st and 2nd Declensions and Contraction

One advantage of presenting accentuation through the four rules of this system is that it creates the conditions for greater consistency of explanation and allows for the elimination of redundancy. To explain the alternation of acute and circumflex in the accented ultimas of 1st-declension nouns, textbook authors must often treat this as a kind of special case. Just to take one example, Groton (2013: 24) notes that in feminine words of this declension, "if the accent falls on the ultima in the genitive and dative, singular and plural, it changes from acute to circumflex" and treats it as a separate rule "since there is no general principle forcing accents on the ultima to change from acute to circumflex."[49] She must then later explain it separately for the 2nd declension (43), for 1st- and 2nd-declension adjectives (46), for 1st-declension masculines (51), for 3rd-declension monosyllables (97) and for the genitive plural enclitic τινῶν (132). But there does exist exactly such a "general principle" in effect in Greek that morphologically determines accentuation.[50] It

[49] She is not alone in this. Mastronarde also presents this expressly as an extraordinary phenomenon: "*Special rule* for accentuation of [2nd declension] nouns: any noun of the o-declension with an accented ultima...has the circumflex...in the gen. and dat. of all numbers" (2013: 27, emphasis his). He then repeats this "special" rule for the 1st declension (36), for 1st- and 2nd-declension adjectives (63) and also has the circumflexed genitive in the ultima as part of the separate "special rule" applying to 3rd-declension monosyllables (117).

[50] Although I suspect it is the opposite of what Groton supposes it is. In my view, the process is forcing circumflexes (normal recession) to become acutes (representing a switch to morphologically driven processive accentuation).

simply is not part of the Law of Limitation or the *Sotêra* Rule. But the present proposal makes this not only explicit but a core feature contained in Rules 3 and 4, meaning that only deviations from the norm need be noted, which are the actual exceptions that require special rules.

The only real matter of note in the 1st declension is contracted forms. Every paradigm in the declension, as we all know, has a genitive plural ending -ῶν that arises from the contraction of –άων. This is often the first place that some instructors introduce, however passingly, the subject of contraction.[51] Even if one does not want to discuss contraction in any detail early on, whenever that moment does come, the new system allows us to simplify and standardize the treatment of the accentuation of contracted syllables. We normally approach this subject by asking students to produce and accent *un*contracted forms and then contract them, deriving the accent of the contracted form by a relatively easy set of guidelines—easy, that is, for those very comfortable with accentuation. The procedure is: 1) if no part of the contraction is accented in the uncontracted form, the contraction also has no accent; 2) if the first part of the contraction is accented with either acute or circumflex, the resulting accent on the contraction is a circumflex; 3) if the second part of the contraction has an acute, the resulting accent on the contraction is

[51] A notable exception in terms of textbooks is that of Major and Laughy, which introduces contraction in its first chapter alongside the vowels themselves. Although the presentation of 1st-declension nouns is significantly delayed in this text compared to most others, contraction is discussed with some frequency in the chapters before students meet them.

(almost always) an acute. In my system, there are two principles we can formulate to explain this process, both consistent with the basic rules and leveraging what students already know:

- If any vowel that will be involved in the contraction is accented in the uncontracted form, the contracted syllable contains the limit vowel, and the resulting wordform has recessive accentuation to the limit—regardless of case if a nominal (Rules 1 and 2; Rule 4 is suspended).
- However, if the uncontracted form would have had processive accent, the contracted form will too (Rule 3).

Thus, in a form such as χωράων, the resulting contraction is accented χωρῶν by the first principle because the ω in the ultima is the limit vowel and the form is simply recessive to it. The result is μ2 expression. So, too, the whole paradigms of contract nouns in this declension (and in the 2nd), such as Γῆ (Γέη) and Ἑρμῆς (Ἑρμέας). The application of these two principles is not dramatically simpler than the traditional approach, but it is less demanding because it allows students to skip the step of determining the precise accent of an uncontracted form. They merely have to know *where* the accent is, not exactly *what* it is, except with examples of processive accentuation. The latter are not, in fact, to be found in the 1st declension or 2nd declension since none of the contract nouns have a limit vowel in their ultimas in their uncontracted forms. But compare instances such as κληίς → κλῆς

and δαΐς → δᾴς in the 3rd declension. This means that the first principle can be taught when appropriate and the second layered in later when it is needed. It may never be needed in a first-year course since it is activated only very rarely anywhere in Greek (such as the ἑστώς [uncontracted ἑσταώς, perfect active participle of ἵστημι]),[52] and I see no reason why one would want to present it if it is not strictly necessary. Besides, if we do omit this rarity on first presentation, the new system is one further degree simpler than the traditional approach.

Aside from contraction, the general concept of processive accent in this system also allows us a neater way to talk to students about another odd part of the 2nd-declension, the nouns of the so-called "Attic Declension" with their limit vowel in the ultima. In these, processive accent is generalized to whole paradigms from the nominative (thus, νεώς, νεώ, νεᾠ, νεών. instead of νεώς, *νεῶ, *νεῷ, νεών). While there is nothing wrong with saying, as Smyth (§239b) does, that "the genitive and dative are oxytone when the final syllable is accented," we can make it seem easier. By explaining that in this subclass "all forms with a limit vowel in the ultima are processive, ignoring Rule 4," we frame the exception with vocabulary and understanding consistent with the whole presentation of accentuation.

[52] I should also point out that the principles given here regularize what are exceptions in the traditional approach. For example, by the usual rules, the genitive of ἑστώς should be *ἑστώτος (contracted from ἑσταότος). In fact, it is ἑστῶτος. In the present system, that is the expected outcome since the ω is the limit vowel and the accent recessive to it by Rules 1 and 2.

In general, other exceptional accentual issues in these declensions are those that must be dealt with under any approach, for instance, that χρύσεος and similar adjectives contract to χρυσοῦς (apparently by analogy with the feminine χρυσέα → χρυσῆ) and that the vocative singular of δεσπότης retracts its accent past its limit vowel to δέσποτα. This is not basic accentuation but detail.

