

APPENDIX E

EXPLANATIONS IN PHONEMICS AND MORPHOLOGY

E1. THE COMPONENT ELEMENTS OF LANGUAGE

E1.1 The smallest unit of language is a single sound. This is called a *phone*, and is represented in writing by a letter. Where a sound is sufficiently different from other similar sounds as to distinguish meaning, then that sound is called a *phoneme*, i.e. a meaningful phone. For example, the words “pig” and “big” have different meanings from each other, and this indicates that in English “p” and “b” are separate phonemes, though the difference between them in pronunciation is very small: they are both made in the same way, but the vocal chords are activated for the “b”.

E1.2 There can be many ways of pronouncing the one “sound”, but when these differences are not intended to affect meaning, they are *allophones*, different phones of the one phoneme. Consider for example the varieties of pronunciation of the same English word that one would hear from a Londoner, a Scotsman, an American, an Australian, an Indian, a German, and a Frenchman, all speaking English. This difference in pronunciation we usually call *accent*, and we refer to “an Australian accent”, “a German accent”, and so on.

E1.3 Differences of pronunciation only involve different *phonemes* when the speaker intends one sound to be distinguished from the other. Thus in Greek “κ” and “χ” are different phonemes (that is to say, the difference between them is *phonemic*) because they affect meaning: for example, *ἐκεῖ* means “there”, “in that place”, and *ἔχει* means “he has”.

E1.4 But sounds do not occur in isolation; they occur in combinations. An utterance complete in itself is called a *sentence*, and the units of speech of which it is composed – and which can be changed for other similar units, or put into a different order – are called *words*.

E1.5 A word may convey one single piece of information, or it in turn may be composed of a number of smaller units of meaning which can also be found, with the same meaning, in other words. For example, “-s” can be attached to large numbers of English words with the meaning, “plural”; “-ing” can be added to many verbs with the meaning, “action in progress”, the nature of the action being indicated by the word to which it is attached, such as in “walking”, “sailing”, “eating”, and so on. A word may contain several meaningful units, such as in “help-ful”; “horse-man-ship”; “un-will-ing-ly”. Each such unit of meaning, whether a word in itself or a part of a word, is called a *morph*. All the morphs in a language which have exactly the same meaning are collectively called a *morpheme*. Thus all the ways in which English makes a word plural will constitute together “the English plural morpheme”.

E1.6 The study of the ways in which sounds (phones) are made, and their nature, is called *phonetics*. The study of phonemes, and how they are used in distinguishing one word from another, and how they interact, is called *phonemics* or *phonology* (sometimes these terms are used interchangeably by scholars, and sometimes with a slight shade of difference between them – this difference will not be of concern to us). The study of morphs and morphemes, the meaning they carry, and how they constitute words, is called *morphemics* or *morphology* (again, we will not be concerned with the shade of difference that some scholars make between these two terms). The study of how words are assembled in utterances – that is, when and how words are used, and the order of their use, and the purpose behind their use in a particular way – is called *syntax*.

E1.7 We are not directly concerned in this Course with the question of the pronunciation of Greek (except to the extent of consistently using an agreed conventional pronunciation so that we can *say* the words, and so that our pronunciation will help us remember them). As a result, this book contains only minimal material about phonetics. Our prime concerns are with phonemes (because these distinguish words), morphs (because these convey meaning), and syntax (because

this assembles individual units of meaning into a total meaningful utterance). Some further specific explanations are now to be made in the areas of phonemic modification and morphology.

E2. PHONEMIC MODIFICATION

E2.0 THE NATURE OF PHONEMIC MODIFICATION

E2.01 Whenever two sounds (phonemes) come together, either in the one word or in two consecutive words, they affect each other. This effect is greatest when the two phonemes in question are both vowels or both consonants. One of the two phonemes, or both, may be altered, or *modified*. Where a phoneme becomes modified solely because of the juxtaposition of another phoneme, this is called *phonemic modification*.

E2.02 The phenomenon of phonemic modification occurs in all languages, especially in the speaking of the language, but on most occasions the speaker of a language is so completely used to it that he is not consciously aware that it is happening.

E2.03 Numbers of the changes which occur only affect speaking, not spelling. For example, if two stop consonants come together, only the second is pronounced: “lost tribe” is pronounced like “loss tribe”; similarly in “grab bag”, “weak camel”. and even in “last page”, etc. Often a phoneme is modified to the one which follows it – thus in the expression “bank pass-sheet” most speakers will not pronounce the “s” phoneme of “pass” but will say “pash-sheet” or “pa-sheet”.

E2.04 Some phonemic modification is not a matter of individual pronunciation but is universal in the language. Thus the English “n” phoneme is normally modified to the “ng” phoneme when it is followed by a palatal (k, g, x, and similar phonemes), even though it will not be written differently. Compare the pronunciation of “n” in “ant”, “and”, “anthem”, “answer”, with its pronunciation in “ankle”, “anchor”, “anger”, “anxious”, and “anxiety”.

E2.05 Some phonemic modification does affect spelling. Thus when the prefix “in-”, meaning “not”, is added to a word beginning with a labial or a liquid it changes accordingly: “impolite”, “imbalance”, “immobile”, “illegal”, “irregular”, etc. Phonemes can be squeezed out of a word in popular usage: for most people, “cannot” becomes “can’t”, and so on.

E2.06 Greek displays a full range of linguistic modification. A gamma followed by a palatal is ena¹¹, and pronounced as “ng”; thus ἐγγύς – this is not an original gamma phoneme, but a “v” phoneme the pronunciation of which has been modified in the same way as in English: ἐν + γράφω becomes ἐγγράφω. So also a nu followed by a labial will be pronounced as a mu: ἐνβάλλω is pronounced (and may be spelt as) ἐμβάλλω, συνβαίνω as συμβαίνω. The spelling of words like these may or may not be changed, as the writer chooses.

E2.07 It is important to note that phonemic modification does not affect the *meaning* of the word. Thus phonemic modification frequently brings into existence slightly different forms of a morph, all having exactly the same meaning. These are known as *allomorphs* (#E3.2).

E2.08 There are nine major types of phonemic modification where spelling is affected which occur in Greek on a regular basis. These are: elision, contraction, vowel lengthening, compensation, syncopation, amalgamation (including simplification), assimilation, de-aspiration, and crasis.

