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Articles

Latin Conjugation: The Stem Vowel Speaks¹

ROBERT FRADKIN

Steveno Molinsky professori pretioso dedicatus

Abstract: This article offers an alternative grouping of Latin verbs that is more informative than the traditional four conjugations. By considering the “behavior” of the stem vowel in the present, perfect and supine systems as a coherent unit, four “inflectional profiles” emerge that cut across the conjugations. In the three-part structure of a verb form—a stem plus a tense-mood-aspect marker plus a personal or declensional ending, summarized as S-T-E—the main grammatical “action” takes place in the verb stem as it “crosses the border” into the tense markers. A few notions of basic phonetics account for whatever changes take place in the stem at that point. The familiar infinitive equipped with a superscript serves as a single “smart” principal part to encapsulate a verb’s complete inflection at a glance. This holistic endeavor redefines “regular” to include more of the facts and to highlight useful relationships that textbooks leave unspoken. If one accepts a slight step into abstraction, apparent exceptions and irregularities turn out to be completely regular.

Keywords: Latin, conjugation, grammar, verb, principal parts, inflection, deponent, zero ending

1.0. Latin Verb Patterns Great and Small

This article offers an observation on the familiar facts of classical Latin conjugation and suggests an alternative organization of verbs to the traditional four (and a half) “conjugations.” This grouping accounts for more of the facts, highlights their regular interrelations and leaves less to pure memorization of apparently irregular principal parts. Verbs of different conjugations share useful properties that textbooks do not point out but that current and prospective teachers and advanced students preparing for the AP or graduate study can appreciate. A background in linguistics² is not presupposed or necessary, just a willingness to take a slight step into the realm of abstraction and to consider classical Latin on its own synchronic terms. All the relevant information is included in the text as well as in the recently reprinted century-old grammars of, e.g., Gildersleeve and Lodge 1987, 1-9, Bennett 1999, 1-8, Allen and Greenough 2001, 7-9. (These works are invaluable but bear the historically oriented stamp typical of 19th century language investigation.) Individual teachers can decide whether, at what level or to what extent to pass these ideas on to students.

¹ This project is an outgrowth of my experience as a teacher of Russian, Hebrew and Latin. My academic degree is in Slavic linguistics, in which field an analysis of Russian conjugation (Jakobson 1948) sparked a lively literature and was influential in the teaching of Russian over the following half century (e.g., Townsend 1975, Lipson and Molinsky 1981). I mean here only to provide an alternative perspective on the familiar facts of Latin and leave to individual teachers whether or how to implement those insights. I take pleasure in dedicating this article to S. J. Molinsky, my first professor of Slavic linguistics at Boston University 1970. His Russian textbook (Lipson and Molinsky 1981) adapted the highly theoretical “single stem verb system” for the language classroom hardly imagining that Slavic seeds would sprout in ancient Rome. This article and Fradkin 2021 supercede my earlier probings of Fradkin 2015, 2017.

² My linguist colleagues will recognize the signatures of a few different schools of thought in the course of this paper, and I welcome their collegial comment. Some remarks comparing Latin and English in what follows have in mind the adage, “You learn your own language better by learning another language.” A few such hints from my language teachers early on excited me to major in linguistics and pursue a career in language teaching.

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The traditional “conjugations” class verbs by their stem vowel,³ that is, the present system of tenses, and provide principal parts⁴ as a guide to the perfect and supine systems. An outside observer unfamiliar with Latin and the “conjugations” tradition but on the lookout for patterns in language might notice that a typical Latin verb form has a three-part structure: a *stem* with or without a stem vowel⁵ “crosses the border” into three sets of *tense-mood-aspect markers* (the present, perfect and supine systems), and those markers cross the border into three sets of personal or four sets of declensional *endings*. (“Tense” here is taken loosely as a cover term for that middle element, which includes participles and verbal nouns.) In other words, almost every Latin verb form has a clear **S-T-E** structure, and keeping these three elements consistently apart in theory makes a verb’s complete paradigm clearer (and ultimately more manageable) in practice. This “border” notion is central to the current investigation and can be ultimately useful in classroom pedagogy (or at least appeal to learners of some learning styles). The main grammatical “action” takes place at the **S-T-** border. The observer might tag the personal endings mnemonically by their 1sg. as the “O” set, “R” set and “I” set, as explored in 3.3, below with a particular application in 3.4, but contrary to the experience of and to the surprise of beginning learners, these endings do not determine a verb’s conjugation group.

This paper is essentially a fine-tuned examination of the vowel and consonant composition of these component elements and the regularity of their interactions across grammatical borders, highlighting the essential coherence of the system rather than the massive irregularity for which Latin is famous. The traditional advice on forming the perfect and supine—finding the stem of the perfect by removing *ī* from the third principal part and *um* from the fourth principal part—just begs the question of where those principal parts come from. In other words, where textbook tradition advises removing the **-E** to expose the **S-T**, this article goes one more step back to classify the **S-** in all three **-T-** systems at once. The stem will experience predictable changes as it “proceeds” to the tense marker without affecting the marker, itself. Those regular “adjustments” are explained in 1.1a.⁶ In other words, changes happen on the “left” side of a border without affecting the “right” side (in the alphabetical writing system that Latin happens to have adopted from the Etruscans and Greeks). Latin spelling faithfully records the results of these processes but not the processes themselves, often obscuring the borders between these components. Textbooks do point out the three-part structure where it is obvious, e.g., *amā-bā-s*, but also take changes in spelling at face value and label “irregular” what are actually the outcomes of regular, albeit slightly abstract, processes of sound combination.⁷ Front-loading that information in a convenient—

³ The terms “theme vowel” and “thematic class” also occur but usually harken back to the Indo-European prehistory of Latin, e.g., Gildersleeve and Lodge 1895/1997, 91.

⁴ Age-old tradition lets 1sg. present lead the pack as the 1st principal part and dictionary citation form, an honor totally undeserved since it is always automatically derivable from the infinitive, given the right tools, and not the other way around. The only use of a separate 1st principal part is to distinguish the large group of *carpere-lābī* (*carpō-lābor*) from the small subgroup of *capere-patī* (*capīō-patior*) type, in which case, it is surprising that the much more informative infinitive is not promoted to 1st principal part with that **-ō/-iō** distinction as a parenthetical note.

⁵ The advice would be more useful and less mysterious if it suggested replacement, which is the essence of Latin inflection, rather than subtraction, something like, “The *ī* is one of seven equal endings of the perfect (including the infinitive). Replace it with the other six as needed.”

⁶ The S-T-E order of elements seems to reflect an intuitive—unconscious, of course, and laid out at lightning speed—narrowing of information from general to specific. One linguistically endowed human speaks/writes this information to another listening/reading human. First, the **S-** names an action in the abstract that anyone anywhere could perform any time. The **-T-** puts it in relation of time and/or manner to the reality of that speaker, and finally the **-E** comments on “who-done-it.” Many languages, e.g., the Turkic family, have a similar arrangement.

⁷ Hellenists will quickly recognize the same kinds of processes operating in Greek conjugation, but the aspirated consonants, vowel merges and rampant suppletion make the Greek system orders of magnitude more complicated than its relatively simple Latin cousin. The Latin project offered here is, in fact, akin to Wallace 2007 on the morphophonemics of ancient Greek.

and teachable—form signals a verb’s complete “inflectional profile.” The brain can shift its energy from learning individual forms to enacting processes.

The present infinitive always shows a stem vowel, the basis of the four “conjugations.”⁸ It exemplifies the present system but points in no reliable way to the other two systems. This is the “small” pattern of classification. Learners often gauge the connection between the present system and those other two on a scale from benignly opaque to capriciously chaotic to morphological medusae that they must stare down. That stem vowel, though, has more to tell us than we have up to now let it, and coaxing out its hidden properties against the backdrop of a few basic notions of general phonetics and their representation in spelling brings out the unstated regularity of the system, the “great” pattern. Defining “regular” more broadly reduces true exceptions to a mere handful. All three tense systems are interconnected, and stepping back for a broader view of the principal parts draws back the curtain on what goes on, as it were, “behind the scenes at the principal parts factory.” This paper seeks to provide a step-by-step guide to Latin verb structure different from any textbook. The facts are not in question, only the organization, and this limited format cannot claim to cover every possible detail. The three goals of this paper, then, are [1] to focus on a verb’s three-part S-T-E structure and propose a single “smart” principal part that captures a verb’s complete “inflectional profile” at a glance (1.3),⁹ [2] to recognize the place of “zero” in Latin grammar (2.0.) and [3] to suggest a more practical treatment of deponents (3.4).

1.1. Notation and Sound Prep

1.1a. Notation

This is a study of theoretical grammatical elements and their interactions at the borders between them as well as between their actually pronounced syllables. A dashless letter merely underlined, e.g., a, e signals just a letter or a sound without reference to a grammatical function. Dashes and dots do that job. The three abstract grammatical S-T-E elements, that is, S- plus -T- plus -E are preceded by an asterisk and separated by dashes, e.g., imperfect *amā-bā-s, active participle gen. sg. *amā-nt-is. The right-pointing sign > leads to the actually pronounced syllables noted as “actual” and separated by a raised dot, that is, > actual a•mā•bās, a•man•tis. The two representations do not have to coincide and usually do not. Grammatical elements cited separately have a dash before and/or after to indicate their place in the word: S- (amā- or just the stem vowel ā-), -T- (-bā-, -nt-) or -E (-s, -is).⁷ Chart 1 below provides a tutorial on reading letter as structure. Such formulae as *amā-bi-minī > actual a•mā•bi•mi•nī abound throughout. Conversely, the phonetic syllables of a•mā•tor reflect two theoretical S-T-E structures: 3rd declension actor noun nom. sg. *amā-tōr-# and the passive future imperative *amā-tō-r. Both instances require an “adjustment,” namely, a long vowel in the theoretical final closed syllable regularly shortens, that is, *-tōr and *-tō-r > actual •tor.

Also useful, then, is an awareness of syllables as open (ending in a vowel) or closed (ending in a consonant). The syllables in these words are

- all open: a•mā•re (and not *am•ār•e), a•mā•mi•nī, a•mā•vī, a•mā•vē•re, ca•pi•ō
- all closed: fac•tus, carp•tis, ad•duc•tum, in•ter•rēg•num
- open-closed: a•mat, ca•pis, e•quus
- closed-open: cap•ta, scrīp•sī, dic•tū, es•tō
- closed-open-closed: am•bu•lant, car•pi•tis.

⁸ Why the root am chooses ā- and hab chooses ē- is a question that goes far beyond the present scope. The “truly irregulars” *esse-possesse, velle-nolle-malle, ferre*, *ire* do not show a stem vowel, and I leave them for another forum except for a few mentions of *esse* in the course of this discussion.

⁹ Many of my colleagues and students accept principal parts as givens and are content to look no further. One even politely referred me to the folk wisdom cited by patrician Rossus Perotius in his campaign for the consulship of MMDCCXLV A.U.C.: “Si non fractum est, noli reficere id.”

As poetry scanners know, a single consonant normally begins a syllable, while most consonant clusters, including double consonants, straddle a syllable border, e.g., car•pit, mit•te•re.¹⁰ Such clusters as br, cl, known as “stop+liquid”, e.g., librī, can scan either as a unit (li•brī) or separately (lib•rī), reprised in 2.1., below.

The same letter, including the hash tag # “zero” (rather than the mathematical null sign Ø) discussed in 2.1, below, can represent different structural elements in different parts of the word, hence the “dashes” convention just introduced above. Chart 1 is a tutorial on reading letters as S-T-E functions so that references in this text are clear without excessive repetition. (The “O” set of personal endings is the familiar -ō, -s, -t, etc., and the “R” set is -or, -ris/-re, -tur, etc., more about which in 3.3c.) The most salient items are:

S-	-T-	-E
ā-, ē-	-ā-, -ē- <i>pres. subjnc., fut. indic.</i>	-ā, -ē <i>abl. sg. 1st, 5th decl.</i>
	-rē- <i>imperf. subjnc.</i>	-re <i>infinitive (“O” set), 2sg. (“R” set)¹¹</i>
	-s- <i>perf., (some supine)</i>	-s <i>2sg. (“O” set); 3rd decl. nom. sg.</i>
	-t- <i>supine, perf. part.</i>	-t <i>3sg. (“O” set)</i>
	-tūr- <i>fut. act. part.</i>	-tur <i>3sg. (“R” set, also long vs. short vowel)</i>
	-nt- <i>act. part.</i>	-nt <i>3pl. (“O” set)</i>
	-#- <i>“zero”: pres. indic- imper. (all stems); perf. system (some stems)</i>	-# <i>pres.-fut imper. sg. (“O” set) 2nd-3rd decl. nom. sg.: miser-#, libr-#</i>
ī-		-ī <i>1sg. (“I” set)</i>

Chart 1. Letters and Dashes Representing Grammar

1.1b. Sounds: Phonetic and Grammatical

As for stem or tense marker changes, it is important to distinguish “phonetic” change, that is, automatic variations that occur in any kind of word or form under conditions of sound combination from “grammatical” change that occurs in only certain kinds of words or forms. Nothing is new about this distinction, but an appreciation of sound qualities helps

¹⁰ Latin double consonants mean literally “pronounce it continuously long with no break, not two separate articulations.” The first half closes one syllable and the second half begins the next syllable as in modern Italian, Finnish, Arabic. English usually spells single vs. double consonants to indicate the quality of the preceding vowel (called “long” and “short” as in fn. 12, below) but pronounces a single consonant. *Riding/ridding, later/latter* pronounce a single d, t. A spelling rule usually divides the syllables as ri•ding, la•ter vs. rid•ding, lat•ter because English has no other way to spell the two vowels. In dictionary phonetic symbols (with which most people in the modern world in my experience are unfamiliar and mostly ignore), these pairs are approximately rī•ding/rī•ding, lā•ter/lā•ter. English doubling can also suggest a stressed syllable, e.g., trā•ve•ling vs. re•bē•ling, dif•fe•ring vs. re•fé•ring. I discussed much of this sound-letter correspondence for a general audience in my linguistic outreach project for radio announcers and general classical music listeners (Fradkin 1996, 173-190).