The 3rd Declension

To begin with a simple matter, in this declension, too, unexpected accentuation of vocatives has to be dealt with in some classes (recessive vocatives in -εῦ from nouns ending in -εύς; retraction of the limit vowel to the antepenult in vocatives like Σώκρατες from Σωκράτης and Πόσειδον from Ποσειδῶν) and in some individual words (πάτερ from πατήρ). Beyond the vocative, Ποσειδῶν also points us toward the need to make clear (not necessarily explain to students the reasons such as contraction) that some 3rd-declension nouns violate Rule 4 and have nominative forms with recessively applied tone in the ultima, including in some masculine and feminine monosyllables (including such common examples as παῖς, βοῦς, and ναῦς).

The real need here, as it is in the traditional approach, is to deal more generally with monosyllables in this declension. The easiest part of this to convey is the regular tendency for neuter monosyllables to show recessive and not processive accentuation in NAV forms (in violation of Rule 4), hence the examples of τὸ φῶς and ὁ φώς given in passing in Part 1. This is a general pattern (πῦρ, οὖς,

δῶ, etc.) that needs to be taught no matter how one approaches accentuation but can be conveyed with greater clarity if presented as "recessive vs. processive," which is a systematic explanation, rather than "circumflex vs. acute," which is a particular one.

Another improvement in concept and descriptive vocabulary enters also into the way we can discuss the mobile accent of all 3rd-declension monosyllables. Rather than simply noting that in most of them the *accent* moves to the ending in the genitive and dative forms, we can reformulate this slightly to indicate that it is the *limit vowel* that moves to the ultima in these forms. The accentuation as an automatic result is limited to the final syllable and follows the usual distinction of recessive and processive accentuation in different case forms by Rule 4.

Accentuation of 3rd-declension nouns that underwent quantitative metathesis in Attic after the fixing of the position of accent, such as πόληος→πόλεως, and end up violating the rules will still need to be explained. Again, the new system does not somehow magically account for such details, and they will continue to require separate treatment.[53]

[53] πόλεως violates the Law of Limitation because it allows an accent on the antepenult even though the ultima is long. In the new system, the violation occurs because the high tone appears on μ4 but this should not happen unless μ3 and μ2 share the same vowel, which they do not. Of course, the earlier form πόληος is compatible with either set of rules.

Finite Verbs and the Limit Vowel

The greatest utility of the limit vowel has already been discussed above with reference to contract nouns. To repeat the primary principle involved in its application in this environment:[54]

- If any vowel that will be involved in the contraction is accented in the uncontracted form, the contracted syllable contains the limit vowel, and the resulting wordform has recessive accentuation to the limit—regardless of case if a nominal (Rules 1 and 2; Rule 4 is suspended in accented contracted syllables).

Contraction is an area where students have relatively little trouble in the traditional system if they are already very comfortable with pre-contraction accentuation. Of course, it still remains possible under a moraic approach to teach this subject as most of us already teach it: determine the precise pre-contraction accentuation and then follow the algorithm described earlier.

My proposal, however, saves some time by using the limit vowel concept. If we do so, students do not need to determine precise precontractual accentuation, only the location, saving them a step. Now let's look at some forms of the first contract verbs most students meet in a systematic way, the present and imperfect indicative paradigms of φιλέω. I give only the contracted forms. It will be seen that

[54] The second principle about processive accentuation cannot occur in finite verb forms because no contracted forms have underlying processive accentuation in Greek.

an accented contracted vowel is acting as the limit vowel in all **bolded** forms (most of these show a circumflex that reveals the presence of the contraction and the resultant limited recession). Regular recession by Rules 1 and 2 is occurring in all these forms to the limit vowel. The remaining four forms—all in the Ipf.Act.Ind. paradigm—do not have an accented syllable involved in the contraction, so they simply follow Rule 1. The advantage is not merely saving a step in the thought process. It makes the accentuation of contract verbs a more normal part of a broader system of accentuation. Contraction never produces otherwise illicit accentuation, so in a very real way it *is* just like the rest of the accentual system.

	Pres.Act.Ind.	**Ipf.Act.Ind.**
1sg	**φιλῶ** μ2	ἐφίλουν μ3
2sg	**φιλεῖς** μ2	ἐφίλεις μ3
3sg	**φιλεῖ** μ2	ἐφίλει μ3
1pl	**φιλοῦμεν** μ3	**ἐφιλοῦμεν** μ3
2pl	**φιλεῖτε** μ3	**ἐφιλεῖτε** μ3
3pl	**φιλοῦσιν** μ3	ἐφίλουν μ3
	Pres.M/P.Ind.	**Ipf.M/P.Ind**
1sg	**φιλοῦμαι** μ3	**ἐφιλούμην** μ3
2sg	**φιλῇ** μ2	**ἐφιλοῦ** μ2
3sg	**φιλεῖται** μ3	**ἐφιλεῖτο** μ3
1pl	**φιλούμεθᾰ** μ3	**ἐφιλούμεθᾰ** μ3
2pl	**φιλεῖσθε** μ3	**ἐφιλεῖσθε** μ3
3pl	**φιλοῦνται** μ3	**ἐφιλοῦντο** μ3

Table 3. Paradigm of present and imperfect verb forms of a contract verb with morae indicated

But by approaching it the way I have outlined, it becomes analogous to "persistent" accentuation in nouns and adjectives. The Greeks naturally sensed the differences in accentuation between words such as πόλεμος, παρθένος and ποταμός, and felt that the changes all three sorts went through in inflection were "correct." Similarly, they perceived the differences between γράφω and φιλῶ as simply what some verbs do or don't do. The ancient Athenians didn't think of uncontracted and accented forms and then contract them and adjust the accent; they simply produced contracted forms. Pronouncing ἐφιλεῖτο with a circumflex on the penult was as automatic as saying ἐκεῖνο with the same accentual pattern. Of course, they did not think in terms of a limit vowel, but that concept allows our students to understand accentuation in an—at least distantly—analogously integrated way, a possibility that I will analyze in more detail in the next section.