E2.1 ELISION

E2.11 Where an elision morph is followed by a morph commencing with a vowel, then the final vowel of the elision morph *elides* before the vowel of the following morph. **This is the Short Vowel Elision Rule.**

E2.12 An *elision morph* is a morph in which elision occurs in accordance with this rule. The elision morphs are:

- (a) **aspect morphs:** the punctiliar morph (-σα-), perfective-active morph (-κα-), and neutral morph (-ε/ο-).
- (b) **prepositions prefixed to a verb** (except *πρό* and *περί*).
- (c) **prepositions which can be prefixed to a verb** [that is to say, those for (b) above] when standing in front of some other word which commences with a vowel.
- (d) **certain conjunctions and other words**, according to the style of the author (so that with some words, sometimes elision occurs, sometimes not).

E2.13 *Elision* means that the short vowel with which an elision morph ends *elides* (or “hides”) before a following morph commencing with a vowel. The elided vowel is not totally lost, and can be regarded as “waiting behind the scenes” for an opportunity to reappear, in a verb form which lacks the vowel that caused the elision. Thus *ἀπο-ῖστημι* becomes *ἀφίστημι*; but the aorist participle is *ἀποστάς* (Acts 19:9), with the elided vowel -ο- restored because no longer coming before another vowel in this form of the word.

E2.14 The aspect morphs (-ε/ο-, -σα-, -κα-) elide their vowel when followed by a suffix commencing with a vowel. This can be recognized by a comparison of these active forms:

	IMPERFECT	AORIST	PERFECT
S1	ἔλυο + ν → ἔλυον	ἔλυσα + ∅ → ἔλυσα	λελυκα + ∅ → λέλυκα
2	ἔλυε + ς → ἔλυες	ἔλυσα + ς → ἔλυσας	λελυκα + ς → λέλυκας
3	ἔλυε + ε → ἔλυε	ἔλυσα + ε → ἔλυσε	λελυκα + ε → λέλυκε
Pluperfect			ἐλελυκα + ειν → ἐλελύκειν
Subjunctive		λυσα + ητε → λύσητε	
Infinitive		λυσα + αι → λύσαι	
Participle			λελυκα + ως → λελυκώς

NOTE: The present and second aorist infinitive look at first to be exceptions to this: the present infinitive stem *λυε-* adds the infinitive ending *-εν* and contracts to *λύειν* instead of eliding to “*λυεν*”; and similarly the second aorist *ιδε-* + *-εν* gives *ιδεῖν*. In fact, the original infinitive ending added to a neutral morph was *-σεν*, which gave rise to the infinitive form “*λυεσεν*”, and then the sigma was squeezed out by syncopation (see #E2.5, below), leaving the two epsilons in juxtaposition, and they then contracted.

E2.15 A preposition (other than *πρό* or *περί*) which ends in a vowel and which is followed by a word commencing with a vowel will elide its final vowel, and the elision will be marked by an apostrophe. When the following word commences with a rough breathing, the preposition will aspirate its last consonant if that is a stop consonant. (See #8.79 for fuller details.)

E2.16 A preposition (other than *πρό* or *περί*) which ends in a vowel and which is prefixed to a verb form commencing with a vowel (irrespective of whether that vowel is the augment or part of the lexical) will elide its final vowel. The elision will not be marked in any way. When the following morph commences with a rough breathing, the preposition will absorb that breathing into its last consonant and aspirate it, if that consonant is a stop consonant; in other cases the rough breathing is simply lost (#8.79).

E2.17 Elision is occasionally found with conjunctions, in particular with *δέ* before *ἄν* (and not otherwise, as a rule) and often with *ἀλλά* and *οὐδέ*, and very rarely with any other words. Often the manuscripts have variant readings, with and without the elision (as is also the situation for preposition elision).

E2.2 CONTRACTION

E2.21 Where any morph in a verb other than an elision morph ends in a short vowel, that vowel regularly *contracts* with the initial vowel of any contiguous following morph that commences with a vowel or diphthong, whether short or long. **This is the Short Vowel Contraction Rule.**

E2.22 An elision morph is a morph which undergoes elision not contraction when followed by a morph commencing with a vowel. The elision morphs have been described in #E2.1, above.

E2.23 Frequently η , though a long vowel, also contracts with certain vowels which follow it.

E2.24 The pattern of contraction is as follows:

$\alpha + \alpha, \varepsilon, \eta$	$\rightarrow \alpha$	$\varepsilon + \alpha$	$\rightarrow \eta$ (or α)	$\eta + \varepsilon$	$\rightarrow \eta$
$\alpha + \varepsilon\iota, \eta$	$\rightarrow \alpha$ (or α)	$\varepsilon + \alpha\iota$	$\rightarrow \eta$ (or $\alpha\iota$)	$\eta + \varepsilon\iota, \iota$	$\rightarrow \eta$
$\alpha + \iota$	$\rightarrow \alpha\iota$ or α	$\varepsilon + \varepsilon, \iota, \varepsilon\iota$	$\rightarrow \varepsilon\iota$	$\eta + \omicron\iota$	$\rightarrow \varphi$
$\alpha + \omicron, \omicron\upsilon$	$\rightarrow \omega$	$\varepsilon + \eta$	$\rightarrow \eta$	$\iota + \iota, \varepsilon$	$\rightarrow \iota$
$\alpha + \omicron\iota$	$\rightarrow \varphi$	$\varepsilon + \omicron, \omicron\upsilon$	$\rightarrow \omicron\upsilon$	$\omicron + \alpha, \eta, \omega$	$\rightarrow \omega$
		$\varepsilon + \omicron\iota$	$\rightarrow \omicron\iota$	$\omicron + \varepsilon, \omicron, \omicron\upsilon$	$\rightarrow \omicron\upsilon$
		$\varepsilon + \upsilon$	$\rightarrow \varepsilon\upsilon$	$\omicron + \varepsilon\iota, \eta, \iota, \omicron\iota$	$\rightarrow \omicron\iota$
		$\varepsilon + \omega$	$\rightarrow \omega$	$\upsilon + \varepsilon$	$\rightarrow \upsilon$

E2.25 This schedule gives the standard pattern of contraction. The less usual alternatives are given in brackets. Exceptions to this pattern will sometimes be found.

E2.26 Where before contraction a ι subscript occurs on the second vowel, this subscript remains after contraction. Thus $\varepsilon + \varphi \rightarrow \varphi$. But sometimes, irregularly, $\omicron + \eta$ or $\varphi \rightarrow \omicron\iota$; for example, the aorist subjunctive active will be found with such forms as $\delta\omicron\iota$ (instead of $\delta\varphi$; from $\delta\acute{\iota}\delta\omega\mu\iota$), $\gamma\omicron\iota$ (instead of $\gamma\varphi$; from $\gamma\acute{\iota}\nu\acute{\omega}\sigma\kappa\omega$).