¹¹ Distinguishing letter as sound carrier or as grammatical element is a crucial awareness that often evades language learners. It may be sometimes convenient or efficient—but incorrect—to let spelling lead the grammar. The imperfect and pluperfect subjunctives, e.g., amārem, amāvissem look like they add the personal ending -m to the infinitives amāre, amāvisse (e.g., Wheelock 1995, 191). The overall structure of Latin verbs, however, never adds endings to endings. The dashes, as in Chart 1, clearly distinguish the function of the alphabet letters re, isse as the infinitive endings in *amā-#-re, *amā-v-isse > actual a•mā•re, a•mā•vis•se from the imperfect and pluperfect subjunctive markers in amā-rē-m, amā-v-issē-m > actual a•mā•rem, a•mā•vis•sem, where the marker-final long vowel shortens regularly when adding -m, -t, -nt but not -s, -mus, -tis.) Students may balk at this apparent fussiness, but it will pay off in the end.

in understanding what could look unusual on the printed page. A typical phonetic vowel change (different schools of linguistic thought may prefer other terms for a host of reasons) is “long vowel shortens” under two conditions: (1) in a closed syllable (mostly the final syllable),¹² e.g., the final vowel of the imperfect markers ~~-bā-~~, ~~-rē-~~ before the consonantal endings ~~-m/-r~~, ~~-t~~, ~~-nt~~ > actual **•bam**, **•bar**, **•ret**, **•rent**; (2) before another vowel, e.g., 2sg. pres. subjunctive *habē-ā-s > actual ha•be•ās. Both conditions obtain independently of each other in 3sg. *habē-ā-t > actual ha•be•at. Conversely, a short vowel lengthens before the consonant clusters **ns**, **nct**, e.g., present system sen•tī•re vs. supine sen•sum, perfect sen•sī. A typical grammatical vowel change or choice is 2nd conjugation (maintaining that term for the moment) present system ha•bē•tis vs. supine ha•bi•tum with the same structure, hence, this is not a phonetic but a grammar-specific change. Similarly, no phonetic motivation would drop that ē in perfect *habē-u-ī: it is a grammatical “choice,” so to speak.

Of consonant changes, Latin has no trouble pronouncing the consonant cluster ***cs**, but a purely visual spelling rule insists on representing that sequence with the single letter **x** (see 1.1b). One typical phonetic change requires recognizing three pairs of Latin consonants: the letters **b/p**, **d/t**, **g/c** represent voiced/voiceless stops, also called plosives or mutes (pronouncing just the sounds in isolation without naming the letters, that is, with no following vowel, helps to feel the difference between the vocal chords vibrating/remaining still). The letters **f**, **s** represent voiceless consonants called fricatives, and they have no voiced partners in classical Latin (though voiced **v** and **z** will develop in the Middle Ages and in the descendent Romance languages), and more specifically, **s** is a sibilant.¹³ In a potential consonant cluster of “voiced+voiceless,” e.g., ***bt**, ***gs**, the voiced one anticipates the voiceless one and devoices. Roman spelling records this as actual **pt**, and potential ***cs** submits to the **x** rule.¹⁴ A common grammatical consonant change occurs across an **S-T** border, mostly in supine and perfect: the potential sequences ***ts** and ***tt** both “sibilate” to **ss**, a “one-step” change. Correspondingly, potential ***ds**, ***dt** first devoice in theory to ***ts**, ***tt** and then sibilate, a “two-step” change. See 1.3 for more on this.

¹² The macron is traditional for marking long vowels, though not all classrooms make a point of it. Some textbooks use an occasional brève mark to distinguish explicitly such lexical items as iacēre/iacēre, lēvis/lēvis, ācer/ācer, mālum/mālum or related forms like verb/noun dūcis/dūcis, 2sg. fut./pres. labēris/labēris, 3pl. perf./inf. vertēre/vertēre. As for “long” and “short” in English, the term did refer to vowel length—in Old and Middle English, and final **e** was pronounced. The Great Vowel Shift during the 15th century made (grossly oversimplifying) quantity into modern English quality, e.g., fate/fat, cope/cop, cute/cut, and final **e** fell “silent” but became the signal for new qualities, namely, fāt/fāt, cōp/cōp, cūt/cūt (cf. fn. 10, above).

¹³ This common phonetic term is familiar to Latinists from the several hissing serpent references in Knox 1950.

¹⁴ For a quick English comparison, possibly useful to mention to learners and covered more extensively in Fradkin 2021, English has these same five voiced/voiceless pairs and three more with several spellings: **j/ch** (junk/chunk, badge/batch, gin/chin); **zh/sh** (pleasure/pressure, vision/mission, azure/assure, seizure/session and some pronunciations of garage, genre, jejune), Many English speakers, reared in an educational system that stresses letters rather than sounds, are unaware of **zh** because it has no distinctive spelling; **th** represents an interdental, both voiced (**the**, **that**, **though**, **northern**, **smooth**) and voiceless (**thistle**, **thatch**, **throw**, **north**, **booth**). Single **s** represents the pair **z/s** (design/sign, resolve/solve, preside/side as well as museum, desert and sit, sore, list, miss), and single **s** vs. double **ss**, particularly in the configurations derived from Latin verbal nouns in ~~-tiōn-~~, ~~-tūr-~~, covers **zh/sh** as just noted. The letter **z** covers voiced **z** and **zh** in zero, wizard vs. azure, seizure. The digraphs **sh**, **ch** (and **zh** in the transcription of Russian names like Brezhnev) are single consonant sounds, spelled variously in **shine**, **sure**, **facial**, **spatial**, **which**, **witch**. The letter **x** represents a voiceless cluster **cs** before another voiceless consonant in **excite**, **expect**, **excommunicate**, **extend** and its voiced partner **gz** before a voiced sound such as a vowel in **exit**, **exist**. (Both **ec-sit** and **eg-zit** are possible.) English words cannot begin in such a cluster, and just the **z** survives in **xylophone**, **xenophobe** etc. English spelling has the reputation of being crazy. Actually, there are many rules and consistencies. The problem is that they crisscross and conflict so that it is not always clear which one applies when.

1.1b. An Orthographic Annoyance

The upshot of the x spelling rule is that it blurs borders, that is, the border runs right through the middle of that x letter. The consequences for each S-T-E component are as follows:

(1) within a stem only a syllable border blurs, that is, orthographic *texere*, *vexāre* are phonetic *tec•se•re*, *vec•sā•re*, which is relevant for poetry scanning;

(2) a grammatical border that is not a syllable border, namely, the T-E border of 3rd decl. gen. sg. feminine actor noun in the supine system, blurs, that is, **-trīc-is* > actual •*trī•cis* is clear, while the nom. sg. **-trīc-s*, spelled •*trīx*, is blurred (and of course other 3rd declension nouns like **vōc-s/-is* > *vōx*, *vō•cis*);

(3) a syllable border that is also a grammatical border blurs across the S-T border of, e.g., **dīc-s-i* > phonetic *dīc•sī*, spelled *dīxī* (not **dī•xī*). Learners may perceive x as one of the markers of the perfect system or one of the endings of the 3rd declension, but in terms of Chart 1 above, Latin spelling has x, while Latin grammar has no x-, -x- or -x.

1.2 The Familiar Conjugations and the Message of the Principal Parts

Perhaps obvious but nonetheless worth mentioning: a Latin word root (am-, hab-, aud-scrib-), usually a syllable with a root vowel, becomes a verb stem (amā-, habē-, audī-, scribī-) by acquiring or rejecting one of four stem vowels before each of the three sets of tense system markers. Three of these stem vowels are long—ā, ē, ī—and one is short¹⁵, noted here provisionally as *e* ~ *i*, clarified under (4) in 1.3. and in Chart 3, below. It is not that, e.g., *vetā-re* has a stem vowel *ā-* that changes to *ī-* in the supine for no phonetic reason (the syllable structures of *vetā-tis* and *veti-tum* are identical) and drops in the perfect also for no phonetic reason (nothing prevents **vetā-tum*, **vetā-vī* but nothing will excite the teacher's red pen faster). Rather, it chooses *ā-* before the present system marker, chooses *ī-* before the supine system markers and chooses "no vowel" before the perfect markers. (Why this is so is another question entirely. Throughout this piece I take the liberty of personifying stems and tense markers that "choose" their stem vowel or "call forth" one or another ending.) That vowel is in evidence in all or most of the present system, and grammar books choose the present infinitive to represent the present system, dubbing it the second principal part (see fn. 4) before the endings *-re/-rī*. Long-standing grammatical tradition numbers verbs with these stem vowels as 1st, 2nd, 4th, 3rd "conjugation," respectively, including a small subset of 3rd, designated 3iō.¹⁶ Many students and teachers find this arbitrary numbering—a reflection of alphabetical order?—a superfluous layer of metalanguage and refer directly to the *ā*-type, *ē*-type, *ī*-type and two kinds of *e* ~ *i*-type.¹⁷ Under predictable conditions in the present system, the stem vowels can shorten or be absent. (This is not "dropping" an existing vowel but rather "choosing none.") Textbooks normally introduce the present indicative first and merge the stem vowel with the personal ending, giving the impression of different endings for each conjugation, e.g., 2sg. •*ās*, •*ēs*, •*īs*, •*is*, etc., and much instructional time at the beginning levels goes into inculcating "the endings." Of course, as learners are quick to point out, that artificial difference collapses in other tenses, since all imperfects have •*bās* and half of the futures, •*bis*, etc.; future *scribēs* suddenly looks like the present of *habēs*, and subjunctive *scribās* suddenly looks like the present of *amās*; macrons seem to pop in and out of present

¹⁵ Many of my students do not hear the difference between long and short vowels, hence they see the macron not as a signal but just a random decoration. Some sprinkle it everywhere; others, nowhere. See fn.12 for "long" and "short" in English.

¹⁶ Sadler 1973, Elerick 1977, Panhuis 2006 accord 3iō the separate status of 5th conjugation, which to my mind emphasizes their relatively small difference from 3rd conjugation over what they have in common. See Chart 3, below.

¹⁷ The ordering seems to reflect nothing more than the alphabetical order of the stem vowels with short *e* ~ *i* caught in between *ē*, *ī*, but that order serves no purpose. There is no order, nothing "first-ish" about *amāre*, etc. The stem vowels *ā-*, *ē-* vs. *ī-*, *ī-* do, however, correlate with slightly different present system markers (see 3.3c.).

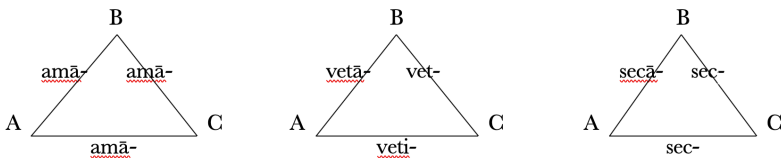
and future *lāberis, lābēris*. Sorting these forms into their S-T-E components **scribi-ē-s*, **habē-#-s*, **scribi-ā-s*, **amā-#-s* heads off a host of frustration (see Chart 1). The traditional conjugation scheme cannot predict the stem vowel of the perfect and supine systems.

Textbooks and dictionaries usually roll out principal parts in one horizontal dimension (*rīdeō-rīdere-rīst-rīsum*). The similarities and differences are obvious but hard for learners to categorize. Listing them one under the other in two dimensions helps line up the forms that have and do not have a stem vowel. Stacking them on top of each other in three dimensions and looking down through the stack would also show which forms do and do not have a stem vowel like the overlapping plastic pages of an anatomy textbook. In other words, the unspoken purpose of the principal parts (and they may not even realize it themselves) is to illustrate the behavior of the stem vowel not only in each system separately but in all three systems together as a coherent package. That “package” is the basis for classification in this article. Other changes follow from that: the choice of perfect system tense marker (partially) and some concomitant consonant or vowel changes in the stem itself as well as a few other gymnastics in the supine.

1.3. The Profiles and the Single “Smart” Principal Part

Some consistencies among these three tense systems are worth observing and not just relegating to irregularity or change of conjugational allegiance. *Amāre-vetāre-secāre-iuvāre* and deponent *mīrārī* are all “1st conjugation” because they all form the same kind of present system although each one forms a slightly different perfect and/or supine system, diminishing the usefulness of the number. Similarly, *dēlere-habēre-docēre-rīdere-sedēre-mordēre* and deponent *verērī-fatērī* are all “2nd conjugation,” which says nothing about their many and varied perfect and supine systems, just as *audire-aperire-venire-vincire-potiri-experiiri* are “4th conjugation” in the present system but each with a different strategy in the other systems. Taking the presence or absence of the stem vowel in all three systems as a single “profile,” then, *amāre-dēlere-audire-mīrārī-potiri* all have in common a long vowel before all tense markers. This property correlates with the choice of the perfect marker -v-, a fact well known but not usually seen in a broader context. The two groups *vetāre-habēre-secāre-docēre-aperire* form the same kind of perfect, namely, with the marker -u- but differ in their supine system along with *fatērī-experiiri*. *Iuvāre-sedēre-venire* have the same kind of supine system as *secāre-docēre-aperire* but have yet another idea of forming the perfect system. Gildersleeve and Lodge (1987, 72-88, 96-114) and Bennett (1999, 83, 96) already sowed the seeds of such a holistic approach by listing verbs first by their conjugation (present system) and then crosslisting them by their perfect strategy. This article moves those lists into the realm of system.