Accentual Windows, Contract Verbs and the Unity of the Accentual System

Although I have never seen it presented this way, another framework with which we can think about Greek accentuation is this;[55] every wordform in Greek falls into one of three categories: those in which the domain of licit accentuation is

[55] This is not a usual way to discuss Greek accentuation, and it should certainly be understood that the Ancient Greeks and their grammarians never conceptualized accentuation as working in this way. By talking about it in these terms, I am trying to verbalize what Attic speakers must have felt in that near-instinctive way that speakers of any language internalize rules that they are usually never aware of.

three syllables long, those in which it is two long, and those in which it is one long.[56] The outcomes of these windows can be schematized as follows:

Three-Syllable Window	Two-Syllable Window	One-Syllable Window
Antepenult-Penult Window	**Penult-Only Window**	**Ultima-Only Window**
tone either on antepenult or penult (μ3 or—if μ3 and μ2 together in penult—μ4 [always in antepenult]); always recessive	tone always on penult (μ3 except μ2 when there are only two morae in penult+ultima); always recessive	tone always on ultima (μ2 or μ1); mostly recessive but hybrid accentuation in most nominals
Á P U or A Ṕ U	A Ṕ U or A P̃ U	A P Ú or A P Ũ

Table 4. Accentual windows according to number of syllables

The rules for recession are identical within each window up to the limitation of the window itself (which I have encoded in the system as the limit vowel). "Persistent" accentuation is a poor way to describe this and leads in the traditional system to an inconsistency of terminology. Almost all finite verb forms in the common paradigms are deemed recessive, so παιδεύει, ἐπαίδευε and παίδευε, are recessive, as are λύει, ἔλυε and λῦε. However, to take some nominal examples, εἰρήνη has "persistent" accent even though it has the same accentual shape as the recessive παιδεύει, and both have the accent as far to the left as the Law of Limitation allows. Meanwhile, χώρᾱς is accentually like λύει, and χῶραι like λῦε, but is the noun persistent or recessive? When it comes to ἐκείνᾱς and ἐκεῖναι, we always think of

[56] Another way one can think of this is that there are wordforms with an antepenult-penult window (which is what I am calling a three-syllable window in the main text), those with a penult-only window (two-syllable) and those with an ultima-only window (one-syllable). This concentrates on the outcomes of accentual processes and sidesteps the terminological question of why a three-syllable window only allows tone in two of them and a two-syllable window only in one.

these as persistent, but the first of the forms has its accent as far to the left as is permissible, so isn't it recessive? As I see it, the window of a nominal must be learned by noting the position of the limit vowel, and accentuation is simply recessive within it except in the ultima in those places where hybrid accentuation requires processive accents. In verbs, the window size is determined dynamically, but it is always recessive with the known exceptions.

Any finite verb form that does not have a prefix, reduplicated syllable or augment or accented contraction in its penult or ultima will have a three-syllable window if it has at least three syllables (those limitations will be discussed just below). We traditionally sometimes think of these as "fully" recessive, that is, the word will have its tone as far to the left as possible and there is no limitation caused by the word's length. These words will end up with the tone on either the antepenult (using both nouns and verbs as an example, consider πόλεμος, φιλόλογος, παίδευε) or the penult (πολέμου, φιλολόγου, παιδεύει). The window size is determined by word formation processes and, of course, by simple length. A disyllabic word cannot have a three-syllable window, nor a monosyllable a two-syllable one.

Wordforms with a two-syllable window (limit vowel in the penult for nominals [= "penult persistent"] or disyllabic finite verb forms) will always end up with the high tone in the penult, sometimes with an acute (παρθένος, παρθένου, ἐκείνους, γράφω, λύει), sometimes with a circumflex (ἐκεῖνος, λῦε).

Wordforms with a one-syllable window (limit vowel in the ultima for nominals [= "ultima persistent"] or monosyllabic verb forms) will always have the high tone in the ultima. Nominative and accusative nominals (and many vocatives) will regularly have processive accent, but otherwise the accent will be normally recessive in that syllable (ποταμῶν [Gpl], ποταμούς [Apl], δός).

The Greeks experienced different forms even within the same paradigm as having different windows, which is why they had no trouble correctly accenting εἰρῆναι (two-syllable window) and εἰρηνῶν (one-syllable window), or ἀγών (one-syllable window) and ἀγῶνος (two-syllable window) or γράφω (two-syllable window) and γράφομαι (three-syllable window).

One way to think about how Athenians in antiquity perceived contract verb accentuation is to consider that they felt the accentual differences between contracted and uncontracted verbs were analogous to the difference between πόλεμος and παρθένος, only more complex because verbal morphology has more possible forms than nominal morphology. Athenians could experience uncontracted forms through contact with speakers and texts of other dialects, but, as I noted above, they did not grow up speaking uncontracted forms and then contracting the vowels. They learned and spoke their dialect with pre-contracted syllables and having an innate-seeming but learned sense of what sounded right in terms of accenting wordforms. Thus, γράφω and φιλῶ were simply verb forms of the same person, number, tense, voice and mood with a two-syllable and a one-

syllable window, respectively, just as two different nouns could differ in exactly the same way despite sharing case, number and gender (θέας and θεᾶς, for instance). Likewise, γράφομαι and φιλοῦμαι have a three-syllable and a two-syllable window, respectively, just like θάλατται and ἐκεῖναι.

