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Introduction
Greek is the lone representative of what is perhaps the best known and the second oldest attested subdivision, after Anatolian, of the IE language family. The relationship of Greek to the bits of evidence which we possess for ancient Macedonian, as well as to the language of the neo-Phrygian texts of imperial times, is difficult to judge. Special affinities within the more remote IE fold no doubt linked the dialect or dialects which were destined to become Greek to others. Among the sister languages which have survived, Armenian is sometimes singled out as sharing significant prehistoric innovations with Greek.

Our oldest Greek texts (fifteenth to twelfth century BC) are the ‘Mycenaean’ documents written in the Linear B syllabary, mostly from Pylos, Knossos and Mycenae. After the ‘dark’ centuries writing emerges once again: while in Cyprus another syllabary was in use from very early days until the Hellenistic age, the ‘epichoric’ varieties of the Phoenician-based alphabet made their appearance in Greece, in the Hellenic West, and among Greeks elsewhere. Not long after the end of the fifth century BC the Ionic alphabet of Miletus superseded other local writings. Aside from inscriptions, our sources are papyri – both utilitarian and literary – from Hellenistic and Roman times, and medieval manuscript copies of ancient literary texts. Material of linguistic interest can be found in works of Greek grammarians and lexicographers, recovered from glosses or loan words in other languages such as Latin, or reconstructed from later forms of Greek.

Alphabetic variation must be kept strictly separate from dialect variation. While the disappearance (or transformation) of each reflects the same broad social and demographic history, it does so in different ways and with small but significant chronological discrepancies. In terms of an admittedly idealized tree, even Mycenaean is already the result of diversification, perhaps into South Greek (Mycenaean, Arcado-Cyprian, Ionic(-Attic)) and North Greek (Aeolic (fundamentally Thessalian), Doric/North-west, Pamphylian) (Risch 1955; Schmitt 1977). Other groupings come later; hence the lucidity with which, for example, Attic, the Doric group, or the somewhat hybrid varieties of Aeolic of Lesbos and Boeotia stand out in the first millennium. Even more evident were the stylized uses of dialect in genres of literature: Lesbian in some of melic poetry; varieties of Ionic in the epic and in
Herodotus and the physicians; Doric in choral lyrics; Attic (mitigated or straight) in tragic dialogue and, later, in many other genres. Here and there poets employed their own native form of speech. With few exceptions, the local dialects themselves were supplanted by the Ionic-Attic based koiné during a period that extends from the fifth century BC to Roman times (see Dialects, pp. 240ff.).

Rich though this attestation is, it carries a good deal of unevenness. The Mycenaean texts are only administrative palace records, written in an uncongenial, ambiguous script, something that is true also of the first-millennium texts from Cyprus. The language of the Homeric epic has roots deep in an oral tradition and in concrete metrical practices that must go back beyond Proto-Greek; but its relationship with the Mycenaean, Aeolic and Ionic dialects as we know them is only partly understood. The oldest known alphabetic inscriptions – both metrical – are the ‘Dipylon pitcher’ from Athens, and the so-called Nestor cup, from an eighth-century grave on Ischia off southern Italy. Archaic and otherwise important material comes from the Doric lands around the Saronic gulf and in some territories colonized from there: Argos, Aegina, Corinth and Corcyra; from Thera, Rhodes and Crete (including the intriguing ποινικαςτάς inscription, and the celebrated fifth-century Gortyn Law); from Olympia in Elis; from Boeotia; not much that is outstanding from Thessaly and even less from Lesbos (where the grammarians’ concern for the literary language makes up for it). More was found in various sites in Arcadia (e.g., a sixth-century dedicatory text from Mantinea); in Cyprus (with the ‘Idalion bronze’ [early fifth century]); in Athens; and, in great profusion, in the Ionian world, including archaic documents from Kyme, Oropos, Keos, Naxos, Thasos, Miletus (especially the extensive sacrificial calendar).