Modeling the three tense systems in “grammatical geometry” is one way to make these abstractions more concrete. These triangles with vertices A, B, C form legs AB (present system), BC (perfect system), AC (supine system).



Amāre has *amā-* with the same long stem vowel on all three legs; *vetāre* has three different shapes *vetā-* matching *secā-* on AB and *vet-* matching *sec-* on BC, but the AC leg has *veti-*; *secāre* has *secā-* only on the AB leg and stem vowelless *sec-* on the other two; The order of the legs is arbitrary since it is all one system and illustrates the stem’s power to choose the same, a different or no stem vowel before each set of tense markers. Both kinds of 3rd conjugation share perfect and supine strategies mostly with the *sec-*

type, while their AB leg has a short stem vowel on it, which accords them their own group identity.

The four (and a half) “small” conjugations regroup, then, into three types (numerophobes take a deep breath): the AB=BC=AC type, the AB, BC, AC type, and the AB, BC = AC type. All three types can show all three long stem vowels on the AB leg, and the fourth type, not pictured, has a short vowel on AB—and that short vowel behaves in two ways. In other words, four (and a half) “great” patterns cut across the traditional conjugations. The main grammatical action takes place in the middle of the word as the stem “chooses” a stem vowel for each set of tense markers. All tense markers take the same personal endings, that is, the endings do not determine inflectional group.

Rather than expand the meaning of the established term “conjugations,” a new term like “inflectional profiles” seems more appropriate. The familiar infinitive, “enriched,” as it were, with a superscript number—caveat lector: this is not the traditional conjugation number—signals the entire inflectional picture. Instead of four principal parts, the relations among which may or may not be clear, this enriched infinitive can now serve as a “single ‘smart’ principal part,” supplying the instruction for acquiring a stem vowel or not in one, two or three tense systems. Deponents, reexamined in 3.4, form their perfect system with the perfect participle (supine system) plus the appropriate present system tense of auxiliary *esse*, written separately. Four verbs with a present system like *habēre* or *legere* and a supine and perfect system like *verēī* or *ūtī* are termed semideponents, though they are not “half” of anything. Two prefixed forms of one verb have the opposite arrangement: a present system like *ūtī* and perfect system like *legere*. The four inflectional profiles, then, and their “smart” infinitives are as follows:

(1) Profile-1 is the *amāre*¹-*dēlēre*¹-*audīre*¹-*mīrārī*¹-*potīrī*¹ pattern. The stem chooses the same long vowel for each of the two or three tense systems. That vowel carries its own instruction for forming the present system, that is, choosing between the two variants of certain markers (see 3.3), and the superscript 1 says that those that form a perfect with a marker choose *-v-*. The supine marker is guaranteed *-t-* for all verbs (for now). All the S-T border crossings are smooth-flowing vowel-consonant, consonant-vowel or vowel-vowel. (Long *ē*, *ī* shorten regularly before another vowel, while *ā* scores low in the “works and plays well with others” category and drops.) This “reliable” stem vowel typifies all *ā*-deponents and all but a very few other *ā*-verbs, a very few *ē*-verbs—*dēlēre*, *flēre*, *nēre* and always prefixed *-plēre* and no *ē*-deponents—and about half of *ī*-verbs. As 3.3c. will explore below, their only difference is in some of the markers of the present system: the relevant markers are consonant-initial (and one vowel-initial) for stem vowels *ā*, *ē* but vowel-initial for stem vowel *ī*.

(2) Profile-2 is the *vetāre*²-*habēre*²-*verērī*² pattern. The superscript 2 does not mean “2nd conjugation,” though about half of the *ē*-verbs do indeed have this profile, as do a very few *ā*-verbs: *cubāre*², *crepāre*², *domāre*², *sonāre*². No *ī*-verbs exhibit this profile. (A very few *ē*-verbs are Profile-1, just cited, and the rest are Profile-3.) The stem chooses the long vowel only before the present system markers. Before the supine markers, however, the stem chooses the stem vowel *i*—a grammatical choice, not a phonetic change as mentioned in 1.1a., above. Such verbs always choose the perfect marker *-u-*, and before it they choose literally “no stem vowel” in **vet-u-*, **hab-u-* > actual *ve•tu•ī*, *ha•bu•ī*.¹⁸ Other common Profile-2 verbs are *iacēre*², *monēre*², *tacēre*², *terrēre*² and six of the eight *ē*-deponents *merērī*², *miserērī*², *licērī*², *pollicērī*, *tuērī*, *verērī*². One of the four semideponents belongs here and shows it by adding an apostrophe to its superscript,

¹⁸ Like many issues of cause and effect in language structure, does the stem “choose” its stem vowel based on “knowing” that it is heading for one or the other tense marker? Is it like a slot machine that rolls, independently of each other, cherry-cherry-cherry (Profile-1), cherry-apple-blank (Profile-2), or cherry-blank-blank (Profiles-3, -4)? Or does the tense marker “know” what stem is coming and assign it an appropriate stem vowel, including none, declaring “I want you just the way you are”?

namely, *solēre*². An apparent hybrid is *abolēre* with a Profile-1 present and perfect system, choosing the long stem vowel and perfect marker *-v-* but making a different choice in the supine in the manner of Profile-2. Adding a dash to the superscript number signals “something about the supine,” hence, *abolēre*¹⁻². Is this irregular or just an unexpected mix of otherwise regular processes?

For Profiles-1,-2 all the S-T border crossings are smooth-flowing vowel-consonant, consonant-vowel or vowel-vowel. In other words, all verbs so far are “regular.” Of the four present system markers with a consonant-initial and a vowel-initial variant (more on which in 3.2c.), the stem vowels *ā-*, *ē-* pick the consonant-initial markers, while *ī-* picks the vowel-initial variants.

(3) Profile-3 starts to churn up these so-far-placid waters. These verbs acquire their long stem vowel in the present system like Profiles-1,-2, and the same present system distinction between stem vowels *ā-*, *ē-* vs. *ī-* holds. Like Profile-2, these verbs choose no stem vowel in the perfect system, but unlike Profiles-1,-2, their perfect marker is not guaranteed: all four perfect markers *-u-*, *-s-*, “zero” *-#-* (see 2.1 below) and a few instances of *-v-* are open to them. They also have no stem vowel in the supine system, creating the first consonant-consonant border crossings encountered thus far, that is, the root-final consonant plus the supine marker, which begins in or consists entirely of *-t-*, a voiceless consonant. Those that choose the perfect *-s-* also create a consonant-consonant border. Latin accepts some resulting consonant clusters but requires others to “adjust,” as mentioned in 1.1a. and explored further just below. The adjustments proceed in one, two or three theoretical steps, and these mandated changes are the very things that land so many supines and perfect in lists of putatively “irregular principal parts.”

This profile includes verbs such as *secā-re*, *docē-re*, *aperī-re*, *experī-rī*, *venī-re*, *vincī-re*, which acquire no stem vowel before the supine marker *-t-*. The S-T border guards wave the resulting consonant clusters of **sec-t-*, **doc-t-*, **aper-t-*, **exper-t-*, *ven-t-*, *vinc-t-* on, not even checking their passports for 1st, 2nd or 4th conjugation provenance. Even a vowel-final root like *ciē-re* has expected *ci•tum*. The root-final consonant of *augē-re*, however, is voiced *g*, and it regularly devoices to *ç* before that voiceless *-t-*, that is, **aug-t- > actual auc-tum*, and Roman spelling records that assimilation. This is a “one-step” change, as in 1.1b. Latin has no trouble with double *tt* within a stem, e.g., *mitte-re*, *sagitt-a*, but across an S-T border, as in deponent *fatē-rī*, **fat-t-*, the “sibilation” rule of 1.1b. creates supine *fas•sum*, another one-step change. (Some students devise the convenient mnemonic that the *t* of the stem “retreats one letter to *s*.” That is fine as long as they do not actually see alphabetical order as a factor in Latin or any other grammar.)

The root-final consonant of *sedē-re*, like *augē-re*, devoices in theory to *t*: **sed-t- > *set-t-*, which then must sibilate to actual *ses•sum*, a two-step change. The root-final consonant cluster of *sentī-re* creates **sent-t-*, which also takes two steps to its supine: sibilating to theoretical **sens-s-*, and then double *s-s* after another consonant “reduces” to a single. In S-T-E terms, then, theoretical **sen-s-um > actual sēn•sum* actually loses a root consonant (or, to continue the metaphor, has to leave excess baggage at the border post). In other words, should the question arise in class whether the remaining *s* is the root consonant or the supine system marker, it is the marker. One could consider the automatic vowel lengthening before *ns* as a separate step.

Reduction is also the *modus operandi* of the root-final consonant clusters resulting from *mordē-re*, deponent *ordī-rī*, the long root vowel of *rīdē-re*, and the diphthong of semideponent *audē-re*. After all these configurations, the theoretical supines **mord-t-*, **ord-t-*, **rīd-t-*, **aud-t-* first devoice to theoretical **mort-t-*, **ort-t-*, **rīt-t-*, **aut-t-*, sibilate to theoretical **mors-s-*, **ors-s-*, **rīs-s-*, **aus-s-*, and then the double *s-s* reduces for actual *mor•sum*, *or•sum*, *rī•sum*, *au•sum*. *Respondē-re* goes through the same three-step chain, and the root vowel lengthens before the resulting *ns*: **respond-t- > *respon-t- > *respons-s- > *respon-s- > actual re•spōn•sum*. Not a word about 2nd or 4th

conjugation, half or full deponent, need be spoken. Chart 2 summarizes these processes and their results, and they will return in the next section.

1-step	devoice sibilate	augē-/auc•tum fatē-/fas•sum
2-step	devoice-sibilate sibilate-reduce	sedē-/ses•sum sentī-/sēn•sum
3-step	devoice-sibilate-reduce	ordī-/or•sum rīdē-/rī•sum audē-/au•sum
	vowel length before <i>ns</i>	respondē-/re•spōn•sum

Chart 2. Consonant-Consonant S-T Border Adjustments: Supine System

The superscript for deponents, since they do not choose a perfect marker, is just the simple number fatēr³, experīr³. In addition to semideponent audēr³, just mentioned, is gaudēr³, the supine system of which has one other feature mentioned in 2.2 and discussed in 3.2a. below.

As for the perfect system, Profile-3 chooses among the four perfect markers, and the superscript must now provide that choice:

-u- in secāre^{3u}-docēre^{3u}-aperīre^{3u} with no further change in the stem;
-s- in vincīre^{3s}-augēre^{3s}-sentīre^{3s}-rīdēre^{3s} with the same consonant-consonant adjustments as in Chart 2, including the *x* rule in vinxī, devoice and *x* in auxī, sibilate-reduce in sēnsī, devoice-sibilate-reduce in rīsī; some root types with special characteristics are in 3.1.

-#- “zero” in respondēre^{3#}; iuvāre^{3#}-sedēre^{3#}-venīre^{3#}; mordēre^{3#}, adding nothing visible or audible between the stem and the personal ending but audibly lengthening the root itself, if it can, in one of two ways:

- the root vowel *o* of re•spon•dē•re is in a closed syllable (considered long in poetry scanning) and does not change; its enriched infinitive remains respondēre^{3#}.
- the short root vowel in an open syllable lengthens grammatically (cf. 1.1b.) in the perfect in iū•vī, sē•dī, vē•nī; the enriched infinitive risks showing this by imposing a non-Latin right-end-up accent mark on the root vowels of iūvāre^{3#}-sedēre^{3#}-venīre^{3#}.¹⁹ Others of this profile are one other *ā*-verb, lāvāre^{3#}, five *ē*-verbs with a root *v*, e.g., mōvēre^{3#} (see 2.2, below) and vidēre^{3#}.
- four *ē*-verbs “reduplicate” the initial consonant-vowel of the stem in mo•mor•dī, to•ton•dī, pe•pen•dī, spo•pon•dī (and not *spo•spon•dī); the enriched infinitive shows this by literally doubling the perfect marker in mordēre^{3##}, tondēre^{3##}, pendēre^{3##}, spondēre^{3##}.

-v- in cīre^{3v}, also with an acute accent mark on the root vowel: the lack of a stem vowel brings that now-long root vowel in contact with the perfect marker, which must, then, be -v- like the long stem vowels of Profile-1.

At this point teachers and learners may prefer simply to learn the ready-made principal parts rather than engage in the intellectual process of building up verb forms

¹⁹ This “right-up-pointing macron” may already be familiar to some learners from other language experience. French calls this “acute” on the tense vowel *é*, and Italian has it on *é*, *ó*. Spanish uses it to mark stress as “other than penultimate” in nouns like *nación* and the grammatical distinction between preterite *habló* ‘he spoke’ and present tense *hablo* ‘I speak’ as well as a vocabulary distinction in present *está* ‘is’ and demonstrative *esta* ‘this’, pronouns *tú*, *qué*, possessive *tu* and subordinate clause marker *que*. Imperative *diga* ‘tell’ alone needs no mark for its penultimate stress, but adding a pronoun object renders antepenultimate stress in *dígame* ‘tell me’. Polish *ó* is pronounced *u*; Czech and Slovak use it for long vowels; Ancient Greek and some Native American and African languages use it for rising tone.

through proposed theoretical steps. Interests vary and both paths lead to good Latin, which is after all, the goal.