By teaching our students the concept of the limit vowel and using it to understand the accentuation of contracted verb forms, we are giving them a broadly analogous taste of this experience. We are at the same time also reinforcing the whole system of accentuation and its coherence. The forms φιλοῦμαι and εἰρῆναι are accented the same way because they are the same. That the former is a "recessive" but contracted finite verb form and the latter a noun with "persistent" accent is necessary information in the traditional approach for correct accentuation but obscures their fundamental sameness. The processes that lead to both having a two-syllable window are different, to be sure, but beyond that point the assignment of their tone is identical and follows the same mechanisms (however we describe or understand those mechanisms linguistically). There is absolute consistency among all wordforms with three-syllable windows. Likewise, all two-syllable windows operate the same way. Moreover, the wordforms with these two window sizes operate on identical lines apart from the size of the window (which is why παιδεύω and γράφω and πολέμου and παρθένου all have the same accentuation—μ3 tone). Only in one-syllable-window nominals, where we need extra case-based

rules to figure out what kind of tone emerges on long vowels in ultimas, does any difference emerge.

To bring this back to contract verbs, understanding that a contracted syllable that incorporates an accented vowel is the limit vowel and getting a feel through experience for when the accent will be in the contraction—rather than slogging through the process of producing uncontracted forms, accenting them, contracting them, and running a brief algorithm to reaccent them—allows us to accent φιλῇ, φιλεῖσθε and φιλούμεθα as quickly and easily and, most importantly, in exactly the same way as ὁδῶν, ἀγῶνα and χρήματα.

Note that I present the idea of accentual windows here separately from the main proposal because I do not necessarily advocate teaching students through these concepts. I believe the processual method of the four rules is cleaner and simpler. Accentual windows, however, are good to think with, so to speak, especially for instructors seeking to strengthen their own understanding of Greek accentuation. The framing here is simply a refinement of the concept of the limit vowel and could be presented to more advanced students, I suppose, if they were among what I would think would be a tiny minority of people with a burning desire to go beyond the basics.

Other Considerations for Finite Verb Forms

It is well known that in a finite verb "the accent cannot precede the augment or reduplication" (Smyth 1956: §144). Likewise, there is a further stipulation that

accent "cannot precede the last syllable of the preposition before the simple verb nor move back to the first of two prepositions" (Smyth 1956: §144). As with contraction above, the limit vowel concept allows us to streamline and simplify:

> • In verb forms, the rightmost syllable in a word that contains any of the following also contains the limit vowel: the augment, a reduplicated vowel or the last or only vowel of a compounding preposition.[57]

Non-Finite Verb Forms

When it comes to non-finite verb forms, in addition to phenomena such as contraction that must be appreciated, there are numerous instances where the range of accentuation is fixed. For example, second aorist active infinitives always accent their ultimas (e.g., εἰπεῖν), the participles of the same tense and voice have accentuation in ών, οῦσα, όν in the nominative singulars, perfect active participles likewise are accented ώς, υῖα, ός and perfect middle/passive participles μένος, μένη, μένον. All such phenomena can be subsumed under the notion of the limit vowel and taught as such. Students will thus be ready for the switch of accentuation in moving from γεγονώς to the genitive γεγονότος. It should also be noted that familiarity with Rule 4 will guide them automatically to recognize and produce the

[57] This comes with the necessary (in any explanation) exceptions detailed in Smyth §426c.

processive accent on the nominative γεγονώς as an NAV form with a limit vowel in the ultima, just as it will for εἰπών and similar forms.

11. Enclitic Accentuation

There have been frequent attempts in the last century and a half to explain how recessive accentuation and enclitic accentuation—at least in scenarios in which only a single enclitic is joined to a host word—can be united in the same explanation. I have put a great deal of thought into this issue and a way to incorporate enclitic accentuation into a moraic account based on my four rules. I believe that both the earlier attempts and my own represent an impossible quest, and I hope that a couple of examples will show that these two accentual scenarios—regular assignment of tone and enclisis—cannot involve perfectly identical processes. First, in an enclitic phrase like ὁδοῦ τινος, where we normally speak in terms of host and enclitic uniting into a single word, we see the rules of accentuation violated (whether the traditional ones or my proposed ones) because of the tonal expression of a circumflex accent on the antepenultimate syllable of the phrase or, in my terms, μ4 tone when μ3 and μ2 are not in the same syllable in violation of Rule 1. Secondly, in other correctly accented enclitic phrases such as ὁδῶν τινων, we also see a circumflex on the antepenult or, in my system, a tonal expression that is not found in any other part of the Greek language, namely μ5 tone. We can be assured that it is accented correctly through manuscript evidence and the explicit

discussion of ancient grammarians. Moreover, in terms of the present system, every accent added through enclisis in a phrase emerges unexpectedly as a processive accent (an acute, even on long vowels), a phenomenon that has never been adequately explained linguistically.[58]

I, therefore, conclude that enclitic phrasing in Greek is not subject to the same underlying mechanisms of tone assignment that exist in the rest of the language. It is hardly unheard of in world languages for enclisis to be governed by special rules. In fact, in Greek, this is the one part of the accentual system where a purely syllabic approach seems preferable to anything involving morae.

12. Conclusion

My hope is that this new system will help rationalize one part of the presentation of elementary grammar to students in the early stages of their exposure to Greek. Certainly other areas of our methods could use updating, but accentuation—at least in the classes of those instructors who have not abandoned its teaching—comes almost immediately in the first weeks of an introductory course and has an outsized effect on both student experiences and student success. The more we can foster student comfort and competence, the less likely it will be that the early stages of studying Greek will be the only stages they experience.

[58] The well-known exceptions are τινῶν and τινοῖν, which are usually explained through analogy to other ultima-accented genitive forms and their recessive accentuation.

Appendix 1: Overview of the Moraic System

Greek Accents, Tone and Morae: An Overview

Ancient Greek distinguishes short and long vowels by length of pronunciation at a ratio of 1:2. The unit we count this with is called a **mora**, so a short vowel contains 1 mora (it is "unimoraic") and a long vowel 2 morae (it is "bimoraic"). Diphthongs are bimoraic except αι and οι are regularly unimoraic when at the very end of a word.