Foreign Influences
Non-Greek influences are tangible only in the vocabulary. Words without good IE etymologies certainly abound. Only some of these may be unique survivals. Those which have plausible but phonologically aberrant IE etymologies (like, possibly, ὀξ ‘pig’ alongside the regular ὄξ) could be borrowed from some shadowy IE sister language. In the remaining instances tell-tale phonological and morphological features – especially derivational suffixes like the ‘Aegean’ -vθ- (οξ) of cultural loan words (e.g. ἀοιδόνθος ‘bathtub’) and place-names (e.g. Τίρυς, Κόρινθος – make it possible occasionally to distinguish, though not necessarily to identify, the source languages, whether Indo-European or not.
Map 9.1 Greek dialects

**Phonology: Indo-European**

At one stage Indo-European possessed:

1. *intonation* morphemes (melodies; mainly in construction with one another)
2. *stress* morphemes (in construction with one another and with other grammatical morphemes) as well as, perhaps,
3. phonological *word-boundary* markers.

Little is known about any of these entities, except that the orthotony of the Greek interrogative τις τί (with acute even in context) may represent an intonational feature of Indo-European (see also 4 below).
There were also lexical and grammatical morphemes with morphs consisting of

4 a word accent of the pitch variety (*', as well as the largely bimorphemic *~, cf., Phonology, Accent, p. 234). The retracted accentuation of several Greek vocatives singular (δέλφι 'brother', δέωτρα 'lord', 'Απολλόν) is a remnant of the IE accentuation at the start of a sentence or of enclisis (cf. Noun and Adjective Paradigms, pp. 244f.)

5 The 'full-grade' short vowels (V), *e, *o (*a[?]).

6 The 'lengthed grade' vowels (V) *ē, *ō (*ā[?]) (see Chapter 2, pp. 52–3), and the long i and u and (V) in monosyllabic nouns like τῶ (see p. 237).

7 A set of resonant phonemes (R) with both consonantal (non-syllabic; C) and vocalic (syllabic; V) allophones:
   (a) the semi-vowels *j [j̆], *w [w/u],
   (b) the nasals *n [n/ŋ], *m [m/ɱ],
   (c) the liquids *r [r/ɭ], *l [l/ɭ].
   (d) here included with the resonants – the laryngeals (*H*), probably, *H₁ [Hɭ/Hɭ], *H₂ [Hɭ/Hɭ], *H₃ [H°/H°]: cf. Chapter 2, pp. 40f.

   Syllabicity largely crops out in such a way as to preclude the accumulation of more than two non-syllabic segments in the flow of speech (with word boundaries playing an uncertain role); hence Sievers' Law (*et[j]e, *et[r]e vs *ekt[i]e, *ekt[r]e) as modified by Lindeman's (1965) Law which regulates word-initial *CR-clusters (cf. Chapter 2, p. 46). On syllabic resonants before consonants and word-end, see pp. 233, 236; on later distinctive syllabicity see also pp. 233, 236, 239f.

   (e) The problematic schwa secundum *[e] a transition contiguous to stops and *s, was apparently governed by much the same rules as syllabicity (but see pp. 232, 233).

8 Pure consonants, consisting of:
   (a) the stops here traditionally and without prejudice to their phonological properties (see below) symbolized *p, *b, *bh, [*ph] (labials); *t, *d, *dh, [*tʰ] (dentals); *k, *g, *gh, [*kʰ] (palatals); *k, *g, *gʰ, [*kʰ] (velars); *kw, *gw, *gwh, [*kwh] (labiovelars), as well as
   (b) the spirants *s.