(4) Profile-4 and its subtype 4° are like Profile-3, that is, no stem vowel in the supine and perfect with the same consequences on those consonant-consonant borders. Chart 2a. recaps these adjustments in some sample supines. The fourth and final semideponent here is *fidere*⁴ (present system like *serere*, supine and perfect system like *ūtī*), and *reverti*⁴, *dēverti*⁴ with a double apostrophe have the opposite semideponent scheme (present system like *ūtī*, supine system like *serere*).²⁰

1-step	<i>devoice</i> <i>sibilate</i>	<i>scribi-/scrip•tum</i> <i>pati-/pas•sum</i> <i>mitt-/mis•sum</i>
2-step	<i>devoice-sibilate</i> <i>sibilate-reduce</i>	<i>fodi-/fos•sum</i> <i>verti-/ver•sum</i> <i>ūtī-/ū•sum</i>
3-step	<i>devoice-sibilate-reduce</i> <i>sibilate-reduce-x</i>	<i>fidi-/fī•sum</i> <i>pecti-/pexum</i>
	<i>length before ūs</i>	<i>reprehendi-/re•pre•hēn•sum</i>

Chart 2a. Consonant-Consonant S-T Border Adjustments: Supine System, Profile-4, -4°

Like Profile-3, the superscript must indicate the choice of perfect marker.

-u- in *serere*^{4u}, *rapere*^{4u};

-s- in *scribere*^{4s}, *dīcere*^{4s}, *intellegere*^{4s}, *mittere*^{4s}, *pectere*^{4s}, *rādere*^{4s}, *inspicere*^{4s} with the now-familiar consonant-consonant adjustments:

devoice in *scripsī*, *x* in *dīxī*, *inspexī*, *devoice* and *x* in *intellexī*;

sibilate-reduce in *mīsī* (and unusual root vowel lengthening), *sibilate-reduce-x* in *pexī*, *devoice-sibilate-reduce* in *rāsī*;²¹

-#- in *vertere*^{4#}, *lēgere*^{4#}, *fōdere*^{4#} as well as *āgere*^{4#}, *fācere*^{4#}; the root vowel of *ver•ī* is in a closed syllable and does not change; the short vowel lengthens in *lē•gī*, *fō•dī*, and now a circumflex accent (bent macron²²) marks the vowel shift *a* > *ē* in *āgere*/*ē•gī*, *facere*/*fē•cī* and five others, that is, *āgere*^{4#}, *fācere*^{4#}; the reduplicators are, like Profile-3, *canere*^{4##}, *parere*^{4##};

-v- in *petere*^{4v}, *cupere*^{4v}, actually a hybrid with a present system like *serere* but the other two systems like *audīre*.

Only its short stem vowel *e~i* in (at least part of) the present system grants it the separate designation Profile-4, the only profile to coincide with one of the traditional conjugations (the 3rd). Its subgroup usually dubbed with the mnemonic 3^{io} is Profile-4° in deference to that tradition. The identity of that shifting short stem vowel *e~i* is both simple and not simple. Is it basically *e* as in *carpe-re* and shifts (“weakens”?) to *i* in the

²⁰ Terminology imbalance: *mīrārī*, etc. are deponents, having “laid aside” their active endings (see 3.4), while *amāre*, etc. have not done anything special and have no good general term except non-deponents. Suggestions? If *solēre*, etc. are semideponents, is *revertī* seminondeponent?

²¹ The same processes, of course, make many 3rd declension nom. sg. nouns and adjectives look so different from the rest of their paradigm, as mentioned in 2.1: *dap-s* requires no adjustment; *urb-s* *devoices* in speech to **urp-s* but does not spell it to preserve the unity of the paradigm, namely, *urb*+vowel; *x* in **duc-s* > *dux* and *devoice-x* in **rēg-s* > **rēc-s* > *rēc*; *sibilate-reduce* in **aestāt-s*, **art-s*, **mont-s* > **aestas-s*, **ars-s*, **mons-s* > actual *ae•stās*, *ars*, *mōns*; *sibilate-reduce-x* in **noct-s* > **nocs-s* > **noc-s* > actual *nox*, *devoice-sibilate-reduce* in **Parid-s* > **Parit-s* > **Paris-s* > actual **Pa•ris*.

²² French uses this mark to signal an “open-*e*” in *crêpe* and “*s* left out of the Latin stem” in *forêt*, *êtes* as well as the distinguishing mark for past participle *dû* vs. article *du*, adjective *sûr*, preposition *sur*. The Slavic and Baltic languages invert this mark—called “haček” ‘little hook’—on the consonants š, ž, ž (what English spells sh, ch, zh), ñ (Spanish ñ) and Czech ř for the cluster *řzh*.

same kind of open syllable as carpi-tis? or basically *i* in capi-tis and shifts to *ɛ* in cape-re in the same kind of open syllable? (Of recent works, Aronoff 1994 and Oniga 2014 favor *ɛ*, which drops before a vowel.) Is carpere a consonant stem that inserts one or both of these vowels before another consonant to avoid potential *carp-s, *carp-t, *carp-mus, *carp-tis (e.g., Janson 1979, 75) but not in carp-tum, while capere has a genuine stem vowel? Both carpere and capere agree that that vowel is *i* before most consonants, that is, the closed syllables of carpi-t/capi-t, carpi-s/capi-s and the open syllables of carpi-mus/capi-mus. It is *ɛ* under only two conditions:

- (1) in an open syllable specifically before *r*:
 - the infinitive -re in car•pe•re-ca•pe•re
 - the identical-looking 2sg. -re ~ -ris passive car•pe•re-ca•pe•ris, deponent lā•be•ris-pa•te•re
 - the future -bi- in 2sg. amā•be•ris, mī•rā•be•ris, vi•dē•be•ris, ve•rē•be•ris
 - the imperfect subjunctive car•pe•rēs, lā•be•rērēs ca•pe•rēs, pa•te•rērēs.

(2) at the end of the word, namely, imperative-I sg. car•pe, ca•pe consistent with a general rule of Latin, as in third declension, whether in the open syllable of *mari-# > actual ma•re or the closed syllables of *nōmin-#, mīlit-s > actual nō•men, mī•les.²³ In other words, all the occurrences of *ɛ* are predictable from *i* but not the other way around. Touratier 1971, 335-337 already came to such a conclusion, while Janson (1979, 75) “cannot see that this is in any way commendable.”

In the present system, namely, before the vowel-initial markers (3.2c.) and the vowel-initial endings (3.3a.), the group splits. The overwhelming majority (Profile-4) has no stem vowel, a grammatical choice, not a phonetic change, while the small minority (Profile-4°) does have a short vowel before another vowel, namely, *i*.²⁴ Ideally, a grammar rule covers more of the facts than fewer of the facts, and in this instance, all occurrences of *ɛ* are predictable from *i* and not vice versa, which is why the infinitive is misleading as a starting point (for Profiles-1,-2,-3 the infinitive was as reliable a form as any for showing the long stem vowel) and why for classical Latin the basic stem vowel for Profile-4,-4° appears to be *ɪ*.²⁵ The mystery remains as to why so many stems reject *i* before a following vowel, while only a few keep it. As Weiss admits (2009, 400), “the most efficient synchronic analysis of these conjugations is not obvious.” Chart 3 lays out where the two groups agree and disagree. Showing which chicken lays/hatches from which egg has been the function of the 1st and 2nd principal parts, and now the superscript does that job.

²³ The only words that “escape” and end in *ɪ* are the dative pronouns mihi, tibi, sibi, cui and the adverbs heri, ubi, ibi.

²⁴ One wonders why the ancient grammarians did not see this as significant enough to class the three long-vowel conjugations together and the “3rd” last in the line-up. Clearly, the Romans were not thinking about anglophone learners in the distant future.

²⁵ Is this the grammatical flipside to Thisbe’s wonderful declaration that she is the “causa comesque” of Pyramus’s death (Metamorphosis IV:152)? Is this stem vowel *i* the “comes causaque” of its own demise, first choosing the vowel-initial marker and then bowing out?

S-	-T-	-E	Actual	Stem Vowel i? ġ? #?
carpi- lābi- capi- pati-	-tō-	-#	“as is”	<i>i</i> before consonant except ġ
	-#-	-tur -tis -te -t -mus -mur -minī -s		
		-#		
		-re -ris	> car•pe > ca•pe > car•pe•re, lā•be•ris > ca•pe•re, pa•te•re	<i>ġ</i> before ġ and end of word (pres. imper. sg.)
	-rē-		> car•pe•rē-(tis), lā•be•rē-(ris) > ca•pe•rē-(mus), pa•te•rē-(tur)	
	-#-	-ō/-or -unt/ur	> car•pō, lā•bun•tur > ca•pi•ō, pa•ti•un•tur	
	-ē*		> car•pē-, lā•bē- > ca•pi•ē-, pa•ti•ē-	majority: <i>i</i> absent before vowel minority: <i>i</i> present before vowel (2 personal endings, 5 present system markers)

Chart 3. Present System 3rd/3iō Conjugation, Profile-4/-4°
(*future -ē- represents all five vowel-initial markers of the present system)

These are the broad outlines of the S-T-E system and the single smart principal part that can represent a verb’s full inflectional scope. Some readers may be content to stop here. The rest of this article is devoted to fleshing out this scheme so that teachers and advanced students can look back on the facts they already command and see in them useful consistencies that I have not seen mentioned in any current textbook. They may then decide whether or to what extent to impart these insights to their students. Some may find it too analytical, while it may answer others’ prayers for some order in the apparent chaos. It does not promise to make learning conjugation simpler, just to set it on regular principles applicable across the whole system. Two “interludes” are in order before proceeding.

2.0 Two Interludes

2.1. Grammatical Interlude: On “Zero” in Latin Grammar

This theoretical placeholder for grammatical elements makes visible when *not* to add a tense marker or an ending in contrast to other visible and audible elements. (Mel’chuk 2006, Chapter 9 offers an extensive treatment of the notion in a variety of languages.) Zero occurs frequently enough in the present study of Latin conjugation that it is worth making a point of it here, and as noted in 1.1 above, this “nothing” appears as the hash tag # rather than the traditional mathematical Ø for “null, empty set.” Textbooks often acknowledge this abstraction by saying, e.g., “add X here but no ending there.” A verb’s -T- or -E “slot” may indeed be “filled” with “nothing,” though it may seem to some language analysts as an artificial “paradigm neatener.” The old philosophical discussion of “nothing as something” also comes to the fore. Nonetheless, some teachers and learners do find zero a useful construct, and in Latin grammar several “zeroes” are evident.

2.1a. In the Conjugation System

Two tense markers are “zero” -#: one in the perfect system, that is, *respond--ī vs. hab-u-ī, scrīp-s-ī, amā-v-ī. The other is, not uncontroversially, shared by the present indicative and present imperative (imperative-I), and the endings differentiate the two moods: 2pl. tacē--tis, tacē--te; deponent verē--minī makes no distinction in form (more on which in 3.2c., below). The singular shows that its imperative ending is also “zero” -#, that is, indicative tacē--s and what is spelled as the pure stem tacē is in S-T-E terms tacē--#. Deponents have an audible ending in verē--re. The future imperative (imperative-II) simply replaces -# by -tō- in tacē-to--#, tacē-to-te, while deponents have *verē-tō-r > actual verētor and no plural. See 3.3 for the rest of the imperative story.²⁶

2.1b. In the Declension System

The verbal and nominal systems interlock at the participles and verbal nouns, which also have an S-T-E structure. All their -T- markers begin and end in a consonant, and they fill their -E slot with declensional endings, all of which begin in a vowel making smooth border crossings—except third declension nom. sg. with two “non-vowel” endings: -s and -#. Masculine and feminine noun stems ending in a stop consonant (b/p, d/t, g/c) take -s; stems of all genders ending in a resonant consonant (r, l, n) and all neuter take -#. The active participle marker -nt- in the present system and feminine actor noun -trīc-, then, are *-nt-s > *-ns-s > actual -ns (for all genders and similar “adjectives of one termination,” e.g. *ingent-), and the orthographic x-rule applies in *-trīc-s > actual -trīx (cf. Charts 2, 2a.). The masculine actor noun -tōr- and the verbal noun -tiōn- take -#, shortening the vowel in the final closed syllable of *-tōr-# > -tor, while the sequence *ōn at the end of the word deletes the n, hence *-tiōn-# > actual tiō. (The long tradition of assuming the nom. as the “base” from which all other cases “lean away” accounts for the notoriously—and now spuriously—irregular reputation of the third declension, at least in this regard.) The fourth declension verbal noun, of which the accusative and ablative serve as the supine, and the first-second declension adjectives -tūr-, -nd-, -t- for the future active, future passive and perfect participles, involve no zero. Even though the rest of the nominal system is not the object of study here, a quick jog into the territory of the second and third declensions outside the verbal system nonetheless unites some apparently disparate aspects of Latin grammar.

Masculine and feminine third declension nouns exhibit the same border adjustments: x in *vōc-s > actual vōx, sibilate-reduce in *salūt-s > *salūs-s > actual sa•lūs, devoice-sibilate-reduce in *palūd-s > *palūt-s > *palūs-s > actual pa•lūs; reduce in *oss-, *farr-, *mell-is/-# > actual ossis/ os, farris/far, mellis/ mel; long vowel shortens in a closed syllable in *honōr-is/-#, *animāl-is/-# > actual gen. ho•nō•ris, a•ni•mā•lis, nom. ho•nor, a•ni•mal as well as the comparative of adjectives -iōr- in gen. iō•ris, masc.-fem. nom. -iōr-# (alongside neuter -ius). The inherently short vowel in arbor-is/-#, of course, stays short in ar•bo•ris, ar•bor. Rhotacism (s > r, see 3.1a.) plays a role before a vowel ending, *ōs-is/-# > ō•ris/ōs-#, *tempos-is/-#, *genes-is/-# > temporis, generis with a vowel change in the closed syllable of the nom. tempus-#, genus-# (underscoring the difference between letters and the structures they represent, given hort-us). Such n-stems as *nōmin-, *homin- > actual gen. nō•mi•nis, ho•mi•nis take two paths before -#, namely, nom. nō•men, ho•mō, overlapping with, e.g. *regiōn-# > actual re•giō (like *-tiōn-#), *Apollōn- > gen. A•pol•lō•nis, nom. A•pol•lō.