E2.27 On some occasions contraction does not occur when it would have been expected. The two most common such occasions are: (a) verbs with monosyllabic stems ending in $-\varepsilon$ ($\chi\acute{\epsilon}\omega$, $\delta\acute{\epsilon}\omicron\mu\alpha\iota$, etc.) and (b) nouns with a short vowel in their stems (e.g. such forms as $\pi\acute{\omicron}\lambda\epsilon\omega\varsigma$, $\beta\alpha\sigma\acute{\iota}\lambda\acute{\epsilon}\alpha$) – especially when these forms have resulted from the loss of digamma (#C8.7; #D3.4).

E2.28 A verb is to be regarded as having a grave accent (`) on the vowels not carrying the verb accent (´ or ˘). Where the uncontracted form of a verb has an acute accent on the first vowel of those being contracted, this accent and the notional grave accent on the second vowel being contracted will come together upon the contracted vowel and the two accents will combine into a circumflex. Thus: $\tau\acute{\iota}\mu\acute{\alpha}\omega \rightarrow \tau\acute{\iota}\mu\acute{\omega}$ (i.e., $\tau\acute{\iota}\mu\acute{\omega}$). Often this circumflex is the only indication of the contraction. Thus the present of “I judge” is $\kappa\rho\acute{\iota}\nu\omega$ and the future is $\kappa\rho\acute{\iota}\nu\acute{\omega}$ (contracted from $\kappa\rho\acute{\iota}\nu\acute{\epsilon}\omega$). At times only this accent enables it to be known what has happened. Thus the passive morph $-\theta\epsilon-$ contracts with the aorist subjunctive endings $-\omega$, $-\eta\varsigma$, $-\eta$, etc., to give $\lambda\upsilon\theta\acute{\omega}$, $\lambda\upsilon\theta\acute{\eta}\varsigma$, $\lambda\upsilon\theta\acute{\eta}$, etc. – the circumflex making known the contraction. Note: if in the uncontracted form the acute accent falls on the *second* of the contracting vowels (for example, $\lambda\alpha\lambda\epsilon\acute{-}\acute{\epsilon}\tau\omega$), the contracted vowel carries an acute ($\lambda\alpha\lambda\acute{\epsilon}\acute{\iota}\tau\omega$); if the accent does not fall on either of the contracting vowels, the contracted vowel will not be accented ($\acute{\epsilon}\tau\acute{\iota}\mu\alpha\text{-}\omicron\nu \rightarrow \acute{\epsilon}\tau\acute{\iota}\mu\omicron\nu$). (For a fuller discussion of accents, see #E6.)

E2.3 VOWEL LENGTHENING

E2.31 Where a verb stem ends in a short vowel, this vowel regularly *lengthens* when followed by a suffix beginning with a consonant, $-\alpha$ into $-\eta$, $-\varepsilon$ into $-\eta$, and $-\omicron$ into $-\omega$. **This is the Short Vowel Lengthening Rule.**

E2.32 This lengthening can be seen in the Principal Parts of the short vowel stem verbs:

τιμάω	τιμήσω	ἐτίμησα	τετίμηκα	τετίμημαι	ἐτιμήθην
λαλέω	λαλήσω	ἐλάλησα	λελάληκα	λελάλημαι	ἐλαλήθην
πληρόω	πληρώσω	ἐπλήρωσα	πεπλήρωκα	πεπλήρωμαι	ἐπληρώθην

E2.33 There are a small number of exceptions to verb vowel lengthening: where *-α* occurs after a *ρ*, *ι*, or *ε* root, and in some specific verbs (see #C1.48).

E2.34 Third Conjugation verbs lengthen in the singular present active (see C3.1a, C3.1b, C3.1c in the Conspectus, #C6); and in some other active forms. The reason for this lengthening is not clear. On the other hand, they do not lengthen their stem vowel in the middle or passive flexions at all.

E2.35 The passive morph *-θε-* lengthens its vowel to give *-θη-* in front of a single consonant suffix or in form-final position, but remains as *-θε-* before the two-consonant suffix *-ντ-* of the participle (the participle stem is thus *λυθεντ-*). It also remains short in front of, and then contracts with, a following vowel (as in the subjunctive, and with the *-ι-* of the optative, giving the diphthong *ει*), in accordance with #E2.21.

E2.36 Third Declension nouns, adjectives and participles lengthen *-ε-* into *-η-*, and *-ο-* into *-ω-*, in the nominative singular masculine (or personal) gender when the vowel is followed by a single consonant, if the stem consonant(s) has/have not been replaced by the *-ς* suffix. Thus: stem *ἄστερ* → *ἄστηρ* (#D3.12); stem *ἡγεμον* → *ἡγεμών* (#D3.16); stem *ἄρχοντ* → *ἄρχων* (#D3.18). But see #E2.4 re stem *ποδ* → *πούς*, *έν* → *εἶς*, etc.

E2.4 COMPENSATORY LENGTHENING

E2.41 Where a stem consonant has been lost from a word stem as the result of adding a particular suffix, then the final vowel of the stem, if short, will undergo *compensatory lengthening*: short *α*, *ι*, and *υ* will lengthen without the spelling being affected; *ε* lengthens to *ει*; and *ο* lengthens to *ου*. **This is the Short Vowel Compensatory Lengthening Rule.**

E2.42 Thus: *έν + ς* → *ές* → *εἶς* (nominative masculine singular of “one”)
ποδ + ς → *πος* → *πούς* (nominative singular of “foot”)
όδοντ + ς → *όδονς* → *όδος* → *όδούς* (nominative singular of “tooth”)
λυθεντ + ς → *λυθενς* → *λυθεις* → *λυθείς* (passive participle of *λύω*)
BUT: *ἀρχοντ + ς* → *ἀρχονς* → *ἀρχον* → *ἄρχων* (not “ἄρχουν”; #E2.36).