9 Allophonically the laryngeals colour an adjacent vowel in the way indicated. The divergent yet parallel working of Grassmann's Law (see pp. 235) in Greek (where *bʰ ... dʰ ... etc. > p ... θ ... ) and in Indic (where *bʰ ... dʰ ... > b ... dh ... etc.) is an indication that the allophones of *bʰ, *dʰ etc. were less than fully 'aspirated' when another aspirate followed in the next syllable. In the 'glottalic' view (Gamkrelidze and Ivanov 1973), our *d, *gʷ ... were glottalized rather than voiced, with plain or aspirated articulation for our *t *kʷ ... , *dʰ
While *s was mostly = [s], it was surely = [z] before 'voiced' and 'voiced aspirated' stops, as in *sd, *sdʰ. The nasal, *n, before palatal, velar, and labiovelar stops clearly had the appropriate homorganic allophones.

**Distributional Gaps: Alternations**

Several restrictions stand out because of their morphophonemic aspects.

There was no hiatus originally. Full-grade vowels are contracted at morph seams into long vowels or diphthongs and may in the process generate a new accentuation and new vowels – developments for which Greek (e.g. loc. -oī < *-o + i; dat. -ōn < *o + ejʰ) is our best witness.

Stop/spirant (see 8, p. 231) accumulations, when not relieved by *[e] (see 7(e); p. 231, p. 233), are frequently found simplified by conditioned consonant deletions (e.g. *tkn̩-tóm → *km̩tóm ‘hundred’).

Components of stop/spirant (and, in part, laryngeal) clusters do not contrast separately according to their manner of articulation; in cases of interest to Greek the final consonant of the cluster prevails, with regressive assimilation across a zeroed vowel or a morph boundary – *g + t → *kt, *gʰ [h] + *s → *ks, *p + d → *bd (perhaps also *p + H3 → *b, with subsequent application of the rule *H3 > 0, as in Skt pibati, OIr. ibid ‘drinks’ [see 7(d), p. 231] if *H3 was indeed voiced).

There are no geminated consonants. When they would arise they appear simplified (thus *es + si ‘thou art’ → *esi and Greek εἶ [Hom. ἐοόι is remade; such remakings and otherwise newly created cases of o + o generally appear as o in Ionic-Attic and Arcadian]) except only that *t + t → *tt – presumably by an old analogical restoration.

Here, too, belong the rules that express the compatibility of consonants at the beginning, with consonants at the end, of ‘roots’ (see Chapter 2, p. 53).

The velars, *k etc., take the place of the labiovelars (see 8(a) p. 231) before *u, (*ū, *uH ?), *w.

On ablaut see Chapter 2, p. 51.

Word-initially before consonants (perhaps including laryngeals), some roots show interchangeable forms with and without *#s- (s movable).

**Phonology, Laryngeals: Proto-Greek**

Certain sound changes may belong in the period between Indo-European and Proto-Greek, the common ancestor of the ancient Greek dialects. Foremost are those that in the end eliminate the laryngeals. While some of these may be of IE antiquity the whole process was stretched out over a long time, relative chronologies being difficult to determine.

Under appropriate conditions (see 7(d), p. 231; below) *H1e merges with both *H1 and *e, *H2e with both H2 and *a (?) and *H3e with both *H3 and
respectively. Before vowels, then, both word-initially and after vowel, $H > \emptyset$, with the appropriate colouring effect. Before other syllables that effect is limited.

Word-initial laryngeals before consonants (i.e. before $*CV$, especially $*RV$) seem to develop the Greek prothetic vowels $\hat{e}$-, $\hat{a}$-, $\hat{o}$-, except that $*Hj$- (though perhaps not $*Hj$-; see pp. 248, 259) results in $\hat{e}$-, as in $\zeta\gamma\gamma\vbar\nu\gamma$ ‘yoke’.