²⁶ Along with the zero tense marker and zero ending, a stem that “chooses no stem vowel” in the supine or perfect should also be, e.g., sec#-t-um, sec#-u-ī. At this stage of this investigation, I have chosen to restrict zero to the -T- and -E.

Third declension gen. vs. nom. sg. nouns like acer-is/acer-# and the fem. vs. masc. of “adjectives of three terminations” like celer-is/celer-# (as well as neut. celer-e) look no different from arbor-is/-#, that is, the *ē* is “organic.” Such nouns as mātr-is/*mātr-# > māter-# and adjectives like ācr-is/*ācr-# > ācer-#, celebr-is/*celebr-# > ceber-#²⁷, however, show that the cluster “stop+*l*” must be followed by a vowel or else broken up by inserting *ē* in actual māter-#, ācer-#, ceber-#.

A stem like celer will never have come from an abstract *celr- with the cluster “resonant+*l*.” These nom. sg. forms illustrate this adjustment at the end of a word.

The comparative and superlative of adjectives illustrates the same issue in the middle of a word. The comparative marker -iōr- brings all adjectives into the third declension, and the superlative marker -issim- brings all adjectives into the first-second declension. Both markers are vowel-initial, but significantly, two-part -is-sim- preserves only the second—and rhotic (see 3.1a.)—half -rim- for stems ending in *l*. Organic *ē* is present in celeriōr- and celerrim-; ācriōr- needs no insert, but *acr-rim- > actual ācerrim- does.²⁸ Second declension also presents -# as an alternative nom. sg. ending and the masc. of adjective stems ending in *l*, as Chart 4 illustrates. Possible English parallels are hung(e)r-#/ hungr-y, ang(e)r-#/ angr-y alongside organic water-#/water-y.

		<i>noun, gen./nom.</i>	<i>adjective fem./masc. comp., superl.</i>
2 nd	<i>organic ē</i>	puer-ī, liber-ī puer-#, liber-#	miser-a, miser-# miser-iōr- miser-rim-
	<i>inserted ē</i>	agr-ī, libr-ī *agr-# > ager-# *libr-# > liber-#	sacr-a, *sacr-# > sacer sacr-iōr- *sacr-rim- > sacer-rim-
3 rd	<i>organic ē</i>	acer-is, pauper-is acer-#, pauper-#	celer-is, celer-# celer-iōr- celer-rim- ā•cri•ō•ris
	<i>inserted ē</i>	mātr-is, patr-is *mātr-# > māter-# *patr-# > pater-#	celebr-is, *celebr-# > ceber-# celebr-iōr- *celebr-rim- > ceber-rim-

Chart 4

2.2 Orthographic-Phonetic Interlude: V/U/W

Three sounds and their ancient and modern alphabetic representation are of interest here for the purpose of closing a gap between forms of a verb that look more different from each other than they are. The vowel sound that most modern Latin-letter languages represent by the letter *u* is produced with rounded lips and forms the core of a syllable. (The vowel sound represented by the letter *o* is also lip-rounded, while

²⁷ All third declension endings add a syllable to the stem, except nom. sg. If the -# ending forces an inserted *ē*, then the nom. does have the same number of syllables as the rest of the paradigm. Some textbooks recognize this situation as “parisyllabic,” but it is nothing more exotic than the regular interaction of stems and the zero ending.

²⁸ The danger of letters: the recommendation to form the superlative from the nom. sg. (e.g., Allen and Greenough 2001:54, Bennett 1999:40) just begs the question of why *that ē* seems to drop in other forms. In the current view, a single abstract stem and a single “insert” rule covers all the bases. Many languages have restrictions on consonant clusters. Spanish prevents many word-initial clusters by starting with an initial vowel, e.g., English (from Latin) school, student, Spain vs. Spanish es•cue•la, es•tu•dia•nte and, of course, España. Arabic does the same, realizing a theoretical imperative ktub ‘write’ as uktub. Turkish separates the consonants, pronouncing, e.g., tren ‘train’ as tiren.

a is not lip-rounded, as noted below.) When followed by a vowel, the same rounded lips produce the related glide, also called semivowel or semiconsonant, that modern English represents by w. When following a vowel, this glide usually closes a syllable to form a diphthong. The glide becomes a consonant when the upper teeth descend onto the lower tip, a (labiodental) sound represented in most modern languages by the letter v.

Ancient Rome had one letter V to represent both the vowel in, e.g., tv•my•lys and the glide, both before a vowel, e.g., ca•ve•o, ga•vi•sus and after a vowel, forming a diphthong in a closed syllable, e.g., cav•tum, gav•de•o as well as after a few consonants in qvi (vs. two syllables in dative cv•i), lin•gva, sva•de•o. As classical Latin developed through the Middle Ages, the glide transitioned into the consonant typical of Church Latin. No new letter was necessary to represent this change, just revaluing the existing v.²⁹ Scribal practice during those centuries, moreover, developed u (round-bottomed) as a variant of pointed v. The two shapes were used interchangeably and considered a single letter representing both a vowel and a consonant over much of Europe until well into the 16th century. Eventually the two sorted themselves into u for the vowel and v for the consonant.

All this by way of pointing out a minor spelling issue in modern printings of Latin that can make related forms of a word appear to the modern anglophone eye more different from each other than they are, and therefore irregular or at least requiring attention. European printings of Latin mimic the ancients by using just one shape for both the vowel and the glide (or the consonant if using Church pronunciation): lower case u in tu•mu•lus, ca•ue•re, ga•ui•sus, cau•tum, gau•de•o and V for all upper case. TVMVLVS, CAVEO, CAVTUM, etc. (Old buildings or statues sporting, e.g., IVSTITIA, IVLIVS CÆSAR inspire wonder and amusement in students.) This is all relevant for Latin grammar because American printings of Latin spell the consonant or glide with pointed v before a vowel, that is, at the beginning of a syllable, e.g., ca•ve•o, gā•vi•sus) but with u after a vowel, forming a diphthong, as in cau•tum, gau•de•o (more on gaud- in 3.2a.) and in the consonant clusters of quī (vs. cu•i), lingua, sua•de•o.³⁰

In this connection, cavēre and six other verbs, all Profile-3, are noteworthy for their root-final glide v. The short root vowel of the trio lavāre, cavēre, favēre is a (non-lip-rounded) and those of the quartet iuvāre, movēre, fovēre, vovēre have lip-rounded u, o. As per 1.3 (3) above, their normal perfect systems choose the marker -#- and lengthen the root vowel in lā•vī, iū•vī, cā•vī, fā•vī, fō•vī, mō•vī, vō•vī. The supines of the trio form normal diphthongs in the closed syllables of *lav-/*cav-/*fav-tum > actual lau•tum, cau•tum, fau•tum. The quartet, however, merges the rounded root vowel with the rounded glide into a long, rounded vowel, opening the syllable, namely, theoretical *iuv-/*fov-/*mov-/*vov-tum > actual iū•tum, fō•tum, mō•tum, vō•tum. In other words, all seven have a long vowel in the perfect for a grammatical reason, and the supine of the quartet also has a long vowel for a phonetic reason. Their enriched infinitives lāvāre^{3#}, cāvēre^{3#}, fāvēre^{3#}, iūvāre^{3#}, mōvēre^{3#}, fōvēre^{3#}, vōvēre^{3#} do not explicitly indicate this, but a little phonetic and spelling awareness

²⁹ One can only imagine that transition: older speakers were still pronouncing w as young people were spreading some new “buzzing” speech. As those young people aged and v became the norm, their descendents did not even know that their great-great-grandparents had once pronounced w differently. Another scenario is that city people began buzzing while country people were still gliding, and city speech had more prestige than country speech. At any rate, w was gone but came back centuries later in the development of Latin o in bon-us into Italian buono, Spanish bueno but not French bon or Portuguese bom.

³⁰ The sound systems of some modern languages that use the Latin alphabet, e.g., English, have both the glide and the consonant and early on distinguished the glide by doubling either vv or uu, which eventually coalesced into w. One Latin letter, then, ultimately fissioned into three.

shows that their apparently irregular principal parts are regular outcomes of normal phonetic processes.

3.0 More Grammatical Profiling

The tripartite S-T-E structure of virtually every Latin verb form drives home the fact that the most significant grammatical conjoining takes place in the middle of the verb word at the S-T border, that is, where the lexical stem meets any set of tense markers. (Many reference works arrange verbs in alphabetical order, diluting a heuristic sense of “pattern.”³¹) The endings, certainly the focus of much early instruction, are—forgive the heresy—almost an afterthought (see 3.3). This slightly abstract analytic S-T-E template provides learners a “connect the dots” technique for constructing or deconstructing any verb form. Section 3 looks a little more closely into each “slot”: the S- (3.1), the -T- (3.2) and the -E (3.3) plus a suggested application to the realm of deponents (3.4).

3.1. The S- Component: When Root Becomes Stem

Most roots are syllables that end in a consonant (am-, rīd-, aud-, scrīb-) or a vowel (cre-, hi-, ci-, acu-, tribu-). They become verb stems by acquiring a stem vowel at least in the present system (am-ā-, cre-ā-, hi-ā-, rīd-ē-, ci-ē-, aud-ī-, scrīb-i-, acu-i-, tribu-i-).³² The four Profiles, as demonstrated at the outset, are merely statements of the vowels that a root acquires or “chooses” before each of the three tense systems with predictable consequences for the various resulting configurations on the S-T border. It is not that, e.g., the ē of habē- magically changes to i before the consonantal supine marker in hab-i-t- or drops for no phonetic reason before the vocalic marker in the perfect hab-u- or but rather that it chooses a new vowel for the supine and none for the perfect. Again, the profiles are synchronic descriptions, not explanations. Profiles-1,-2 always have a smooth consonant-vowel, vowel-consonant or vowel-vowel border. Profiles-3,-4, on the other hand, have consonant-consonant borders. Sections 3.1a.-c. focus on groups of verbs with particular root consonants or characteristics. This is old information in a new context.

3.1a. Rhotacism

This process converts a root-final s (a voiceless fricative) to r (a voiced continuant, specifically a resonant)—and not the other way around—when it follows the root vowel (a voiced continuant) or r and when a vowel (also a voiced continuant) follows it. (In the Latin alphabetic system this means a vowel on its “left” and on its “right.”) Sandwiched in between such voiced continuant segments, s takes on that voicing and also smooths out its hissing.³³ The root-final r in these present systems meets these conditions: haerē-, torrē-, haurī-, aperī- (Profile-3); seri-, geri-, curri-, verri-, queri- (Profile-4). Which of these r are “genuine” or “organic” and which are the result of rhotacism? Their perfect forms by definition of Profiles-3, -4, lack a stem vowel. Those

³¹ Alphabetical order is the least useful way to list verbs. Such popular reference books as Prior and Wolberg 1995 or Franklin and Betts 2004 could easily have listed their 500-plus verbs first by conjugation to underscore the similarity of pattern and alphabetically within that. Even better: by root with a list of prefixed items. Listing *addūcere*, *dūcere* and *prōdūcere* dozens of pages apart is at best inefficient.

³² The verbs *flāre*, *flēre*, *nāre*, and always prefixed *-plēre* might have started their life as syllables ending in a vowel with no stem vowel, but classical Latin interprets them as 1st and 2nd conjugation with nonsyllabic roots and a stem vowel.

³³ The phonetics and history of this change in Latin is a topic for a more technical forum. Students sometimes find the mnemonic “r shifts one letter to the right” or “s shifts one letter to the left” convenient, even comforting, though accidental alphabetical line-up is no explanation for language behavior. English has a remnant of a similar change in *was/were*, and its German and Dutch cousins have a few more examples.

that take the perfect marker -u- keep r between vowels in *aper-u-*, *ser-u-*, *torr-u-* and do not answer the question. The marker -#- also keeps r between the root vowel and the vowel-initial endings of the perfect, namely, *cucurr-#-ī*, *verr-#-ī* and thus also do not answer the question. The perfect marker -s-, on the other hand, shows that actual *ges•sī* and with reduction **haes-s- > actual haē•sī*, **haus-s- > actual hau•sī* are rhotic stems, that is, their actual root-final consonant is s.

The supines of this last group confirm the hypothesis: *ges-t-*, *haus-t-*. The other supines easily sort out the organic r in *aper-t-*, *ser-t-* from genuine s in *ques-t-*, *tos-t-*. Actual *haē•sum*, *ver•sum*, *cur•sum* suggest an abstract structure **haes-s-*, **vers-s-*, **curs-s-*, that is, an alternative supine marker, more on which in 3.2.a). The enriched infinitive, based on the present system, needs to ask, “Will the real r please stand up” in a minimally invasive way with available keyboard strokes. These graphic suggestions may or may not find favor in the eyes of veteran or budding Latinists: \$ or ſ for “real-s will come to light under the right conditions,” pronounced r, of course, namely, *haēſere^{3s}*, *hauſire^{3s}*, *torſere^{3u}*, *geſere^{4s}*, *verſere^{4#}*, *curſere^{4##}*, *queſt⁴* compared to “genuine-r” in *terrēre*, *narrāre*, *serere*, *aperīre*. Alternatively, ® or f can mean “not a real-r, prepare for it to reveal its true identify as s,” e.g., *ge®ere^{4s}*, *queſt⁴*. Again, teachers and advanced students are more likely than beginning students to appreciate this.