E2.43 The stem of a verb comprises the lexical together with the other morphs added to it except the *ending* (#E3.34). The *-σ/-σα-* of the punctiliar morph is thus part of the stem of first aorist forms. Therefore where the *-σ-* of the punctiliar morph is lost when it is added to a liquid verb, this is the loss of a stem consonant and thus in accordance with this rule compensatory lengthening occurs:

μένω (I remain): *έμεν + σα* → *έμενα* → *έμεινα*
δέρω (I thrash): *έδερ + σα* → *έδερα* → *έδειρα*
σπείρω (I sow): *έσπερ + σα* → *έσπερα* → *έσπειρα*

BUT ALSO, in accordance with this rule (#E2.41),

καθαίρω (I clean/prune): *έκαθαρ + σα* → *έκάθαρα*
σημαίνω (I indicate): *έσημαν + σα* → *έσήμανα*
κρίνω (I judge): *έκριν + σα* → *έκρινα*
σύρω (I drag): *έσυρ + σα* → *έσυρα*

E2.44 In the dative plural of Third Declension words, compensatory lengthening occurs upon the loss of *two* stem consonants, but not upon the loss of one only. Thus:

ἄρχων: ἄρχοντ + σιν → ἀρχονσιν → ἀρχοσιν → ἄρχουσιν (#D3.18)
 τιθείς: τιθεντ + σιν → τιθενσιν → τιθεσιν → τιθείσιν (#D5.31)
BUT: ἡγεμών: ἡγεμον + σιν → ἡγεμόσιν (#D3.16)
 ποιμήν: ποιμεν + σιν → ποιμέσιν (#D3.17)

E2.45 The form of the third person plural present indicative active is the result of compensatory lengthening: the original of this form was “*λυοντσιν*” (compare the numbercase dative plural); and in the same way, it became *λύουσιν*. The *λυοντ-* form of the third person plural can still be seen in the middle flexions, where it is preserved because followed by a vowel: *λύονται*, *ἐλύοντο*.

E2.46 Numerous other Greek forms are most readily explained on the basis of compensatory lengthening. Thus the stem of the verb *εἰμί* is *έσ-*, and the sigma is easily dislodged: but everywhere in the present flexion where the *-σ* has been lost the *-ε-* has lengthened to *-ει-* in compensation. In the imperfect the *έ-* had taken the temporal augment and had become *ή-*, which was unaffected by the loss of the stem sigma when it occurred. Grammarians find it difficult to account for the singular forms *-εις* and *-ει* in the present active indicative of the verb; possibly it is compensatory lengthening, though the reason for it is now quite unknown to us. Perhaps also compensatory lengthening may be the explanation of the final vowel *-ει-* in the pluperfect flexion (#E4.83), though again it is unclear what the reason for this would be.

E2.5 SYNCOPATION

E2.51 *Syncopation* refers to the situation where a short vowel coming between two consonants is squeezed out, or where a sigma (or, occasionally, other consonant) coming between two vowels is squeezed out.

E2.52 The genitive singular of *πατήρ*, “father”, which should “correctly” be “*πατερος*”, has lost its *-ε-* by syncopation and has become *πατρός*.

E2.53 The original (theoretical) present tense “*πιπετω*” (from the verb stem *πεσ-*, as found in the aorist, with added *-τ-* as durative morph) has become *πίπτω*, “I fall”.

E2.54 The original present tense *γινώσκω* (used in Classical Greek; from the root *γνο-*) became *γινώσκω*, “I know”.

E2.55 The original present tense “*γιγενομαι*” (from the root *γεν-*) became first *γίγνομαι* (used in Classical Greek) and then *γίνομαι*, “I become”.

E2.56 The second person singular middle endings *-σαι* and *-σο* when added to aspect morphs *-ε* or *-σα* lost their sigma and the vowels contracted. Thus:

<i>λυεσαι</i>	(present)	syncopated to <i>λυεαι</i>	and contracted to <i>λύη</i>
<i>έλυεσο</i>	(imperfect)	syncopated to <i>έλυεο</i>	and contracted to <i>έλύου</i>
<i>έλυσασο</i>	(aorist)	syncopated to <i>έλυσαο</i>	and contracted to <i>έλύσω</i> .

E2.57 *έχω* derives from the root *σεχ*, so that the imperfect was originally *έσεχον*. The *-σ-* was lost, and the resulting form *έεχον* then contracted into *είχον* (compare digamma verbs, #C8.71–#C8.72). In contradistinction, in the aorist the original form *έσεχον* has lost the *-ε-* of the stem, becoming *έσχον*.

E2.6 AMALGAMATION

E2.61 The final labial of a morph amalgamates (a) with a following *-σ-* to form *-ψ-*; and (b) with a following rough breathing or *-κ-* to form *-φ-*. **This is the Labial Amalgamation Rule.**

Examples: the aorist active of $\theta\lambda\acute{\iota}\beta\omega$, $\acute{\epsilon}\theta\lambda\acute{\iota}\beta$ - + $-\sigma\alpha \rightarrow \acute{\epsilon}\theta\lambda\acute{\iota}\psi\alpha$ (#C1.5); $\acute{\alpha}\pi\acute{o}$ + $\acute{\iota}\eta\mu\acute{\iota} \rightarrow \acute{\alpha}\phi\acute{\iota}\eta\mu\acute{\iota}$ (see #8.79; #E2.13); the perfect active of $\beta\lambda\acute{\epsilon}\pi\omega$, $\beta\epsilon\beta\lambda\epsilon\pi$ - + $\kappa\alpha \rightarrow \beta\acute{\epsilon}\beta\lambda\epsilon\phi\alpha$ (#C1.5).

E2.62 The final palatal of a morph amalgamates (a) with a following $-\sigma$ - to form $-\xi$ -; and (b) with a following $-\kappa$ - to form $-\chi$ -. **This is the Palatal Amalgamation Rule.** Examples: the future active of $\acute{\alpha}\rho\chi\omega$, $\acute{\alpha}\rho\chi$ - + $-\sigma\omega \rightarrow \acute{\alpha}\rho\xi\omega$; the perfect active of $\kappa\eta\rho\acute{\upsilon}\sigma\sigma\omega$, $\kappa\epsilon\kappa\eta\rho\upsilon\sigma\sigma$ - + $-\kappa\alpha \rightarrow \kappa\epsilon\kappa\acute{\eta}\rho\upsilon\chi\alpha$ (#C1.6). Exception: when the preposition $\acute{\epsilon}\kappa$ is prefixed to a word beginning with a sigma, as $\acute{\epsilon}\kappa\sigma\tau\alpha\sigma\acute{\iota}\varsigma$, $\acute{\epsilon}\kappa\sigma\tau\rho\acute{\epsilon}\phi\omega$.

E2.63 The final dental of a morph amalgamates with a following rough breathing to form $-\theta$ -. **This is the Dental Amalgamation Rule.** Examples: $\kappa\alpha\tau\acute{\alpha}$ + $\acute{\omega}\varsigma \rightarrow \kappa\alpha\theta\acute{\omega}\varsigma$; $\mu\epsilon\tau\acute{\alpha}$ + $\acute{\iota}\sigma\tau\eta\mu\acute{\iota} \rightarrow \mu\epsilon\theta\acute{\iota}\sigma\tau\eta\mu\acute{\iota}$ (#8.79; #E2.13).