$*H1\cdot\gamma > \hat{e}p$, $*H2\cdot\gamma > \hat{a}p$, $*H3\cdot\gamma > \hat{o}p$, $*H1\cdot\eta > \hat{e}n$, $*H2\eta > \hat{o}n$, $*H3\eta > \hat{\nu}n$, etc., before one more consonant (e.g. in $\epsilon\rho\chi\varphi\mu\alpha$ ‘come’, $\delta\mu\varphi\alpha\lambda\omega\varsigma$ ‘navel’ (Rix’s Law; Mayrhofer 1986: 129–30); but apparently $*H2\eta\varsigma\nu > \hat{\omega}n-\hat{\alpha}n\varsigma$ ‘mud’, see pp. 236, 238, 241 (Hoenigswald 1988: 208) as against $*... V\gamma\varsigma\nu... > V\gamma\alpha\nu...$ in $\ldots \nu$) $\delta\alpha\nu\lambda\omega$ ‘thick’, $*d\varsigma\nu\varsigma$ in Hom. Gk $\delta\nu\nu\nu$ ‘counsels’ [cf. p. 241], and $*[H]\gamma\varsigma C$ as in Att. Gk $\hat{\iota}\mu\mu\epsilon\iota\varsigma$ ‘we’ $< *[H]\gamma\mu\mu\mu$; see p. 247).

Internal hiatus due to loss of laryngeal (cf. p. 232) leads to contraction. At compounding seams and, especially, word boundaries this contraction yields to the characteristically Greek phenomenon of elision of the morph-final or word-final vowel (cf. p. 238). Internally before a consonant, all three laryngeals lengthen a preceding vowel, thereby creating new instances of $*i$, $*u$, $*e$, $*\hat{o}$, and $*\hat{\alpha}$ (cf. 6, p. 231).

Also, $*rH2 (= *[\varsigma]H3)$ in syllable-final position seems to end up in Greek as $\rho\nu$ (as against the $ir [\varsigma r]$ of Sanskrit), $*nH2$ as $\nu\varsigma$ etc. In the positions where the laryngeals are syllabic (‘schwa’ vowels; see p. 231; and above), $*H1 > \epsilon$, $*H2 > \alpha$, $*H3 > \omega$.

In environments where laryngeals had contributed to a consonant accumulation and had conditioned the syllabicity of nearby resonants, that syllabicity will under certain circumstances survive before a vowel and thereby become phonemic early; thus, in Greek terms, $*He\cdot g"[H\gamma > \hat{e}\beta\alpha\lambda\varepsilon$ ‘threw’ with the same ‘... $\alpha\lambda\varepsilon$’ which otherwise arises from ‘... ekt][\vbar\varepsilon$ under Sievers’ Law (see 7, p. 231). Possibly $*i$ and $*j$, too, became distinct ($... *i\ldots$ $\neq *... j\ldots$) at an early time.

After a full-grade vowel and before a vowel, i.e. in an environment in which a simple $*j$ is lost (cf. (b), p. 235), $*jH > i$ (e.g. $-\omega$, preserved in Arcadian first-person singular optative $\hat{\epsilon}\epsilon\epsilon\lambda\alpha\vnu\omega$ ‘may I drive out’ $< *-\omega jH\mu$).

**Phonology, Syllabicity, Word-end: Proto-Greek**

Aside from their special treatment around laryngeals, the syllabic nasals and liquids ($*\eta \ldots$, $*\varsigma \ldots$) before consonants were still separately in existence in Proto-Greek; on the testimony of certain Homeric scansions they, on a par with $*i[i]$ and $*u[u]$, were the prosodic equivalents of short full-grade vowels. At the same time, the interior allophonics of $*\varepsilon$, $*\jmath$ were fixed in some measure (cf. 7, p. 231; (d), p. 235): the dialects tend to agree on the
segmentation, though not on the timbre, of the vowels or of the sequences of vowels and non-syllabic liquids, with which *τ and *l ultimately merge (cf. Phonology, Vowels, p. 236). It is also likely that *[e] (see 7(e), p. 231) was on its way to merging with *i into i (e.g. Aeolic πίσυρες ‘four’) in certain circumstances.