3.1b. Liquid+Velar

The “liquid” consonants are r and l. The velum is the soft palate, the back slope of the roof of the mouth, and the velar consonants are g and k, which Latin spells as q including **cv*, which Latin spells as qu. While rhotacism depended purely on the phonetic environment of consonants and vowels on the S-T border, two types of root consonant configuration have a grammatical trigger. Roots that end in the consonant cluster “liquid+velar,” namely, rc, rg, lc, lg and one instance of rqu have the velar component only in the present system, as in (not a complete catalogue): *mulcēre*-*mulgēre*-*tergēre*-*torquēre*, *farcīre*-*sarcīre* (Profile-3), and *mergere* (Profile-4). The clusters in theoretical **mulc-t-*, **terc-t-*, etc. are quite pronounceable, but these stems crossing into the supine and perfect markers are only *mul-*, *ter-*, *tor-*, *far-*, *sar-*, *mer-*, *ul-*. Putting that velar consonant in parentheses is a convention to show “in present system only.” Such verbs take the perfect marker -s-: *mul(c)ēre^{3s}*-*mul(g)ēre^{3s}*-*ter(g)ēre^{3s}*-*tor(qu)ēre^{3s}*, *far(c)īre^{3s}*-*sar(c)īre^{3s}*, *mer(g)ere^{4s}*. A less invasive accent mark such as é/ĝ, ê/ĥ could also work. Their enriched infinitives, however, need one more piece of information in 3.3a.

3.1c. N-Stems

The n (a dental nasal) of verbs of Profile-4 also respond to different tense systems. Most of them correlate with the perfect marker -#-. They exhibit four patterns. Root-internal n, that is, following the root vowel and followed by a consonant can be (1) “stable,” occurring in all tense systems, e.g., *iungere*, *reprehendere*, *fungī*; (2) in present system only, e.g., *vincere*, *findere*, *fundere*, *frangere*, *tangere* (and the dental n assimilates to labial m before the labial stops b/p in *rumpere* and *accumbere*); (3) the trio *cernere*-*spernere*-*sternere* with the root-final n in the present system only, and its perfect and supine need special attention just below; (4) root-internal n in present and perfect but not supine, e.g., *pingere*, *pangere*. Their infinitives need to indicate their n’s behavior, and already-familiar graphic techniques step forward to accomplish this task.

Parentheses serve nicely for the “present only” type. The perfect, then, is left with a short root vowel in an open syllable, and it lengthens in *vī•cī*, *fī•dī*, *fū•dī*, *rū•pī*, signaled by the acute accent in *vī(n)cere^{4#}*, *fī(n)dere^{4#}*, *fū(n)dere^{4#}*, *rū(m)pere^{4#}* (and some supines need further tweaking in 3.2.a.). *Accu(m)bere^{4u}* maintains its connection to unprefixed *cubāre²* with the -u- perfect. The circumflex accent (see fn. 22) on *frā(n)gere^{4#}* alongside *fācere^{4°#}*, signals the vowel shift to ē in the perfect; *ta(n)gere^{4##}* reduplicates.

The “cernere” trio should also get parentheses because its n is in the present system only, but its supine and perfect engage in additional gymnastics: theoretical *cer-t-, *cer-u- though perfectly possible to pronounce given ser-t, aper-u-, metathesizes and lengthens the vowel to crē-, giving supine crē-t-, and that long vowel like ciēre^{3v} now claims the perfect marker -v- in crē-v-, making it identical to crē(sc)ere¹ and all Profile-1. Let tilde-ñ (which Spanish uses for a palatal ñ^v) signal this whole scene in cerñere^{4v}, sperñere^{4v} including an unexplained vowel change in sterñere^{4v}, strā-t-/-v-.

The supine-excluded type needs another accent mark on its n: a new function for the acute accent on n̄ (which Polish uses like Spanish n̄) in piñgere^{4s}, pañgere^{3s}, both with the -s- perfect. A unique present-supine combination is pungere^{4##}, punc-t-, pupugī.

3.1d. The U-Group.

The two high vowels—lip-rounded u and lip-spread i—collide in the several dozen 3rd conjugation verbs with roots ending in u and stem vowel i, e.g., infinitives *acui-#-re, *tribui-#-re > actual a•cu•e•re, tri•bu•e•re. Their normal present system forms are, e.g., 3sg. *acui-#-t, 1pl. *tribui-#-mus > actual a•cu•it, tri•bu•i•mus with u-i in separate syllables. They take the perfect marker -#-, so that 3sg. *acu-#-it, 1pl. *tribu-#-imus produce identical-looking a•cu•it, tri•bu•i•mus. The supine, however, has a long vowel in a•cū•tum, tri•bū•tum, apparently the result of ui in the same syllable, forming a potential diphthong in *acui-t-um, *tribui-t-um, and those two phonetically related high vowels merge into a long high vowel, not unlike *mov-tum merging into a long rounded vowel in 3.1b. above. One could consider them hybrids of Profile-4 (present and perfect) and Profile-2 (supine), hence their superscripts are acuere^{4#-2}, tribuere^{4#-2}.

3.1e. The SC Expander

Profile-4 verbs can have sc as part of the root, e.g., poscere-poposcī (poposc-#-ī), while verbs of all profiles can “expand” their stem by adding sc to their “original” stem vowel, and that addition comes equipped with its own “secondary” stem vowel i-, that is, 3rd conjugation or Profile-4—and only in the the present system. Such principal parts as crēscō, crēscere, crē-v-ī, crē-t-um or proficīscor, proficīscī, profec-t-um show that the “original” stem vowel operates in the supine and perfect according to Profiles-1,-3, respectively. In the scheme of reorganizing Latin conjugation proposed here, the parentheses convention can distinguish “organic” sc in poscere^{4##} from “sc in present system only” in crē(sc)ere¹, proficī(sc)ī³. The (sc), then, automatically means “present system Profile-4,” and the superscript now refers to the behavior of the “original” stem vowel in the supine and perfect: nā(sc)ī¹ [nā-tum], convalē(sc)ere² [conval-u-ī, convali-t-um], api(sc)ī⁴ [ap-t-um]. This graphic technique together with the parentheses of l(c) in 3.1b. serves to close the yawning gap between present system ulcīscor, ulcīscī and the supine ul-t-um. Its enriched infinitive, then, is ul(c)ī(sc)ī³. Nanciscor offers supine nanc-t-um as well as nac-t-um as in 3.1c. The two enriched infinitives, then, are nanci(sc)ī⁴ and na(n)ci(sc)ī⁴.

3.2. The -T- Component and its Variations

The three sets of tense-mood-aspect markers, abbreviated as “tense” markers, hence -T-, are the middle component of the S-T-E structure, and all verb stems flow into these same three sets. A verb’s profile is a summary of the stem shape, that is, with or without a stem vowel, before each of the three sets. The traditional conjugation number, at the risk of repeating the point, speaks to the present system and gives little or no information on the other two systems. Textbooks usually give principal parts in the order present-perfect-supine as if one proceeds from the other (or at least many students get that impression). As far as the overall language system is concerned, though, there is no order: one is not formed from the other. They are all equal players working as a set. In

the S-T-E scheme proposed here, knowing one of the stem shapes mutually implies the other two. This section examines them in the “opposite” order: 3.2a. puts the supine system under the microscope; 3.2b., the perfect system, and 3.2c., the present system.

3.2a. The Supine System and its Secrets

As noted in 2.1 above, the verbal and nominal systems interlock here. Chart 5 shows that all stem shapes flow into (potentially) all five nominal markers, and the table cells overlap to show how “marker+case ending” creates a total of seven items. Not all stems form all seven words, and the dictionary must specify which words actually occur. All five markers begin in—or consist entirely of—*t*³⁴, and those that comprise a syllable also end in a consonant. Both *-t-* and *-tūr-* with different declensional endings form both a noun and an adjective. By definition the same stem shape connects to the whole following *-T-* set, that is, knowing the supine or perfect participle also guarantees the related verbal noun. In textbook tradition the supine or perfect participle (mostly passive for transitives active for deponents) or the future active participle (for intransitives) plays the role of fourth principal part, but in principle any one of these forms could serve that purpose. Profile-1 has a long stem vowel here; Profile-2 has *i*; Profiles-3,-4 have no stem vowel with consequences for the meeting of the root-final consonant and the consonant-initial marker as Chart 2 above summarizes.

<i>Profile</i>	<i>S-</i>	<i>-T-</i>	<i>-E</i>	<i>Function</i>
amāre ¹ mīrār ¹ dēlēre ¹ audīre ¹ potūr ¹	amā mīrā- dēlē- audī- potī-	<i>-tūr-</i>	1 st decl. fem.	<i>noun</i>
			1 st -2 nd decl. adj.	<i>fut. act. partc.</i>
		<i>-t-</i>	4 th decl. (acc., abl. = supine)	<i>perf. partc.</i>
vetāre ² habēre ² verēr ²	veti- habi- veri-	<i>-tiōn-</i>	3 rd decl.	<i>verbal nouns</i>
rīdēre ^{3s} aperīre ^{3u} experīr ³ carpere ^{4s} ūtī ⁴ acuere ^{4#-2} cāpere ^{4#} patī ^{4u}	rīd- aper- exper- carp- ūt- acū- cap- pat-	<i>-tōr-</i> <i>-trīc-</i>		<i>m./f. actor nouns</i>

Chart 5. Supine/Nominal System Markers and their Endings

At the T-E border, then, all the declensional endings but two begin in a vowel, making smooth passage from *-T-* to *-E* except *-s*, *-#* discussed in 2.1b. above.

³⁴ This fact leads some analysts to factor the *t* out and consider these markers as compounds of *t*+iōn, -ūr. The two very different meanings of *-t-*, verbal noun and perfect participle, led, e.g., Matthews 1972a. and Aronoff 1994 to call into question the relationship of form and meaning in language, sparking a decades-long debate in linguistic circles. The same kind of form/meaning question arises in, e.g., the English suffix *-ed*: past tense active voice in “I finisheded the work” and also its passive participle in “a finisheded product” as well as other adjectives outside the verb system meaning “characterized by,” specifically with a body part and a quantity or quality: a 1-eyed, 3-eared, blue-haired, pig-headed creature but not in, e.g., a 3-story, 8-room house (not *3-storied, *8-roomed). In this article I nonetheless consider these five markers as integral units with the two *t*’s distinguished by their declensional endings.

All the time since 2.2 and 3.1b., the supine system has been harboring two secrets. The first involves stems with a short root vowel and a voiced root-final stop consonant, *b*, *d*, *g*, in other words, Profiles-3,-4. (No examples of *b* are evident: *scrīb-*, *nūb-*, *lāb-* have a long root vowel do not qualify.) They also take the perfect marker *-#-*. The acute accent in the enriched infinitives of *sédēre*^{3#}, *fódere*^{4#}, *fi(n)dere*^{4#} already signals the supines **sed-t-*, **fod-t-*, **fid-t-* > **set-t-*, **fot-t-* > actual *ses•sum*, *fos•sum*, *fis•sum* with double *ss* following the short vowel. Other stems, however, lengthen that root vowel in the supine, e.g., *vidēre*^{3#}, **vid-t-* > **vit-t-* > **vīt-t-* > **vīs-s-* > actual *vī•sum*, where double *ss* reduces after a now-long vowel. *Légere*^{4#}, *âgere*^{4#} also do this in **leg-t-*, **ag-t-* > **lec-t-*, **ac-t-* > actual *lēc•tum*, *āc•tum*. Karl Lachmann noticed this occasional lengthening in 1850, and the phenomenon bears his name as Lachmann's Law (an overstatement since it is clearly not a "law," e.g., Baldi 1999, p. 259-263). The dash convention in the superscript for "something about the supine" can now signal "Lachmann lengthening" as *-L*, distinguishing *sédēre*^{3#}, *fódere*^{4#}, *fi(n)dere*^{4#}, on the one hand, from *vidēre*^{3#-L}, *lēgere*^{4#-L}, *fú(n)dere*^{4#-L}, *âgere*^{4#-L}, *frâ(n)gere*^{4#-L}, *cadere*^{4#-L}, *ta(n)gere*^{4#-L}, on the other. Both *móvêre*^{3#} and *vidēre*^{3#-L}, then, have a long vowel in the perfect for the same grammatical reason and also a long vowel in the supine but for different reasons: *móvêre*^{3#} has *mō•tum* for a phonetic reason, while *vidēre*^{3#-L} has *vī•sum* for a specific grammatical reason, albeit with a phonetic basis. The notation seems to get quite Byzantine but is nonetheless readable part for part.

This Lachmann phenomenon and the *v/u* issue in 2.2., above, now help close the apparent distance between present system *gau•dē•re* and perfect participle *gā•vī•sus*, one of those morphological medusae my students try hard to stare down. A reconstructed root **gāvid-* acquires the stem vowel *ē-* in the present system for theoretical **gā•vi•dē-*. The rhythm configuration with short *i* in an unstressed medial open syllable, however, as it does in poetry scanning³⁵, syncopates, leaving **gavdē-*, spelled *gau•dē-*. The perfect participle exhibits Lachmann lengthening, that is, **gāvid-t-* > **gāvit-t-* > **gāvīt-t-* > *gāvīs-s* > actual *gā•vī•sus*. Its single smart principal part is *gaudēre*^{3-L}, but showing that syncopated *i* in the superscript is very awkward. Here an additional note on the *L*, e.g., *L[^]* in *gaudēre*^{3-L[^]} would show more explicitly what the *L* operates on.