E2.64 The final dental of a morph drops out before a following $-\sigma$ - or $-\kappa$ -. **This is the Dental Drop-out Rule.** Examples: the future active of $\sigma\pi\epsilon\acute{\upsilon}\delta\omega$, $\sigma\pi\epsilon\upsilon\delta$ - + $-\sigma\omega \rightarrow \sigma\pi\epsilon\acute{\upsilon}\sigma\omega$; the perfect active of $\delta\omicron\xi\acute{\alpha}\zeta\omega$, $\delta\epsilon\delta\omicron\xi\acute{\alpha}\zeta$ - + $-\kappa\alpha \rightarrow \delta\epsilon\delta\omicron\xi\acute{\alpha}\kappa\alpha$ (#C1.7). Thus in the case of a dental followed by $-\sigma$ - or $-\kappa$ -, the “amalgamation” of the dental effectively amounts to its “annihilation”. However, a small number of verbs in $-\theta$, when they add $-\kappa\alpha$, have $-\theta\alpha$; thus $\lambda\alpha\nu\theta\acute{\alpha}\nu\omega$ (root $\lambda\alpha\theta$) \rightarrow perfect $\lambda\acute{\epsilon}\lambda\eta\theta\alpha$ (#C2.34); $\pi\acute{\alpha}\sigma\chi\omega$ (root $\pi\alpha\theta$) \rightarrow perfect $\pi\acute{\epsilon}\pi\omicron\nu\theta\alpha$ (#C2.4; #C8.63); $\acute{\eta}\lambda\theta\omicron\nu$ (root $\acute{\epsilon}\lambda\theta$) \rightarrow perfect $\acute{\epsilon}\lambda\acute{\eta}\lambda\upsilon\theta\alpha$ (#C2.8); $\pi\acute{\epsilon}\acute{\iota}\theta\omega$ (root $\pi\epsilon\acute{\iota}\theta$) \rightarrow perfect $\pi\acute{\epsilon}\pi\omicron\iota\theta\alpha$ (#C8.63).

E2.65 These rules in summary: Labials, palatals and dentals follow a pattern of amalgamation when a morph commencing with a sigma, kappa or rough breathing is added to them, thus:

Labials (π , β , or ϕ)	+ rough breathing or κ	$\rightarrow \phi$; + $\sigma \rightarrow \psi$ (#C1.5; cf. #C4.54)
Palatals (κ , γ , χ , or $\sigma\sigma$)	+ κ	$\rightarrow \chi$; + $\sigma \rightarrow \xi$ (#C1.6; cf. #C4.54)
Dentals (τ , δ , θ , or ζ)	+ rough breathing	$\rightarrow \theta$; + $\sigma \rightarrow \sigma$ (#C1.7)
	+ κ	$\rightarrow \kappa$ (or θ)

E2.66 These rules apply to nouns and adjectives as well as verbs. Thus $\sigma\acute{\alpha}\rho\kappa$ - + $-\varsigma \rightarrow \sigma\acute{\alpha}\rho\xi$ (#D3.6); $\lambda\acute{\iota}\beta$ - + $-\varsigma \rightarrow \lambda\acute{\iota}\psi$ (#D3.7); $\pi\alpha\acute{\iota}\delta$ - + $-\varsigma \rightarrow \pi\alpha\acute{\iota}\varsigma$ (#D3.8).

E2.67 Where two sigmas are brought together by adding a sigma suffix to a sigma stem, they amalgamate into a single sigma. This particular instance of amalgamation is sometimes called *simplification*. Example: stem $\acute{\alpha}\lambda\eta\theta\epsilon\sigma$, “true”, takes the nominative singular suffix $-\varsigma$ and becomes “ $\acute{\alpha}\lambda\eta\theta\epsilon\sigma\varsigma$ ” and this simplifies to $\acute{\alpha}\lambda\eta\theta\epsilon\varsigma$ (and then lengthens to $\acute{\alpha}\lambda\eta\theta\acute{\eta}\varsigma$, #E2.36). [This does not apply when the stem ends in a double sigma, $-\sigma\sigma$, which behaves as a single palatal phoneme (see #E2.65).] Similarly: when the preposition $\sigma\upsilon\nu$ is prefixed to a word beginning with a sigma then by assimilation (#E2.7) it becomes sigma; if the second sigma is followed by a consonant, the simplification rule applies. Thus for example $\sigma\acute{\upsilon}\nu$ + $\sigma\tau\alpha\upsilon\rho\acute{\omega}$ becomes “ $\sigma\upsilon\sigma\tau\alpha\upsilon\rho\acute{\omega}$ ” and thence $\sigma\upsilon\sigma\tau\alpha\upsilon\rho\acute{\omega}$ (Mt 27:44; John 19:32), but when the syllabic augment is added (either as past time morph, or reduplication morph [#E4.35]), the preposition reverts to $\sigma\upsilon\nu$ in front of it: $\sigma\upsilon\nu\epsilon\sigma\tau\alpha\upsilon\rho\acute{\omega}\theta\eta$ (Rom 6:6); $\sigma\upsilon\nu\epsilon\sigma\tau\alpha\upsilon\rho\omega\mu\acute{\epsilon}\nu\omicron\iota$ (Mark 15:32). Exception: when $\sigma\acute{\upsilon}\nu$ is prefixed to a word commencing with sigma and a vowel, and the $-v$ by assimilation becomes $-\sigma$, these two sigmas do not amalgamate into one. Thus $\sigma\acute{\upsilon}\nu$ + $\sigma\acute{\omega}\mu\alpha$ give rise to the form $\sigma\acute{\upsilon}\sigma\omega\mu\alpha$ (Eph 3:6); and $\sigma\acute{\upsilon}\nu$ + $\sigma\acute{\eta}\mu\alpha$ produce $\sigma\acute{\upsilon}\sigma\sigma\eta\mu\omicron\nu$ (Mark 14:44). There is just one occurrence in the New Testament of the preposition $\acute{\epsilon}\nu$ prefixed to a verb form beginning with sigma: 2 Tim 3:1, $\acute{\epsilon}\nu\sigma\tau\acute{\eta}\sigma\omicron\nu\tau\alpha\iota$ (from $\acute{\epsilon}\nu\acute{\iota}\sigma\tau\eta\mu\acute{\iota}$; note that the $-v$ did not assimilate to become sigma).

E2.7 ASSIMILATION

E2.71 Wherever a labial or palatal consonant of a particular manner of articulation (see #1.69) is followed by a morph commencing with a consonant of a different manner of articulation, the first consonant changes so as to become *similar in manner* to (hence the term *assimilation*) the one that follows. **This is the Consonant Assimilation Rule.** The consonant still remains in its

original *place* of articulation, labial or palatal as the case may be. What changes is its *manner* of articulation: whether it is unvoiced, voiced, or aspirated.