Although Mycenaean writing is ambiguous, it is best to assume that word-
final stops were already lost (and that *m went to *n) early in Proto-Greek though after the operation of Osthoff’s Law (see Phonology, Other Con-
sonants, p. 235), thereby imparting a well-defined canonical shape to Greek words and generating alternations like that between ἄνα (voc. sg.), ending-
less, and ἄνωκτ-(oς) etc. ‘lord, king’, and incidentally setting in motion the rearrangement of the thematic verb endings which in turn was mostly, though
not entirely, Common Greek (see Analogic Processes, Verbs, p. 240; Verb Paradigms: Non-past, p. 254).

Phonology, Accent: Proto-Greek
Much of the lexical accentuation of Attic is Proto-Greek. It differs from Indo-
European (cf. Phonology: Indo-European, 4, p. 231) in the limitation of the seat of the accent to the last three syllables, including the retracted (i.e. formerly enclitic) accentuation of finite verb forms in main clauses, and in the way in which further limitations are governed by the quantity of the vowels. These limitations operate on the word shapes as they exist before the contractions across *-s- > ð-, *-j- > ð, or (later) *-w- > ð, and before the change ηα, ηο > εα, εω (cf. Phonology: Dialects, p. 241). However, syllable weight, not vowel length, is what matters for Wheeler’s Law whereby dactylically ending oxytones (~ ~ ) retract their accent to the penult. Otherwise, an accentuation which is neither oxytone nor maximally retracted is limited to a few suffixes ( -ικος, -γάδα, -αλέος, -τέος ...). Circumflex and acute are in contrast on diphthongs and long vowels of word-
final syllables. Roughly, contractions at old morph boundaries and across lost laryngeals have the circumflex in any case. Contractions more recent than that (see Phonology: Dialects, p. 241) show a circumflex only when the first of the two contracted vowels had been accent; this is in keeping with grammarians’ descriptions of the circumflex, and also with the retraction in monosyllabic neuters (οκόρ ‘excrement’) and vocatives (Ζεύ
vs Ζεύς (cf. πάτερ vs πατήρ ‘father’); cf. 4, p. 231; (cf. (c), p. 235; p. 246) and testifies to the phonetic nature of the (earlier) accent distinction (see Phonology: Indo-European, 4, p. 231; Distributional Gaps, p. 232). Long vowels and diphthongs with no known history of contraction have mostly the acute (though έκποδόων ‘away’ may show the true accentuation of the g.pl. ending, earlier **-όν, against analogical ποδόν ‘feet’; cf. Alternations, Accent, p. 239).
Phonology, Other Consonants:Proto-Greek

A good many consonant changes may well be Proto-Greek, sometimes with strong implications for a relative chronology. For example, the 'voiced aspirates' (cf. Phonology: Indo-European, 8(a), 9, p. 231) are devoiced (*dh > θ = [th] etc.).

Once devoiced, the aspirates lose their aspiration when the next syllable begins with another aspirate. Reduplications of the type *bh-e-bh- > *bih-i-bh- become π...φ (πεφυνγα 'I have fled', τιθημι 'place'). Sequences like *bh...du-n-dh- > πυνθ(άνομαι) 'inquire'). This is the Greek version of Grassmann's Law (9, p. 231 and below). Voiceless aspirates and non-aspirates are neutralized in this environment, and epigraphic spellings like θυφλός alongside the standard τυφλός 'blind', as well as paradigmatically regularized orthographies like παυθημι 'let yourself be stopped!' (not **παυτημι, cf. i-θι 'go!') or χυθημι (cf. παυθημα, cp. χέ(F)ω 'pour') arise trivially, presence or absence of aspiration being a property of the entire sequence (cf. above).

*tt (see Distributional Gaps, p. 232) merges with *st into στ (possibly on the basis of an ancient IE isogloss), cf. Chapter 2, p. 40.

*tk(tk), dgh (dgh), > κτ, χθ (τίκτω 'engender', χθον 'earth' (but see p. 232) and Chapter 2, p. 40.

*-nsC- (regardless of antecedent; cf. above) > -σC- ([H]ενσ τοδ > ἐξ τὸ 'into the', *κεντ-τος > κεντός 'pricked'; also σύ-ξις 'yoked together' for *σύν-ξις, one of the indications for ζ = sda [zdα]; cf. Phonology: Indo-European, 9, pp. 231ff.).