The second secret that the supine has been withholding is clear from some of the supines left unfinished in 3.1a-b., above. Alongside consonant-losing *far-t-*, *sar-t-*, *ul-t-*, **torc-t-* > *tor-t-* and rhotic *haus-t-*, *ges-t-*, *ques-t-*, **tors-t* > *tos-t-* are actual supines *hae•sum*, *cēn•sum*, *ver•sum*, *cur•sum* from 3.1a. and *mul•sum*, *ter•sum*, *mer•sum* from 3.1b as well as *mān•sum* and **fīg-s-* > *fixum*, **lāb-s-* > *lāp•sum*, which lose no root consonant, and **fall-s-* > *fal•sum* with expected reduction. The marker is clearly *-s-* and is not the result of sibilation like *ses•sum*, *vī•sum*. Classical Latin has little choice but to accept this alternate supine marker as "genuine-s." Their S-T-E structures, then, are theoretical **mul-s-*, **ter-s-*, **mer-s-*, **man-s-* and they correlate with the perfect marker *-s-*, on the one hand, and **haes-s-*, **cēns-s-*, **curs-s-* reduce on cue and take a variety of perfect markers: *-s-*, *-u-* and *-#-*, respectively. The superscripts show this with the dash convention in rhotic *hae\$ēre*^{3s-s}, *ver\$ēre*^{4#-s}, *cur\$ēre*^{4#-s} and non-rhotic *cēnsēre*^{3u-s}. The parentheses convention contributes its information in *tor(qu)ēre*^{3s} ("normal" supine *tor•tum*) alongside *mul(c)ēre*^{3s-s}, *mul(g)ēre*^{3s-s}, *ter(g)ēre*^{4s-s}, *mer(g)ēre*^{4s-s}, as well as *lābī*^{4-s}, *fīgere*^{4s-s}, *fallere*^{4#-s}. Coincidentally, actual *ver•sum* is the result of both **vers-s-* (reduce) and **vert-t-* (sibilate-reduce).

³⁵ Both *i* and *u* (high vowels) are susceptible to this treatment in poetry scansion as in Catullus 43 *sae•cu•lum* scans "o *sae•clīn•sapi•ēns*" and Aeneid 1:26 *re•po•si•tum* as "...ma•ne•tal•tā•men•te•re•pos•tum."

The enriched infinitives will not get any heavier than this. Learning to read them seems daunting, but each piece of information is separate: the stem vowel in the infinitive speaks to the variations in the present system markers (3.2c); the superscript number speaks to the choice of vowel in the other two systems; the accent marks on short root vowels speak specifically to the perfect system, while parentheses and accents on consonants address the shape of the stem in the supine and perfect. The dash in the superscript alerts the reader to any additional information on the supine. Identifying this information is akin to deciphering a roadside rest stop sign at glance with its symbols for gas, food, restroom or the beginning of a musical score with time signature, key signature and clef.

3.2b. The Perfect System.

This system comprises three indicative (perfect, pluperfect, future perfect) and two subjunctive (perfect and pluperfect) tenses. Verbs that form this system with a marker have four familiar choices:

- consonantal -v- after a long vowel (the stem vowel in Profile-1 and a few hybrids, e.g., *petere*^{4v}/*petī-v-ī*, *cupere*^{4v}/*cupī-v-ī*) as well as a few root-final vowels, e.g., *cīēre*^{3v}/*cī-v-ī*, *cerñere*^{4v}/*crē-v-ī*; the other markers follow a root final consonant.
- vocalic -u- with no change in the stem, e.g., *hab-u-ī* and all Profile-2; Profile-3 *doc-u-ī*, *aper-u-ī*; Profile-4,-4° *ser-u-ī*, *rap-u-ī*, that is, *docēre*^{3u}, *aperīre*^{3u}, *serere*^{4u}, *rapere*^{4u};
- consonantal -s- (Profiles-3,-4) with predictable “adjustments” in the stem-final consonant (the x rule, devoice, sibilate, reduce, whether singly or in two- or three-step chains)
- theoretical “zero: -#- (Profiles-3,-4) lengthens the root, itself, whether the short root vowel or by reduplication.

The perfect tense, itself, uses the specialized set of personal endings, called the “I” set in 3.3. Deponents and passives, of course, form the perfect system with their perfect participle and separate auxiliary *esse* in all five appropriate present system tenses and the “O” set of endings (3.3).³⁶ Chart 6 juxtaposes the perfect tense of deponent and nondeponent.

³⁶ The rhotic stem *e\$- and its unique tense markers: indicative (present *es-/su-*, imperfect **es-ā-* > *er-ā-*, future **es-i-* > *er-i-*) and subjunctive (present **es-ī-* > *er-ī-*, imperfect *es-ē-*), respectively, needs a separate treatment in another forum.

Profile	S-	T-	E	Profile	S-	T-	E	Aux
amāre ¹ dēlēre ¹ audīre ¹	amā- dēlē- audī-	-v-	“I”	mīrārī ¹ potūrī ¹	mīrā- potī-		-a -us -um	sum es est
habēre ² vetāre ²	hab- vet-	-u-		verērī ²	veri-			
secāre ^{3u} docēre ^{3u} aperīre ^{3u} serere ^{4u} rapere ^{4u}	sec- doc- aper- ser- rap-			experītī ³ fatērīt ³ ordūrīt ³ ūtī ⁴ patī ^{4o}	exper- fat- ord- ūt- pat-			
rīdēre ^{3s} augēre ^{3s} sentīre ^{3s} scrībēre ^{4s} inspicere ^{4s}	rīd- aug- sent- scrīb- inspic-	-s-		lābī ^{4s}	lab-	-s-		
sédēre ^{3#} vénīre ^{3#} légere ^{4#-1.} âgere ^{4#-1.} câpere ^{4o#} mordēre ^{3##} canere ^{4##}	sēd- vēn- lēg- ēg- cēp- momord- cecin-	-#-						

Chart 6. Perfect Indicative

The four compound perfect tenses fuse to the marker a present system form of auxiliary *esse*, that is, the rhotic stem *e\$- and its own unique tense markers, and those markers take the personal endings associated with the present system, namely, the “O” set. In terms of S-T-E structure, this procedure creates an interesting cyclical structure, expanding the -T- to include the stem of *esse* and its own tense markers, that is, S-[T-S-T]-E, e.g., *amā-[v-erā]-s, *scrīp-[s-issē]-mus > a•mā•ve•rās, scrīp•sis•sē•mus. Chart 6a. exemplifies the compound tenses just of Profile-1 for manageability

		S-	-T- [S-T-]	-E	S-	-T-	-E	Aux	
Indic.	Perf.	amā- dēlē- audī-	-v-		mīrā- potī-	-t-	-a -us -um	es-	“O”
	Plup.			erā-				erā-	
	Fut.Prf.			erī-				erī-	
Sbjnc.	Perf.			“O”				erī-	
	Plup.							erī-	
								essē-	

Chart 6a. The Compound Perfects, Profile-1

3.2c. The Present System

This is the most variable of the tense systems and the basis for the traditional four conjugations. Eight markers express three indicative tenses (present, imperfect, future), two subjunctive tenses (present, imperfect), and two imperative “tenses” called present and future or simply Imperative-I, II (see 3.3c.) and three nominal forms: two participles with tense and voice and finally a verbal noun called the gerund. Six of those

markers including -#- express the verbal categories and two markers cover the three nominal forms. While the four perfect markers all mean “perfect” and a given stem chooses just one, the present system markers each have their own grammatical meaning, and all stems can use all of them.

At this S-T border, all four stem vowels take -tō-, -rē- and -#-, that is, the difference between Imperative-I and -II is in the markers, while the difference between present indicative and Imperative-I is in the endings (3.3b.). The other five markers have two variants:

- Three have a “shorter,” consonant-initial variant: -bā-, -nt-, -nd- into which the stem vowels ā-, ē- feed (the traditional 1st and 2nd conjugations) and an “expanded,” vowel-initial variant -ēbā-, -ent-, -end-, which the stem vowels i-, ī- choose (the traditional 3rd and 4th conjugations).³⁷ The vowel-vowel shortening rule, of course, makes, e.g., *audī-ēbā-s, *audī-ent-is > actual au•di•ē•bās, au•di•en•tis look identical to those of *capi-ēbā-s, *capi-ent-is, which need no shortening rule in actual ca•pi•ē•bās ca•pi•en•tis. As Chart 3 above illustrates, of course, *carpi-ēbā-s > actual car•pē•bās first “chooses” that vowel-initial marker and then signs itself out, making it appear to be identical to, e.g., *habē-bā-s > actual ha•bē•bās.
- The future marker variants are unrelated to each other: -bi- with a short vowel (Oniga 2014 and others see it as -be-) and long -ē-, which has the automatic variation *-ā- for 1st sg.³⁸ with the same distribution of stem vowels and predictable consequences for the choice of 1sg., 3pl. endings (see 3.3).
- Of the two present subjunctive endings, the stem vowel ā- chooses -ē- and the rest choose -ā-. The long stem vowels in *audī-ā-, *potī-ā-, *habē-ā-, *verē-ā- shorten in au•di•ā-, po•ti•ā-, ha•be•ā-, ve•re•ā-, and the small minority of i (Profile-4°) have no change in ca•pi•ā-, pati-ā-. Most short i (Profile-4) and stem vowel ā-, drop before a vowel: *carpi-ā-, *ūti-ā-, *amā-ē-, *mīrā-ē- > car•pā-, ū•tā- a•mē-, mī•rē-.

Chart 7 shows which stem vowels take which marker variants. The column headings show how tense and mood overlap.

Stem Vowel	Fut.	Pres.		Imperf.		Fut.	Prtc.		Gerund
	Imper.		Indic.	Sbjnc.		Indic.		Act.	Ft.Psv.
ā-	-tō-	-#-	-ē-	-rē-	-bā-	-bi-	-nt-	-nd-	
ē-			-ā-		-ēbā-	-ē-	-ent-	-end-	
ī-									
i-									

Chart 7. The Present System Markers and Variants

How this dichotomy of markers arose is a topic for another forum, but it is the basis for setting “1st-2nd” conjugation apart from “3rd-4th” conjugation.

³⁷ The reason for this expansion and the source of this ē is outside the scope of this article, but for classical Latin it has to be considered part of the marker and not of the stem. One can debate whether that “expanding” vowel is consistently ē in theoretical *-ēnt-, *-ēnd- and shortens in a closed syllable, e.g., gen. sg. •en•tis, •en•di. In addition, a tiny number of Profile-3,-4 verbs, e.g., secāre, iuvāre, have the expected perfect participles sec-t-, *iuv-t- > iū-t-, but their future active participles are secā-tūr-, iuvā-tūr-, apparently assigning this marker to the present system, an unexpected flexibility. (Bennett 1999, 82 gives a short list.) This strategy serves to unite the active and passive future participles under the same tense system, but it is so limited as to be of no practical use.

³⁸ This marker is long in theory, in keeping with -ē- but is always in a closed syllable and therefore appears short, e.g., *audī-ā-m, *potī-ā-r > actual au•di•am, po•ti•ar.

At this T-E border the verbal markers end in or consist entirely of a long vowel: -tō-, -rē-, -ē-, -ā-, -bā-, while -bi- ends in a short *i*, which behaves just as mercurially as that in *carpere*. The theoretical placeholder marker -#- “zero” serves both present indicative and imperative,³⁹ differentiated by the endings. These verbal markers take either of the two sets of personal endings called “O” and “R” (see 3.3). The two nominal markers are consonant-final. The future passive and gerund marker -nd- takes first-second declensional endings, which all begin in a vowel, and the active participle marker -nt- takes third declension endings, which also begin in a vowel except nom. sg. -s as discussed above.

3.3. The -E. Personal and Declensional Endings

Chart 8 lays out three sets of personal endings designating 3 persons, sg. and pl. as well as the endings for infinitive and imperative. The imperative works in tandem with the 2nd person. For the moment, these endings get no *a priori* grammatical designation of voice, only a mnemonic tag from the 1sg.: “O” (and not “active”), “R” (and not “passive-deponent”), “I” (though it is, indeed, active and since it serves the perfect tense only, it has no imperative), more on which in 3.4.

	SG.					PL.				Infin.
	1	2	imper.	3		1	2	imper.	3	
“O”	-ō ~ -m	-s	-#	-t		-mus	-tis	-te	-(u)nt	-re
“R”	-(o)r	-ris	-r(e)	-tur		-mur	-minī		-(u)ntur	-(r)ī
“I”	-ī	-istī	x x x	-it		-imus	-istis	x x x	-ērunt ~ -ēre	-isse

Chart 8. Personal Endings “O, R, I”

Both the “R” and the “I” sets resemble the “O” set in some ways, but the source of those connections is not the topic here. The “O” and “R” sets are all consonant-initial (or in the case of -#, not a vowel). 1sg. and 3pl. have two variants: consonant-initial -m, -r, -nt(ur) and vowel-initial -ō, -or, -unt(ur). The five verbal present system markers -tō-, -rē-, -(ē)bā-, -ā-, -ē- all end in a long vowel and flow smoothly into the consonant-initial endings including 1sg. and 3pl. The short vowel of future -bi- and the apparently related future *eri-*, however, choose the vowel-initial variant of those two endings and drop before them, the same grammatical and nonphonetic behavior as the *i* of Profile-4. The “zero” -#- marker, then, throws the choice of ending back to the stem vowel, but a surprise awaits in 3.3c., just below. The chart shows that the two sets of endings divide up the “grammatical territory” of the second person vs. imperative a little differently, though it cannot show the different treatments of the present and future imperative, the topic of 3.3b., below.

Both sets contain an ending spelled -re but it occupies quite different positions in each set—another instance of “letters are not themselves endings” as in 2.1b. and Chart 1. In the “O” set the spelling *a•mā•re* and the structure **amā-#-re* are the infinitive. In the “R” set, the spelling *mī•rā•re* and the structure **mīrā-#-re* is 2sg. indicative and imperative. The longer ending -ris can also serve for indicative but not imperative. As for 2pl. the “O” set clearly distinguishes longer -tis for indicative from shorter -te for imperative, while the corresponding “R” set -minī covers both moods equally.