E2.72 Wherever a nasal liquid consonant is followed by a morph commencing with a consonant of a different *place* of articulation, the nasal changes its place of articulation to correspond with that of the consonant which follows it.

E2.73 Wherever a dental consonant is followed by a morph commencing with a stop or nasal consonant, it becomes -σ-.

E2.74 The pattern of assimilation can be shown in a table, thus:

	UN- VOICED	VOICED	ASPI- RATE	μ
Where a consonant comes before another consonant that is	π	β	φ	μ
Then if a labial (π, β, φ, or πτ) it becomes respectively	π	β	φ	μ
And if a palatal (κ, γ, χ, or σσ) it becomes respectively	κ	γ	χ	γ
And if a dental (τ, δ, θ, or ζ) then it is replaced by	σ	σ	σ	σ

E2.75 This assimilation can be seen clearly illustrated in the changes that occur in the conjugation of the perfect middle flexion of stop consonant verbs – see these flexions for Paradigms #C1.5, #C1.6, and #C1.7.

E2.76 The above pattern of assimilation is quite consistently carried out.

E2.77 Similarly, -ν- before a **LABIAL OR μ** **PALATAL** **DENTAL OR ν** **λ** **σ**
becomes, respectively: **μ** **γ(enga)** **ν** **λ** **σ**
But the -ν of σύν drops out before ζ-.

Thus: ἐν + βαίνω → ἐμβαίνω (but note, with augment, ἐνέβη, Mt 15:39)
ἐν + μένω → ἐμμένω (but note, with augment, ἐνέμεινεν, Acts 28:30)
ἐν + γράφω → ἐγγράφω
ἐν + καλέω → ἐγκαλέω (but note, with augment, ἐνεκάλουν, Acts 23:28)
ἐν + τρέπω → ἐντρέπω
ἐν + νεύω → ἐννεύω
σύν + λαλέω → συλλαλέω (but note, with augment, συνελάλουν, Luke 9:30)
σύν + σῶμα → συσσωμα (but see also #E2.67 re simplification)
σύν + ζητέω → συζητέω (but note, with augment, συνεζήτει, Acts 9:29)

E2.78 When the augment intervenes between the preposition and the following consonant, then the two phonemes are no longer contiguous and therefore the -ν- returns (as in the forms from the passages quoted above).

E2.79 The assimilation of -ν- to -μ- or -γ- is found in all modern printed texts, but was not always consistently carried out by ancient copyists, so forms like ἐνγράφω, ἐνκόπτω, etc., will be found in variant readings in some ancient manuscripts and early editors, and in Moulton and Geden's *Concordance To The Greek Testament*.

E2.8 DE-ASPIRATION

E2.81 The aspirate with which a syllable commences becomes de-aspirated when the next syllable commences with an aspirate. This is known as "Grassman's Law" (Allen, p.13).

E2.82 Thus the reduplication added to a word commencing with an aspirated consonant has the unaspirated equivalent (see #E4.33).

E2.83 Even a root will lose its aspiration before the -θ- of the passive. The aorist passive indicative of τίθημι would (apart from this rule) be "ἐθέθην", but instead by this rule it has

become *ἐτέθην*, and the aorist passive subjunctive is *τεθῶ* (thus the third person singular *τεθῆ* in Mk 4: 21 and the future passive *προστεθήσεται* in Mk 4:24). So also from *θύω* comes *ἐτύθη*, not “*ἐθύθη*” (1 Corinthians 5:7). But *θύεσθαι* (Luke 22:7) is permissible because the aspirates are not commencing successive syllables.

E2.84 In one form, it is the suffix which is de-aspirated. The second person singular aorist imperative passive suffix is *-θι*, as in the direct flexion form *διαλλάγηθι* (Matthew 5:24, from *διαλλάσσω*, “reconcile”), this ending coming from the ending of the Third Conjugation aorist imperative active as seen in *στῆθι*, *βῆθι*, *γῶθι*, and *δύθι* (see #C6, the Conjugation Conspectus). But when this suffix is added to the regular form of the passive, which has the passive morph *-θε-*, it is de-aspirated and becomes *-τι*. Thus the form is *λύθητι* (#C0.45; #C1.12), not “*λύθηθι*”.

E2.85 Some word roots have an aspirate at the beginning and end of the root, and lose the initial aspiration in a word form except where the second aspiration is lost through amalgamation. Thus:

Root *θριχ-*, nominative singular *θρίξ*, genitive singular *τριχός* (#D3.26)

θρεφ-, present tense *τρέφω*, aorist tense *ἔθρεψα* (#C4.4)

έχ- (from *σεχ-*), present tense *έχω*, future tense *έξω* (note rough breathing) (#C2.7)

E2.86 Although de-aspiration is a standard rule it is not an invariable one, and examples can occasionally be found where two aspirates occur at the beginning of successive syllables, if they are not the same letter (for example, *έξεχύθη*, Acts 1:18).

E2.9 CRASIS

E2.91 Sometimes two words are “crashed” together into one. These are known as instances of *crasis*.

E2.92 Crasis is not common in the New Testament. It only occurred in a number of specific combinations, the most usual being *κάγω* (for *καὶ ἐγώ*, 76 times), *κάμέ* (for *καὶ ἐμέ*, 3), *κάμοί* (for *καὶ ἐμοί*, 5), *κάκεϊνος* (*καὶ ἐκεῖνος*, 7), *κάκειθεν* (*καὶ ἐκεῖθεν*, 10), *κάκει* (*καὶ ἐκεῖ*, 10), *κάν* (*καὶ ἄν*, 17), *τοῦνομα* (*τὸ ὄνομα*, 1), *τοῦναντίον* (*τὸ ἐναντίον*, 3).

E2.93 In all instances where crasis can occur, the first word ends and the second word commences with a vowel (or diphthong); a final *-ι* of the first word is lost; the vowels contract according to the normal rules of contraction (#E2.24); the breathing of the second word is retained over the contracted vowel; the accent of the first word is ignored and the combined word has the accent of the second word on the same syllable as before.

E2.94 There are similarities between crasis in Greek and such forms in English as “aren’t”, “can’t”, “don’t”, “won’t”, “I’m”, “you’re”, “he’s”, and the like: the form is a combination of two words; its use is optional and colloquial; only a small, fixed number of words can be combined in this way; the combination is marked by the use of ’.