*Vnt and similar groups > Νντ etc. (Osthoff's Law), prior to the loss of word-final consonants (see Phonology, Syllabicity, pp. 233–4) as exemplified by ...ηντ# > ...εν# in the third person plural of passive aorists.

More consequential is the way in which *s and *j are affected (see also above).

(a) After a vowel before a consonant or word-end ('in diphthong') they remain unchanged (but see Phonology: Dialects, p. 241).

(b) Still in Proto-Greek, both go to h word-initially and between vowels.

The clusters which ultimately lead to either compensatory lengthening or gemination (cf. Phonology: Dialects, p. 241f.) may have reached a stage with -h- in Proto-Greek times.

(c) Apparently only *s, not *j, will suprasegmentally aspirate a preceding word-initial *H(H)V; ευω 'scald' < *H1ευω- but ου 'not' if < *H2ου (its orthothone shape, a restressed ου replacing *ου? [cf. Phonology, Accent, p. 234]).

(d) Loan words already in existence in the Mycenaean texts (e.g. asamito; cf. Foreign Influences, p. 229), and other developments fill the gap and thereby establish the new h (= hiatus once *φεπε + ι (3 sg.) had become φηει (cf. Verb Paradigms: Non-past, p. 254, also Phonology, Vowels,
as distinct from s. The word for ‘leek’, borrowed by both Greek and Latin (porrum) from a source with some [r]-like sound, was introduced (πρότοον) after the alternation of the old intervocalic *s but before the disappearance of *r as a short syllabic entity (cf. Phonology, Syllabicity, pp. 233f., Alternations, Analogic Processes, p. 238).

(e) The new h and the ‘aspiration’ of stops (both prosodically zero) became associated with each other – a relationship that is further illustrated by the role of h in elision (ἐπὶ + ὤν ἐπὶ ὀν ‘upon which’) as well as by its inclusion in Grassmann’s Law (*segho > ἐκο ‘hold’ but fut. ἐκο (cf. 9, p. 231, Phonology, Other Consonants, p. 235; no such cases with *#) > 0 or with *#) > ὐ [see (g)] seem to be known). The aspiration in *ksn, ksm is post-Mycenaean (cf. Myc. aikisma αἰκίμα, ‘point of spear’).

(f) Inside some other triple clusters, *-s- for some time > 0 (*H₁* > ἐπο ‘do’).

(g) Word-initially *#-r-, *#-r- > ὐ-; in context, for example, in compounds and after the augment, and to an extent in scansion, there is gemination (ἐποκα from ἐπο ‘flow’, IE *sr-). At the beginning of words, *#(H)- > ὐ-, and possibly also *#-r- > ὐ- (πέριο ‘dye’: Skt raj-), in which case every ‘prothetic’ ἐρ- etc. < *#H₁- etc.; see Phonology: Laryngeals, p. 233.

Non-syllabic *-j- after consonant and before vowel undergoes changes which contribute to the complete elimination of *j from the inventory: after labials, *-j- merges with τ (τυπτει ‘strike’); *kj, *gj, *kj, *gj, *kwxj, *gwj, yield a long consonantal entity written variously as σο and in other ways (e.g. ττ in Attic and Boeotian), simplified to σ (or τ) at the beginning of words; *gj, *gj, *gj, and also *dj > ζ (cf. 9, pp. 231f.; and (f) above), *τj, *ωj, and similarly *ts, > ωο (> -α- after long vowels, diphthongs, and consonants and word-initially in some dialects; generally in Attic, etc.).