Short/Unimoraic: ᾰ, ε, ῐ, ο and ῠ, as well as αι/οι most of the time when they are final
Long/Bimoraic: ᾱ, η, ῑ, ῡ, and ω, as well as ᾳ, αυ, ει, ευ, ῃ, ῃ, ηυ, ου, υι, ῳ and αι and οι when not final

Morae are important because the Greek accentual system is based on pronouncing a single mora in each word with a **high tone**, that is, one at a frequency higher than all the word's other morae.

There are three accent marks in Greek written over vowels to show where the high tone is: the **acute** (´), **grave** (`) and **circumflex** (῀). The acute and grave show the same information, so we will only talk about the acute and circumflex. The accents show which mora carries the high tone if we count morae *backwards* from word-end.

	Acute	Circumflex
Over a Unimoraic Vowel	high tone on the only mora	(not used)
Over a Bimoraic Vowel	high tone on the rightward mora	high tone on the leftward mora

The last mora in the word is called "mora 1" (abbreviated μ1), the next to last is μ2, and so on up to μ4. Any mora past that can never carry the tone. Here are some examples. See if you can tell how the accent shows you the tone that is indicated on the words in each column of the chart below by counting the morae back from the end.

μ4 Tone	μ3 Tone	μ2 Tone	μ1 Tone
παίδευε	παιδεύει	γράφε [ᾰ]	πεπαιδευκώς
λύουσῐν [ῐ]	λύω [ῠ]	τῷ	δέ
ἄνθρωποι	χῶραι	παρθένος	δή
ἀλήθειᾰ	χώραις	ποταμῶν	ποταμός

How did you do? It is easier at first if you write out the mora numbers under the vowels so you can keep track, but soon enough you'll be able to do it all in your head and it will become second nature. The most important things are 1) knowing the length of the vowels and 2) keeping straight what the accent marks do.

Words get accents through complex processes of word formation that you'll mostly never know or think about. For now it is enough to know that any given word form will have one of two kinds of accent. **Recessive accentuation** tries to pull the tone away from μ1, although it cannot always do so. **Processive accentuation** automatically places the tone on μ1. In terms of dealing with accents as a learner, there are going to be four overall rules that will govern whether a word has μ4, μ3, μ2 or μ1 tone. These are given below, along with a strategy for times you are at a loss. You won't understand these perfectly—yet—especially the term "limit vowel" and the whole of Rule 4. We will go over them in the days ahead, and you'll find they are very easy!

Rule 1: Recessive Accentuation assigns high tone to μ3 unless μ3 and μ2 are in the same vowel, when it goes on μ4.

Rule 2: If the designated mora is unavailable because it does not exist or is to the left of the limit vowel, the tone goes onto the next lower numbered mora.

Rule 3: Processive accentuation assigns high tone to μ1.

Rule 4: Hybrid Accentuation occurs words that mark for case when the tone falls in the final or only vowel because no other morae are available; this results in NAV forms being processive (Rule 3) and GD forms recessive (Rules 1 and 2).

• **Strategy when in doubt:** Put the high tone on μ3 unless there are fewer than three morae, in which case put it on the word's leftmost mora.

Figure 8. Sample one-page handout about morae and the four rules

Appendix 2: Moraic-Tonal Arrangements in Common Paradigms

The verb paradigms learned early in most introductory courses constantly reinforce Rules 1 and 2 and show how thoroughly recessive accentuation predictably produce μ4 and μ3 tone. In turn, this gives continual insight into how forms that are variously accented in syllabic terms are actually forms carrying tone on the same mora (e.g., ἐλύσω and ἐλυσάμεθα both show tone on μ3). In the charts, I note the mora (μ) on which the high tone occurs and the rule(s) involved in its placement there (R). Even when a rule is theoretically involved, it will not always need to be consciously invoked for a student to get the tone where it goes. For instance, φλέψ has only one mora, so the tone has to go on it, and no real rules need be involved at all. The accent of φλέψis actually determined by hybrid accentuation (R4) because it is an ultima-accented nominal in the nominative case and thus has a processive tone (R3), but it is only ultima-accented because it is a monosyllabic word and so also falls under Rule 2 (R2, describing unavailable morae). I've normally thrown all the rules in these cases to avoid the sort of overly rigorous apparent precision just described. The forms with contractions (genitive plurals in the 1st declension, for instance) and mobile accents (3rd-declension monosyllables), as has been noted elsewhere, require additional treatment for students beyond the four rules.

Simple finite verb forms are based on Rule 1. Short forms outside of the indicative, such as γράφε, will sometimes require Rule 2.

	Pres.Act.Ind.	**Aor.Act.Ind.**	**Pres.Act.Ind.**	**Aor.Act.Ind.**
1sg	γράφω μ3 R1	ἔγρᾰψᾰ μ3 R1	λύω μ3 R1	ἔλῡσᾰ μ4 R1
2sg	γράφεις μ3 R1	ἔγρᾰψᾰς μ3 R1	λύεις μ3 R1	ἔλῡσᾰς μ4 R1
3sg	γράφει μ3 R1	ἔγρᾰψεν μ3 R1	λύει μ3 R1	ἔλῡσεν μ4 R1
1pl	γράφομεν μ3 R1	ἐγράψᾰμεν μ3 R1	λύομεν μ3 R1	ἐλύσᾰμεν μ3 R1
2pl	γράφετε μ3 R1	ἐγράψᾰτε μ3 R1	λύετε μ3 R1	ἐλύσᾰτε μ3 R1
3pl	γράφουσῐ̃ν μ4 R1	ἔγρᾰψᾰν μ3 R1	λύουσῐ̃ν μ4 R1	ἔλῡσᾰν μ4 R1