E3. MORPHOLOGY

E3.1 MORPHS

E3.11 The smallest element of language which conveys a distinct and independent detail or unit of meaningful information for the understanding of an utterance is called a *morph*. Every word contains a basic morph which carries the fundamental meaning of the word, the meaning which is given in dictionary or lexicon. This is the *lexical morph* or *lexal*.³⁹ Some words consist only in this single morph – these are usually simple connectives such as conjunctions (*καί*, *γάρ*, etc.), or prepositions (*έν*, *εις*, *πρό*, etc.) or adverbs (*ἀεί*, *εὖ*, *νῦν*, *οὐ*, *πάλιν*, and so forth). Most words contain one or more other morphs which convey grammatical information about the word in its

particular use in a given sentence – number, gender and case in an adjective; tense, aspect, voice, mode, etc. in a verb. These morphs are therefore called *grammatical morphs*.

E3.12 A lexical (lexical morph) always consists of phonemes, and may contain one phoneme or several. If it is capable of standing as a word on its own, a lexical is called a *free morph*. If it must always have another morph attached to it in order to form a complete word, it is called a *bound morph*. Thus ἐν, “in”, is a free morph because it is a word on its own, though it can join with other morphs in forming words: ἐντός, “within”, ἔνειμι, “I am in”, etc. The lexical of a noun, adjective or verb is always (exceptions are negligible) a bound morph because such words cannot exist without grammatical morphs attached to them. Thus λύομεν consists of three morphs, λυ-ο-μεν, and the lexical λυ- cannot exist as a separate word on its own.

E3.13 Grammatical morphs can never be free morphs, as they must be attached to a word to have meaning. In fact, it is the *place* and *circumstances* of their attachment that give them their meaning. Thus -ε- is a grammatical morph, but the meaning that it has will depend both upon the word to which it is attached (if added to a noun stem [for example, κυρι-] its meaning is different from when it is used in a verb), and also where in a word it is affixed (there are seven places in which it can be found in a verb, according to circumstances, in which it will mean respectively: past time, perfective aspect, lexical, passive voice, future time, neutral morph, or “he/she/it”). In this respect it is like a numeral: the numeral 2 can have an unlimited range of meaning above or below its basic meaning of “two”, depending upon what other figures, and how many, are used with it in the complete number (as, “27”), and whether or not there is a decimal point in front of it (as, “1.12”).

E3.14 A grammatical morph can be a phoneme or group of phonemes added to the lexical (that is, it can be an *additive morph* or *affix*), or it can be a *process of change* applied to another phoneme in the word (that is, a *process morph*⁴⁰) or even the *absence of a morph* from where a morph is expected to be, where that absence is itself significant (a *zero morph*, written as ∅).

E3.15 In English, “let” is a lexical and “-s” is an affix in “he lets me come”. Compare this with “he let me come”. It is in fact the *absence* of an “-s” on “let”, where one could have been expected, which indicates that the verb is past tense, and not present tense. Thus the information that the verb is past tense is said to be indicated by the *zero morph* after “let” – the fact that there is nothing there when there could have been an additive morph. In non-technical language this is simply to say that what is *not* there in a word can be as important in conveying meaning as what *is* there.⁴¹

E3.16 Further, consider the pair “man/men” – it is not the phoneme “e” that indicates that “men” is plural (“pen”, for example, is not plural), but the change made to the word; that is, the plural is indicated by the fact of the *process of change* from -a- in “man” to -e- in “men”, i.e. by a *process morph*.

E3.17 Most Greek grammatical morphs are *affixes*, and may be added *in front of* the lexical (*prefixes*), *into* the lexical (*infixes*) or *after* it (*suffixes*). The augment added in front of a verb is a prefix. A durative morph added into a lexical is an infix – thus the lexical of σημαίνω (“I indicate”) is σημαν-, and the -ι- inserted into the present and imperfect tenses is a durative morph. All the morphs added after a lexical are suffixes.

E3.18 There are four common process morphs in Greek verbs: (a) the subjunctive morph, which consists of the lengthening of the neutral morph [#2.77; #4.44(b)] – if there is not a neutral morph already in the form of a word (as in the first aorist) then it involves both adding it and lengthening it (additive morph plus process morph); (b) the lengthening of the neutral morph in the first person singular active (the *lengthening* of the neutral morph in the present stem λυο is what produces the form λύω and it indicates first person singular in the same way as the additive morph -μεν is what indicates first person plural in λύομεν); (c) the temporal augment (lengthening the initial vowel of a verb commencing with a vowel); (d) reduplication: the doubling of the first phoneme of a word,

and then between the two of them inserting *-ε-* in the perfective aspect reduplication morph (as in *λέλυμαι*), or *-ι-* in the durative aspect reduplication infix (as in *δίδομι*: see #E4.44) – this involves both a process and also the addition of phonemes to the word, so it too is a combined additive morph and process morph.

E3.19 A zero morph exists where an affix *could* occur, and where it is the absence of such a morph that is meaningful. For example, the form *ἔλυσα* is recognized as first person singular active of the aorist because in the first person singular middle an appropriate pronoun morph is added (giving the form *ἔλυσάμην*); and similarly there is an appropriate pronoun morph to add for all other persons and numbers of the active and middle voice. Thus it is the fact that *nothing* comes after the aspect morph *-σα* that indicates the person, number and voice of *this* form. Therefore the pronoun ending of this form is said to be the zero morph. Obviously there can only be *one* zero morph pronoun in a flexion; but if there is only the one, then the meaning can be quite clear. Thus: there is a zero morph pronoun also in the Third Conjugation aorist active, but here the absence of an additive pronoun morph is what indicates the *third* person singular (*ἔγνω*, with zero as its pronoun morph, means “he knew”; every other form of the flexion has an affix pronoun morph added to the stem *-γνω-*). The pluperfect active and the aorist passive of all conjugations have a set of endings identical with those of the Third Conjugation aorist active, and thus, similarly, have a zero pronoun morph for the third person singular. The present imperative active comprises only the lexical and the neutral morph (*λθε*) – the pronoun morph is a zero morph. Other zero morphs will also be found.

E3.2 ALLOMORPHS AND MORPHEMES

E3.21 A morph may have more than one phonemic shape. Thus in English “a” and “an” have exactly the same meaning and so are not different morphs (which, by definition, convey differences of meaning) – they are *phonemically* different versions of the same morph, one for use in front of vowels and the other for use in front of consonants. Similarly in Greek “out of” is *ἐκ* before consonants and *ἐξ* before vowels: these two forms convey no difference whatsoever in meaning, and therefore they are not two different morphs; they are two forms of the one morph. These two forms are called *alternative morphs* or *allomorphs* (from *ἄλλος*, “another of the same kind”). The whole group of allomorphs (morphs with identical meaning or function – in the case of *ἐκ/ἐξ* there are only the two) are said to constitute a *morpheme*, while a morpheme is said to be represented by its constituent allomorphs.