Phonology, Vowels: Proto-Greek (and earlier)

The full-grade vowels (see Phonology: Indo-European, 5, p. 231), the syllabic allophones of the laryngeals as well as ‘schwa secundum’ (see 7(d), (e)), which merge with them, and *i, *u constitute the five short vowels of Proto-Greek; shortly thereafter, *η, *ω before consonants > α (or > o, according to dialect ?), and *r, *l > α r, αl (or, αλ) after heavy syllables, ρα λα (po λο) after light syllables before consonants. Subphonemically, *u is fronted to [y] though some dialects, like Boeotian, lag behind. Aside from minor local alterations, this part of the system remains stable.

To the five short vowels correspond five long ones going back to:

(a) the old lengthened grade vowels (see Phonology: Indo-European, 6, p. 231),
(b) ὰ and Ὠ in ὠς etc. (see 6, p. 231),
(c) vowels contracted either across morph boundaries or after the disappearance of intervocalic laryngeals (see Phonology, Laryngeals, p. 233),
(d) vowels followed by syllable-final laryngeals (see Phonology, Laryngeals, p. 233), and
(e) long vowels emerging in situations in which syllabic nasals and liquids were followed by laryngeals. The set that results, mostly Proto-Greek, is ἂ, η(=[e:]), ἰ, ω (= [ɔ:]), ύ (the latter largely = [y]; see above). In Ionic, after the borrowing of Old Persian ἁδα- (‘Μηδοί’) as well as after certain compensatory lengthenings (see below) and contractions (χώρη ‘country’, gen. χώρης; ἐμήνοι aorist of μαίνο ‘pollute’), *ἀ is raised toward η < *ἐ, though it does not at first merge with it. However, after ἐ, ὰ and ὴ, Attic merges *ἀ with some compensatory lengthening and contraction products (χώρα, ἐμίανα: χώρας is both genitive singular and accusative plural). This split-off precedes the loss of Ἐ in Att. κόρη < *κόρφα.

Compensatory lengthenings of all kinds (p. 242) create new occurrences of these long vowels, sometimes in environments in which the latter do not or do no longer occur. In certain dialects, e.g. in Ionic-Attic and in ‘mild’ Doric, ἐ and ὰ are, however, lengthened to new long, higher-mid (rather than lower mid) vowels, written ‘spuriously,’ EI and OY in the ‘Ionic’ alphabet: ἐμεῦνα < *-ens-, Μεῖσσα < *-ontj- (see below and Phonology: Dialects, p. 241).

The occurrences of hiatus that may still exist in Mycenaean (cf. (b), p. 235; Analogic Processes, Verbs, p. 240; Phonology: Dialects, p. 242) are elsewhere frequently contracted into vowels and diphthongs, according to local rules. In Ionic-Attic, the sequences ηο and ηω, if not contracted, are changed to εά, εω; as πόλεως < πόλης shows, the word accent is no longer adjusted to the new shape (see Phonology, Accent, p. 234). The most recent of these hiatuses – the ones created by the loss of Ἐ (cf. (a), p. 242 – tend to be contracted later or never (hence, in Attic, γένους < -eso- but ηδησ < -evo-).

Of the inherited diphthongs, ‘*ei’ (i.e. *ej), *ew, *oj, *ow etc., *ei, ου are monophthongized to [e], [o:] in time for merger with the ‘spurious’ ει, ου (which never were diphthongal; cf. above); ‘ου’ of both kinds was then raised to [u:], presumably after Indo-European/Proto-Greek *ʊ had gone to [y:] (see below; special developments in Boeotian and other dialects are here left out of account).

The accent of the newly contracted vowels and diphthongs in word-final syllables is set by the accentuation of the antecedent form: χ+ x > χ, x + x > χ (*εύγενέος[s] > εύγενεῖ, *πλόδος ος > πλοῦς, *ἐσταφός ος > ἐστός (cf. Phonology, Accent, p. 234); παίδων > παιδόν not **παιδών as in monosyllabic stems)). A corresponding rule may be recognized for compensatory lengthenings (see p. 237) if πάς, εῖς represent the true phonological outcome.
Alternations, Analogic Processes: Proto-Greek