	Pres.M/P.Ind.	**Aor.Mid.Ind**	**Pres.M/P.Ind.**	**Aor.Mid.Ind**
1sg	γράφομαι μ3 R1	ἐγραψάμην μ3 R1	λύομαι μ3 R1	ἐλῡσάμην μ3 R1
2sg	γράφῃ μ3 R1	ἐγράψω μ3 R1	λύῃ μ3 R1	ἐλύσω μ3 R1
3sg	γράφεται μ3 R1	ἐγράψᾰτο μ3 R1	λύεται μ3 R1	ἐλύσᾰτο μ3 R1
1pl	γρᾰφόμεθᾰ̆ μ3 R1	ἐγραψάμεθᾰ̆ μ3 R1	λῡ́μεθᾰ̆ μ3 R1	ἐλῡσάμεθᾰ̆ μ3 R1
2pl	γράφεσθε μ3 R1	ἐγράψᾰσθε μ3 R1	λύεσθε μ3 R1	ἐλύσᾰσθε μ3 R1
3pl	γράφονται μ3 R1	ἐγράψᾰντο μ3 R1	λύονται μ3 R1	ἐλύσᾰντο μ3 R1

Table 5. Paradigms of some present and aorist verb forms with morae and rules indicated

The same rule governs forms of -μι verbs just as handily.

	Pres.Act.Ind.	**Ipf.Act.Ind.**	**Pres.M/P.Ind.**	**Ipf.Act.Ind.**
1sg	δείκνῡμι μ4 R1	ἐδείκνῡν μ3 R1	δείκνῠμαι μ3 R1	ἐδεικνύμην μ3 R1
2sg	δείκνῡς μ3 R1	ἐδείκνῡς μ3 R1	δείκνῠσαι μ3 R1	ἐδείκνῠσο μ3 R1
3sg	δείκνῡσῐν μ4 R1	ἐδείκνῡ μ3 R1	δείκνῠται μ3 R1	ἐδείκνῠτο μ3 R1
1pl	δείκνῠμεν μ3 R1	ἐδείκνῠμεν μ3 R1	δεικνύμεθα μ3 R1	ἐδεικνύμεθᾰ μ3 R1
2pl	δείκνῠτε μ3 R1	ἐδείκνῠτε μ3 R1	δείκνῠσθε μ3 R1	ἐδείκνῠσθε μ3 R1
3pl	δεικνύᾱσῐν μ4 R1	ἐδείκνῠσᾰν μ3 R1	δείκνῠνται μ3 R1	ἐδείκνῠσᾰν μ3 R1

Table 6. Paradigm of present and imperfect verb forms of a -μι verb with morae and rules indicated

Nsg	ἀλήθειᾰ μ4 R1	ἄνθρωπος μ4 R1	στάδῐον μ3 R1
Gsg	ἀληθείᾱς μ3 R1	ἀνθρώπου μ3 R1	σταδίου μ3 R1
Dsg	ἀληθείᾳ μ3 R1	ἀνθρώπῳ μ3 R1	σταδίῳ μ3 R1
Asg	ἀλήθειᾰν μ4 R1	ἄνθρωπον μ4 R1	στάδῐον μ3 R1
Vsg	ἀλήθειᾰ μ4 R1	ἄνθρωπε μ4 R1	στάδῐον μ3 R1
Npl	ἀλήθειαι μ4 R1	ἄνθρωποι μ4 R1	στάδῐᾰ μ3 R1
Gpl	ἀληθειῶν μ2 R1-4	ἀνθρώπων μ3 R1	σταδίων μ3 R1
Dpl	ἀληθείαις μ3	ἀνθρώποις μ3 R1	σταδίοις μ3 R1
Apl	ἀληθείᾱς μ3	ἀνθρώπους μ3 R1	στάδῐᾰ μ3 R1

Table 7. Paradigm of 1st- and 2nd-declension nouns with morae and rules indicated

Some 1st- and 2nd-declension nouns with a limit vowel in the penult follow Rules 1 and 2.[59]

Nsg	εἰρήνη μ3 R1	χωρίον μ2 R1-2	σημεῖον μ3 R1-2	στρατιώτης μ3 R1
Gsg	εἰρήνης μ3 R1	χωρίου μ3 R1	σημείου μ3 R1	στρατιώτου μ3 R1
Dsg	εἰρήνῃ μ3 R1	χωρίῳ μ3 R1	σημείῳ μ3 R1	στρατιώτῃ μ3 R1
Asg	εἰρήνην μ3 R1	χωρίον μ2 R1-2	σημεῖον μ3 R1-2	στρατιώτην μ3 R1
Vsg	εἰρήνη μ3 R1	χωρίον μ2 R1-2	σημεῖον μ3 R1-2	στρατιῶτᾰ μ3 R1-2
Npl	εἰρῆναι μ3 R1-2	χωρίᾰ μ2 R1-2	σημεῖᾰ μ3 R1-2	στρατιῶται μ3 R1-2
Gpl	εἰρηνῶν μ2 R1-4	χωρίων μ3 R1	σημείων μ3 R1	στρατιωτῶν μ2 R1-4
Dpl	εἰρήναις μ3 R1	χωρίοις μ3 R1	σημείοις μ3 R1	στρᾰτιώταις μ3 R1
Apl	εἰρήνᾱς μ3 R1	χωρίᾰ μ2 R1-2	σημεῖᾰ μ3 R1-2	στρᾰτιώτᾱς μ3 R1

Table 8. Paradigm of 1st- and 2nd- declension nouns with a limit vowel in the penult with morae and rules indicated

Some 1st- and 2nd-declension nouns with a limit vowel in the ultima show hybrid accentuation (Rule 4).

Nsg	ποταμός μ1 R1-4	σκηνή μ1 R1-4	κριτής μ1 R1-4	φῠτόν μ1 R1-4	←processive
Gsg	ποταμοῦ μ2 R1-4	σκηνῆς μ2 R1-4	κριτοῦ μ2 R1-4	φῠτοῦ μ2 R1-4	←recessive
Dsg	ποταμῷ μ2 R1-4	σκηνῇ μ2 R1-4	κριτῇ μ2 R1-4	φῠτῷ μ2 R1-4	←recessive
Asg	ποταμόν μ1 R1-4	σκηνήν μ1 R1-4	κριτήν μ1 R1-4	φῠτόν μ1 R1-4	←processive
Vsg	ποταμέ μ1 R1-4	σκηνή μ1 R1-4	κριτά μ1 R1-4	φῠτόν μ1 R1-4	←processive

[59] With the exception of the contracted Gpl. of the 1st-declension εἰρήνη and στρατιώτης.