E3.22 Thus *οὐ*, *οὐκ*, *οὐχ* and *μή* are allomorphs and together constitute a morpheme (the Greek negative adverb) because they all have identical meaning and differ only in regard to the occasions when they are used. Similarly *ἐν* has the allomorphs *ἐμ* (in front of verbs beginning with a labial or a mu, as *ἐμβαίνω*, “I embark” and *ἐγ* (pronounced “eng” – in front of verbs beginning with a palatal, as *ἐγγρίω*, “I rub on, anoint”). Many other prepositions have allomorphs: for example, *ἀπό*, *ἀπ*, and *ἀφ* are the allomorphs of the one morpheme.

E3.23 The use of movable nu means that numbers of verb forms have two allomorph forms: *ἔστι* and *ἔστιν* contain allomorphs (*-τι* and *-τιν*) as these two forms are identical in meaning. So also for all other movable *ν* forms.

E3.24 Many other examples will be found: the syllabic and temporal augments (#E4.23) are allomorphs; the punctiliar morph *-σα-* has allomorphs (#E4.77); etc.

E3.25 For practical purposes it suffices to note that allomorphs of a morpheme are variant forms that a morph will take (without its meaning being affected) depending, usually, upon which phonemes precede or follow it.

E3.26 In this book, morphs, allomorphs and morphemes are all referred to (for the sake of simplicity and clarity) as *morphs* unless some purpose is to be served by distinguishing between them.

E3.27 By definition, a morph is the smallest element of language which conveys a unit of information. But there are numbers of morphs which convey two (or more) units of information simultaneously and which are nonetheless a single morph because they cannot be further subdivided into segments which are able to be separately identified with each of those units of information. Thus a pronoun morph can indicate simultaneously person, number, and voice: *-μεν* indicates first person plural active voice while *-μεθα* indicates first person plural middle voice; and so on. Some pronouns also indicate past or non-past time: *-ντο* is past time, and *-νται* is non-past (present or future) time. Again, *-κα-* indicates both perfective aspect and active voice. And so on. A morph which conveys multiple information is a *multiple morph* or *multimorph*; but in practice it is rarely necessary to distinguish multimorphs from other (simple) morphs, so the term is not often used in this book.

E3.28 If (as is often the case) a morph only ever has the one form (that is to say, there are no allomorphs), then that particular morpheme comprises only the one morph.

E3.3 ROOT, STEM AND ENDING

E3.31 The basic form from which a word is derived is called its *root*, for which often the symbol $\sqrt{\quad}$ is used. The root may have the same form for different related words (thus $\sqrt{\alpha\rho\chi}$ - in $\alpha\rho\chi\acute{\eta}$, “ruling power”; $\sqrt{\alpha\rho\chi\omega\nu}$, “ruler”, $\sqrt{\alpha\rho\chi\omega}$, “I rule”), in which case it can be called the *word root* or *basic root*. It may have a different form in different related words (thus $\sqrt{\lambda\epsilon\gamma}$ in $\lambda\acute{\epsilon}\gamma\omega$, “I say”, and $\sqrt{\lambda\omicron\gamma}$ in $\lambda\acute{\omicron}\gamma\omicron\varsigma$, “something said”), in which case one would speak of the *verb root* and the *noun root* (or whatever the case may require). The verb root would be the original lexical morph from which all the forms of a verb have derived. The *root* may not appear in the verb itself, or it may only appear in certain flexions or forms. The form in which the root does occur in a verb (whether this form is identical with the verb root, or is modified) is called the *verb stem*.

E3.32 In most First Conjugation verbs, the verb stem is seen in the present indicative active (thus the verb stem in $\lambda\acute{\upsilon}\omega$ is $\lambda\upsilon$ -, and this is also the root). In First Conjugation verbs with two aspect morphs (see #C5), the present tense also contains a durative aspect morph, and for these verbs the verb stem can best be seen in the future forms (thus the verb stem of $\mu\iota\mu\nu\acute{\eta}\sigma\kappa\omega$, “I remember”, is $\mu\nu\eta$ -, seen in the future $\mu\nu\acute{\eta}\sigma\omega$).

E3.33 The verb stem for Second and Third Conjugation verbs is seen in the aorist active. Thus the verb stem of $\lambda\alpha\mu\beta\acute{\alpha}\nu\omega$ is $\lambda\alpha\beta$ -, seen in $\acute{\epsilon}\lambda\alpha\beta\omicron\nu$; and of $\gamma\iota\nu\acute{\omega}\sigma\kappa\omega$ is $\gamma\nu\omega$ -, seen in $\acute{\epsilon}\gamma\nu\omega\nu$ - lengthened from the root $\gamma\nu\omicron$ - by the Short Vowel Lengthening Rule (#E2.34). (The root is found unlengthened in the participle $\gamma\nu\acute{\omicron}\upsilon\varsigma$, $\gamma\nu\acute{\omicron}\nu\tau\omicron\varsigma$.)

E3.34 The appropriate grammatical morphs are added to the *verb stem* to form each *tense stem*, the stem for each of the other tense flexions. The *tense stem* is often therefore simply referred to as “the stem”. Thus $\acute{\epsilon}\lambda\upsilon\sigma\alpha$ - is the aorist active/middle tense stem of $\lambda\acute{\upsilon}\omega$; and $\acute{\epsilon}\lambda\upsilon\theta\eta$ - is the aorist passive stem; and $\lambda\epsilon\lambda\upsilon\kappa\alpha$ - is the perfect active stem. Similarly $\beta\alpha\iota\nu$ - is the present stem from the root $\beta\alpha$ -, which has the lengthened verb stem $\beta\eta$ - (as seen in the third aorist, $\acute{\epsilon}\beta\eta\nu$).

E3.35 To the *tense stem* is then added the required form of the pronoun suffix or other ending (see #E4.9). Sometimes it is convenient to treat the neutral morph as part of the ending (for example, $\lambda\upsilon$ -, stem; $-\omega$, ending).

E3.36 Nouns of the First and Second Declensions add respectively the linking vowels $-\alpha$ - and $-o$ - to their root (#D0.21–#D0.22) to form their stem when taking their numbercase suffixes: $\nu\epsilon\alpha\nu\acute{\iota}\alpha\varsigma$ consists of $\nu\epsilon\alpha\nu\iota$ -, lexical; $-\alpha$ -, linking vowel of the First Declension; and $-\varsigma$, numbercase suffix. The linking vowel is not a separate morph, as it does not in any word convey on its own any distinct meaning. The noun therefore contains only two morphs, the lexical and the numbercase morph. The linking vowel may be taken with whichever of these is more convenient; it is usually