The “I” set of endings also bears some resemblance to the “O” set, though they are all vowel-initial. The 1sg., 3pl. begin in a long vowel, while the others begin in a short vowel (making that initial *i* an object of further inquiry). The 3pl. has, moreover,

³⁹ This “zero” is the only marker for present imperative and present indicative. On those grounds some authors, e.g., Touratier 1981, reject zero as a present tense marker and see literally no marker.

a “longer” *-ērun̄t* and “shorter” *-ēre*, both of which occur in different proportions in different styles in different historical periods of Latin (Weiss 2009, 393), and they scan differently in poetry.⁴⁰

3.3a. The T-E border.

Present system markers ending in a long vowel keep that vowel long in an open syllable, as expected, that is, before the endings that are syllables: “O” set *-mus*, *-tis*, *-te*, *-re* as well as in the syllable closed by *-s*; “R” set *-ris*/*-re*, *-tur*, *-mur*, *-mini*, *-rī*. As noted above, these long vowels choose the consonant-initial 1sg. and 3pl., which along with 3sg. *-t*, close the final syllable, and its vowel shortens.

The already short *i* of the future marker *-bi-* behaves, as noted just above, like the stem vowel of **carpi-#re* > *carpe•re*, that is, it shifts to *e* before *r*, namely, the 2sg. of the “R” set in **mīrā-bi-ris*, **verē-bi-re* > actual *mī•rā•be•ris*, *ve•rē•be•re*. Just as **carpi-* chooses the vowel-initial variants of the present system markers and then is heard no more, so too does *-bi-* choose the vowel-initial variants of 1sg. and 3pl. and then flees the scene of the crime, that is, **-bi-ō/-or/-unt(ur)* > actual *•bō*, *•bor*, *•bunt(ur)*. The nominal markers of the supine system and the two participles in the present system select the appropriate declension endings, all of which begin in a vowel except 3rd declension nom. sg. *-s* and *-#* as discussed in 2.1, above.

3.3b. The Asymmetric Imperative.

The imperative is a future-oriented mood expressing a wish, request, even—as the terminology implies—a command addressed at a 2nd person. Latin has two structures labeled imperative, called “present” and “future,” though both have future reference. The purely formal alternative designation Imperative-I, -II avoids the possibly misleading tense reference. The markers are *-#-* and *-tō-*, respectively, and Imperative-II also functions as a 3rd person imperative.

The “O” set is symmetrical in distinguishing 2sg./pl. indicative *amā-#-s*, *amā-#-tis* from Imperative-I *amā-#-#*, *amā-#-te*. The imperative endings are each one sound shorter than the indicative. The “R” set is asymmetrical in this regard. As just noted in 3.3a., the indicative 2sg. allows both longer *-ris* and shorter *-re* in *mīrā-#-ris*, *mīrā-#-re*, but only the latter can express the imperative. The 2pl. *mīrā-#-mini*, however, makes no distinction in form between indicative and imperative.

The 2nd-3rd person Imperative-II “O” set is also symmetrical: *amā-tō-#*, *amā-tō-te* as well as 3pl. *amantō* (which is not represented in Chart 8). The “R” set, however, apparently shortens *-re* one step more to *-r*, hence the parentheses in Chart 8 for *-r(e)*, hence 2sg.-3sg. imperative **mīrā-tō-r* > actual *mī•rā•tor*. It permits no 2pl. but does form 3pl. *mī•ran•tor*.⁴¹

3.3c. Present Indicative and a Surprise.

A tense marker ending in a long vowel selects the consonant-initial variant of 1sg., 3pl., while the short-*i* of future *-bi-* selects the vowel-initial variants and exits before them. Compared to all the audible present system markers, the present indicative marker is the placeholder “zero” *-#-* (see fn. 37). In practical reality, then, the stem vowels *ā-*, *ē-* flow directly into the endings producing expected “O” and “R” 3pl. **amā-#-nt*, **mīrā-#-ntur*,

⁴⁰ Textbooks typically give longer *-ērun̄t*, since it predominates in classical Latin prose, and they may also offer *-ēre* as a shortened *-ērun̄t*. In fact, it is the other way around. The shorter form is historically older, that is, **-ēri* > *-ēre* (Baldi 1999, 388-389). Longer *-ērun̄t* is built on *-ēre* by analogy with the “O” set 3pl., that is, **-ēri-unt* > *-ē•runt*, just as the future *erī-* chooses the vowel-initial 3pl. **eri-unt* > actual *e•runt*.

⁴¹ The 3pl. future imperatives *a•man•tō*, *mī•ran•tor* are odd creatures. They appear to be formed from the 3pl. present plus an additional ending *-ō/r*, that is, *amant-ō*, *mīrant-or* (not **ntur-or*). In S-T-E terms, however, **amā-nt-tō-#*, **mīrā-nt-tō-r* would mean an anomalous **S-E-T-E*, and I leave them aside for now.

*habē-#-nt, *verē-#-ntur > actual a•mant, mī•ran•tur, ha•bent, ve•ren•tur. Stem vowel ī selects the vowel-initial -unt(ur) and shortens before it in *audī-#-unt, *potī-#-untur > actual au•di•unt, po•ti•un•tur. Short i exhibits its two behaviors in *capi-#-unt, *pati-#-untur > actual ca•pi•unt, pa•ti•un•tur and *carpi-#-unt, *ūti-#-untur > actual car•punt, ū•tun•tor. Also as expected, the 1sg. *audī-#-ō, *potī-#-or, *capi-#-ō, *pati-#-or, *carpi-#-ō, *ūti-#-or produce actual au•di•ō, po•ti•or, ca•pi•ō, pa•ti•or, car•pō, ū•tor.

The other two stem vowels offer a surprise here. The “regular, expected” structure after a long vowel, given, e.g., *amā-bā-m, *mīrā-bā-r > actual a•mā•bam, mī•rā•bar, would be *amā-#-m, *mīrā-#-r, *habē-#-m, *verē-#-r, yet no *a•mam, *mī•rar, *ha•bem, *ve•rer occurs,⁴² only *habē-#-ō, *verē-#-or > actual ha•be•ō, ve•re•or with consistent vowel shortening and *amā-#-ō, *mīrā-#-or > a•mō, mī•ror, the only other place besides present subjunctive where stem vowel ā encounters a following vowel and drops. The system clearly “knows” which pure vowels ā and ē function as grammatical markers (which take -m/-r) and as stem vowels (which take -ō/-or). In the overall S-T-E perspective, then, the 1sg. of these two groups—yes, the canonical 1st principal part, one of the first things in a learner’s experience—is an anomaly.

3.4 Lay Deponents Aside?

Hardly a suggestion to ignore or exclude these several hundred Latin verbs, this is rather an invitation, not even a revolutionary one, to adjust the diachronic perspective on the role of voice and its attendant morphology and terminology in a synchronic approach to classical Latin. Allen and Greenough (1906,101) remind us that “deponents are really passive verbs whose active voice has disappeared. There is hardly one that does not show signs of having been used in the active at some period of the language.”⁴³ Grammatical voice—the subtle continuum from active to middle to passive with many shades in between—is certainly important but has no single place in the S-T-E structure. The verbal markers of the present system are voice-neutral except for the explicitly active voice markers (the participles -nt- and -tū-). The markers of the perfect system and therefore also the “I” set of endings are also by definition active. The only explicitly passive voice element is the participle marker -nd-. Textbooks too facilely label the “O” set “active” endings and the “R” set “passive/deponent” endings. That is not untrue but needs nuancing. Amō means the subject does the loving and amor means the subject receives love; that is not in question, but 1st century BCE speakers of Latin likely did not think of mīror as “centuries ago being looked at but now doing the looking.” That would have been an unnecessary intellectual stretch for them, let alone pedagogically bewildering in far-away classrooms two millennia later. The existence (or persistence) of deponents in classical Latin is, indeed, interesting but a topic for high specialized study.

The paradoxical classroom mantra “passive form, active meaning” assigns *a priori* a passive meaning to the “R” set and then retracts it. The “O” set is active by default. The same outside observer who started off in section 1.0 above looking for patterns in language might very well group Latin verbs purely by their ability to take the “O” or “R” set of endings or both in the present system. Intransitives like ambulāre, sedēre, gemere, salīre are active voice to varying degrees, and their present system markers can take only the “O”

⁴² Perhaps some future archeological find will turn up a text in a renegade dialect of Latin that has just such forms.

⁴³ This would actually be a double disappearance. If for a given verb the “O” ending means active and the “R” ending means passive, then both “O” and “passive” disappear for that verb leaving “R” meaning “active.” Why or how this occurred is perhaps an interesting topic for a later stage of (specialized) study but hardly relevant for students who can appreciate classical Latin on its own synchronic terms. Students of English as a Foreign Language do not learn that modern English pronouns *me, him, her, us, them* have “laid aside” their five Old English cases, leaving what was once a dative to cover what is now the “objective” case (with *whom* hanging on by a thread) or that *you* was once the accusative-dative plural of what was once the singular/ plural nominative *thou/ye*, accusative and dative *thee/you*. That is fascinating and worth knowing but at a later time.

set and can form no corresponding passive with the “R” set (except perhaps for the 3sg. “generalized person” *ambulātur, sedētur*, etc.). Such verbs regularly form their perfect system with one of the perfect markers and the “I” set of endings for the perfect tense itself, while the compound perfect tenses take the “O” endings as described in 3.2b. above. In similar fashion, *mīrārī, verērī, utī, patī, potīrī*, etc., whether transitive or intransitive,⁴⁴ are also active voice to varying degrees and can take only the “R” set on the present system markers. They form their perfect system with the perfect participle and auxiliary *esse*.

The pedagogical upshot is that learners, rather than learning five sets of “conjugation” endings (for each tense) and then having to double them later on, can learn just two sets, “O” and “R,” early on without even calling them “active,” since there is no contrast with “passive” till much later in a usual curriculum. The infinitive endings *-re* and *-(r)ī* send the learner, as it were, down the “O” street or the “R” street unambiguously. Long before learners delve into the syntax of passive voice and its case correlates, they need only categorize *ambulāre* as “O-only” and *mīrārī* as “R-only,” each with its characteristic perfect system formation. Such an approach allows such useful deponents as *conārī, mīrārī, pollicērī, lābī, loquī, patī, gradī, potīrī* to enter the vocabulary long before the issue of voice arises and avoid an academic conundrum later on. Even transitives like *amāre, habēre, carpere, capere, audire* are “O-only” until the passive enters the curriculum. At that point, learners are already in command of the endings and need only expand their conceptual repertoire to accept that *amāre*, etc., suddenly *can* take the “R” set and carry *by contrast* a specific meaning and sentence structure—and only *then* need they recognize “O” as active voice. *Amāre*-type verbs, then, are “O/R” verbs.⁴⁵

A few verbs are equally active with *either* “O” or “R,” that is, their “R” is not the passive of the “O,” e.g., *abōminō/-or, comitō/-or, mereō/-or*. (Allen and Greenough 1906,190 count twenty such but do not enumerate them.) Are these “ambi-O/R”? *Criminor*, interestingly, can be either active or passive (Matthews 2007).

Five verbs discussed in the course of 1.3 above mix the two sets: *solēre*², *audēre*³, *gaudēre*³⁻¹, *fidere*⁴ have an “O” present system and an “R” perfect system. Tradition calls them semideponents, but in the view presented here they are not “half” of anything, just a mix. They are “O-R” verbs. Prefixed *revertī* and *dēvertī* have the opposite mix: an “R” present system and an “O” perfect system. They are uniquely “R-O” verbs. In the same vein, the few like *coepisse, ōdisse, nōvisse, meminisse* are “perfect in form, present in meaning,” making them “I-only.”

4.0 Conclusion

A view of a verb’s stem vowel in all three tense systems as a set reveals four “inflectional profiles,” larger and more inclusive than “conjugation” alone. The interactions of consonants across the S-T border can obscure that border, but a few rules of basic phonetics bring it back into focus. This abstract orientation allows Latinists to see a verb form’s three component slots and the regular progression “rightward” from *S-* to *-T-* to *-E*. Chart 9 is a highly schematic “bird’s-eye view” summary of the entire “first conjugation” in terms of the three profiles that crisscross it. Profile-1 has one stem; Profile-2 has three stem shapes, and Profile-3 has two.

⁴⁴ Xu, et al. 2007 survey the syntax and semantics of hundreds of deponents and note, p. 128, a nuanced notion of transitivity in which the object is not *physically affected*. In the same volume, Matthews 2007 examines different analyses of deponency and other categories including the views of some Roman grammarians.

⁴⁵ I have not surveyed my colleagues on this, but I would be surprised if many of them did not already use some variety of “O” and “R” terminology. It is not whitewashing or dumbing down, just meeting a language’s structure on its own terms without historical baggage. At that later point, the student’s job is to accept that the already-familiar “R” set now has an additional meaning *in contrast to and in tandem with* the “O” set.

<i>amāre</i> ¹	<i>vetāre</i> ²	<i>secāre</i> ^{3u}			<i>mīrār</i> ¹				
S-			-T-	-E	S-	-T-	-E	Aux	
amā-	vet-	sec-	Perf.	I	mīrā-	(Perf.)	Decl.	esse	
	veti-		Sup.	Decl.		Sup.			
	vetā-	secā-	Pres.			Pres.		R	
			O/R						

Chart 9. First Conjugation, Three Profiles: One-, Two-, Three-Stems

Teachers and advanced learners can appreciate this structure for their own review and peace of mind. Bringing these notions to the awareness of learners at various levels is not guaranteed to ease their acquisition of Latin, but it will at least make it more orderly and put the lie to the old student ditty, “Latin is a language, dead as dead can be. First it killed the Romans and now it’s killing me.”

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