Npl	ποταμοί μ1 R1-4	σκηναί μ1 R1-4	κριταί μ1 R1-4	φῠτά μ1 R1-4	←processive
Gpl	ποταμῶν μ2 R1-4	σκηνῶν μ2 R1-4	κριτῶν μ2 R1-4	φῠτῶν μ2 R1-4	←recessive
Dpl	ποταμοῖς μ2 R1-4	σκηναῖς μ2 R1-4	κριταῖς μ2 R1-4	φῠτοῖς μ2 R1-4	←recessive
Apl	ποταμούς μ1 R1-4	σκηνάς μ1 R1-4	κριτάς μ1 R1-4	φῠτά μ1 R1-4	←processive

Table 9. Paradigm of 1st- and 2nd- declension nouns with a limit vowel in the ultima with morae and rules indicated

Some multisyllabic and monosyllabic 3rd-declension nouns follow Rule 1, or Rules 1 and 2, show hybrid accentuation (Rule 4)

Nsg	φύλᾰξ μ2 R1	κῆρῠξ μ3 R1		κλώψ μ1 R1-4	φλέψ μ1 R1-4
Gsg	φύλᾰκος μ3 R1	κήρῡκος μ4 R1		κλωπός μ1 R1-4	φλεβός μ1 R1-4
Dsg	φύλᾰκῐ μ3 R1	κήρῡκῐ μ4 R1		κλωπί μ1 R1-4	φλεβί μ1 R1-4
Asg	φύλᾰκᾰ μ3 R1	κήρῡκᾰ μ4 R1		κλῶπα μ3 R1-2	φλέβα μ2 R1-2
Vsg	φύλᾰξ μ2 R1	κῆρῠξ μ3 R1		κλώψ μ1 R1-4	φλέψ μ1 R1-4
Npl	φύλᾰκες μ3 R1	κήρῡκες μ4 R1		κλῶπες μ3 R1-2	φλέβες μ2 R1-2
Gpl	φῠλάκων μ3 R1	κηρύκων μ3 R1		κλωπῶν μ2 R1-4	φλεβῶν μ2 R1-4
Dpl	φύλᾰξῐν μ3 R1	κήρῡξῐν μ4 R1		κλωψί μ1 R1-4	φλεψί μ1 R1-4
Apl	φύλᾰκᾰς μ3 R1	κήρῡκᾰς μ4 R1		κλῶπας μ3 R1-2	φλέβας μ2 R1-2

Table 10. Paradigm of 3rd-declension nouns showing hybrid accentuation with morae and rules indicated

Appendix 3: The First 185 Unique Wordforms in Plato's *Apology*

I have arranged these by the mora on which the high tone appears. Enclitics and proclitics have been removed and crasis has been undone (except in χρῆν). Categories tend to arise from multiple scenarios, and in some cases I have indicated these to give greater refinement.

A few comments: The words with μ4 tone generally just follow Rule 1 but λέξεως is accented as if it were *λέξηος and ἔγωγε shows accentual retraction compared to the underlying phrase ἐγώ γε; the μ3 list includes many words that show a limit vowel arising from contraction (e.g., ἐπιτυχοῦσιν from ἐπιτυχέουσιν) but only one nominal with an inherent accent from a limit vowel in the penult (Ἀθηναῖοι instead of *Ἀθήναιοι). These could also be listed separately as "μ3 tone but μ4 exists," but I leave these combined in order to show the prevalence of μ3 tone. In the later categories ("μN tone but μN+1 exists"), one will note the effect of hybrid accentuation but also the increase in the representation of adverbs, conjunctions, contracted words, and the like.

μ4 tone = 13
ἀκηκόᾱσι
ἀκούητε
ἀλήθειᾰν
ἀναβέβηκᾰ
δίκαιᾰ
δίκαιον
δίκαιος
εἰρήκᾱσιν
εἴωθᾰ
λέγουσῐν
φαίνωμαι

despite quantitative metathesis
λέξεως

re-accented fused enclitic phrase
ἔγωγε

μ3 tone = 81
ἀκούσεσθε
ἄλλοθῐ
ἄλλως
ἀναισχυντότατον
ἀπολογήσασθαι
αὕτη
βελτίων
δέομαι
δήπου
δικαστήριον
ἑβδομήκοντᾰ

ἔδοξεν
ἐθαύμασᾰ
εἴη
εἶναι
ἐκείνῃ
ἔλεγον
ἕνεκᾰ
ἐξελεγχθήσονται
ἐπελαθόμην
ἔργῳ
ἐτεθράμμην
ἔτη
ἐτύγχανον
ἔχει
ἔχω

ἐψεύσαντο
ἡλικίᾳ
θαυμάζειν
ἴσως
καίτοι
κατηγόρων
κεκαλλιεπημένους
κεκοσμημένους
λέγειν
λεγόμενᾰ
λέγοντᾰ
λέγω
λογουμένου
λόγους
λόγων
μάλιστᾰ
μειρακίῳ
μέντοι
ξένως
ὀλίγου
ὁμολογοίην
ὀνόμασῐν
οὕτω
παρίεμαι
πεπόνθατε
πιστεύω
πλάττοντῐ
πρέποι
προσδοκησάτω
προσέχειν
ῥήμασῐ
ῥήτορος
ῥήτωρ
συνεγιγνώσκετε
τούτου
τούτους
τούτῳ
τούτων
τρόπῳ
χείρων

disyllables with long-vowel penult and short-vowel ultima (= no μ4), including some fused enclitic phrases
οἶδᾰ
οἷσπερ
οὗτοι
πᾶσᾰν
πρῶτᾰ
πρῶτον
τῇδε
τοῦτο
ὥνπερ

limit vowel from accented contraction in penult (= tone theoretically on μ4 by Rule 1)
αἰσχυνθῆναι
ἐξαπατηθῆτε
ἐπιτυχοῦσῐν
εὐλαβεῖσθαι
καλοῦσῐν

limit vowel in long-vowel penult (= tone theoretically on μ4 by Rule 1)
Ἀθηναῖοι

μ2 tone = 20
ἄνδρες
ἄρᾰ
Δίᾰ
ἔπος
ἵνᾰ
ξένος
ὄντῐ
ὄντος
ὅτῐ
οὖν
πάνῠ
τῇ
τῆς
τοῖς
τρόπον
τῷ
χρῆν
ᾧ
ᾧ
ὧν

μ1 tone = 11
monosyllables with short vowel (including processive nominals)
ἅ
ἄν
γάρ
δέ
ἓν
μά
μέν
πρός
τά
τό
τόν

μ2 tone but μ3 exists = 31
limit vowel in long-vowel ultima (many from contraction)
ἀγορᾷ
ἀληθῆ
ἀτεχνῶς
αὐτῶν
δεινοῦ
δικαστοῦ
δοκῶ
ἐᾶν
εἰκῇ
εἰπεῖν
ἐμαυτοῦ
ἐμοῦ
ἐμῶν
θορυβεῖν
νοῦν
νῦν
ὀπωστιοῦν
πιθανῶς
πολλῶν
σκοπεῖν
τραπεζῶν
τῶν
ὑμᾶς
ὑμεῖς
ὑμῶν
φωνῇ

inherent accent in short-vowel penult before short-vowel ultima
αὐτίκᾰ
ἐνθάδε
εἰσιέναι

*fused enclitic phrases that would be accented differently if actual words (*μῆτε and *ὥσπερ)*
μήτε
ὥσπερ

μ1 tone but μ2 exists = 29
limit vowel in short-vowel ultima (including processive nominals)
ἀληθές
ἀλλά
ἀπό
αὐτό
αὐτός
δεινόν
δεινός
διά
ἐπί
κατά
μηδέ
οὐδέ
οὐδέν
οὑτωσί
πολλοί
ὑπό

limit vowel in long-vowel ultima (processive)
ἀρετή
γεγονώς
δή
ἐάν
ἐγώ
ἐπειδάν
ἤ
καί
μή
μηδείς
τήν
ὥν
ὡς

Appendix 4: Online Resources about Mora-Based Teaching of Greek Accent

A YouTube playlist with five short videos (an introductory one and four covering the core rules) can be found at https://www.youtube.com/playlist?list=PLsmYpXNl2ZFTuJwmsaFbhiCjjlGRbER7y. The videos were not originally designed or recorded to accompany this article, but explainthe system quickly and in digestible portions (cumulative time for all videos is less than 34 minutes). While I believe instructors ought to familiarize themselves with the system in the greater detail given here if they are going to teach with it, the videos can serve as a demonstration of how simple it is in practice. They are designed for the level of beginning students with knowledge of the alphabet and vowel length. I believe instructors ought to familiarize themselves with my proposal even if they do not intend to use it. The choice to stick with the traditional approach should not be a mere default motivated only by habit and familiarity.

WORKS CITED

Allen, W. Sidney. *Accent and Rhythm: Prosodic Features of Latin and Greek: A Study in Theory and Reconstruction*. Cambridge: Cambridge University Press, 1973. Print.

Chandler, Henry W. *A Practical Introduction to Greek Accentuation.* Oxford: Oxford University Press, 1862. Print.

Chew, Kathryn. "Accenting Ancient Greek Finite Verbs: Four Simple Rules, with Applications for Nouns and Adjectives." *Teaching Classical Languages.* 5.2 (2014): 86–102. Web. 15 Feb. 2022. https://tcl.camws.org/sites/default/files/TCL%20Spring%202014%20Che

w_1.pdf

Hermann, Gottfried. *De emendanda ratione graecae grammaticae.* Leipzig: G. Fleischer, 1801. Print.

Golston, Chris. "Floating H (and *L) Tones in Ancient Greek." *Proceedings of the Arizona Phonology Conference, Vol. 3.* Coyote Papers, U. of Arizona, 1990. 66–82. Web. 20 Oct. 2021. http://hdl.handle.net/10150/227262

Groton, Anne H. *From Alpha to Omega: A Beginning Course in Ancient Greek.* 4th ed, Newburyport, MA: Focus Publishing, 2013. Print.

Major, Wilfred E. and Michael Laughy. *Ancient Greek for Everyone: Essential Morphology and Syntax for Beginning Greek.* Web. 6 June 2023. https://pressbooks.pub/ancientgreek/

Mastronarde, Donald J. *Introduction to Attic Greek.* 2nd edition, Berkeley and Los Angeles: University of California Press, 2013. Print.

Peek, Philip S. *Ancient Greek I: A 21st Century Approach.* Cambridge: OpenBook Publishers, 2021. Web. 6 Mar. 2022. https://books.openbookpublishers.com/10.11647/obp.0264.pdf

Probert, Philomen. *A New Short Guide to the Accentuation of Ancient Greek.* London: Bristol Classical Press, 2003. Print.

——- *Ancient Greek Accentuation: Synchronic Patterns, Frequency Effects, and Prehistory.* Oxford: Oxford University Press, 2006. Print.

Sauzet, Patrick. "L'accent du Grec ancien et les relations entre structure metrique et représentation autosegmentale," *Langages* 95 (1989): 81–113.

Smyth, Herbert W. *Greek Grammar.* Cambridge, MA: Harvard University Press, 1956. Print.

Steriade, Donca. "Greek Accent: A Case for Preserving Structure." *Linguistic Inquiry* 19.2 (1988): 271–314. Print.