Certain survivals in Greek metrical practice notwithstanding, *words* with their proclitic and enclitic appendages, and to a much lesser degree stems in compounds, stand out as fundamental phonological units. The word is the domain of the (high) accent, at least as written in standard orthography from Hellenistic times on; elision has replaced contraction at the seam, which keeps vocalic (*HV-*?) word-beginnings intact (cf. *Phonology, Laryngeals*, pp. 232–3); word-beginning and word-end quite routinely function as conditioners of sound change (above, *passim*) – largely no doubt through analogical generalization from the treatment after and before a genuine ‘pause’. Sentence sandhi variants, mostly generalized one way or the other, live on feebly in the case of ἔξς ‘into’ (proclitic), -ος, -ας – originally in order before #C- (non-laryngeal) – vs ἐνς εἰς, -όνς -όνςς, -ανς -ας (acc. pl.; the (proclitic) ‘article’ showing traces of the original distribution), etc. – originally before #(H)V-. In Declensional forms like πόλιν ‘city’, (acc.) [in] < [im] (rather than the expected [ja] < [jm]), may well be taken as */jm/ with the resonant allophones that are appropriate when #(H)V- follows in context; and the accusative singular ending -αν (Cyprian ἰατεραν ‘ἰατήρα, physician’, Thessalian κιόνων ‘column’) as the erstwhile Sievers variant of *m before vowel respectively (see 7, p. 231). These cases may well have had an analogical assist from the -ον, ἀν of the thematic paradigms (but see also p. 245 on ‘first declension’ accusatives themselves).

Surviving instances of prehistoric contraction at the compounding seam were reinterpreted, in terms of the new device of elision (see *Phonology, Laryngeals*, p. 233) as compositional *lengthening* (ὁμώμος → ὁμώμος ‘like-named’ hence also ἀν-όμμος ‘nameless’). Other morphological lengthenings (aside from the lengthened ablaut grade (cf. 6, p. 231)) remain odd: in comparatives and superlatives, -ότερος -ότερος appears instead of -ός if the preceding syllable is light (see *Phonology: Dialects*, p. 242 on στενότερος), and some ‘primary’ comparatives lengthen their root vowel in Ionic-Attic after the sound change α > η and after the coming into being of the spurious diphthongs: ἄδεσσον ‘nearer’, μεῖζων ‘larger’.

If in some forms of a paradigm a process has eliminated or *de-aspirated* the second of two aspirates, the Grassmann effect (cf. *Phonology, Other Consonants*, p. 235, with data on analogical orthographies in the wake of Grassmann’s Law), on the first is cancelled. This results in alternations like θάδεσσον ‘more swift’ vs ταχύς ‘swift’, θρίξ vs τριχός; also, ἔξω vs ἔχω (see (e), p. 236).

Alternations, Accent: Proto-Greek

The retracted accentuation of finite verb forms reflects the superimposition of the limitation of the word accent to the last three syllables (see *Phonology, Accent*, p. 234) upon the inherited enclisis which is preserved in paradigms
with forms that are sufficiently short, that is, in the verb 'to be' and in φημι 'say'. More recent contractions in verb forms – mostly across *-j- > ð – occur after the retracted accent is already fixed (τιμῶμεν). The basic columnarity – the principle whereby the accent stays on the same syllable – in nouns and adjectives set by the masculine nominative singular (except for the retention of accent alternation in monosyllables (ποὺς πωδός, but also πωδί, in contradiction to the most archaic accentuation seen in Sk. loc. dyāiv'), is in part inherited. Here again the recent contractions come later: χῶρον < *χωρέων < *χωρῆων < *χωρῆ[ς]ων, g. pl. of χώρα. However, the contrast of acute in the nominative and accusative against circumflex in the true oblique cases remains alive and productive as witness the analogical accusative λεχῳ (instead of **λεχῶ < *λεχόμη) and the likewise analogical compensatorily lengthened ἄδωνς and the accusative plural forms in -σῶς-άς on the one hand; and πωδόν vs ἐκπωδόν (see Phonology, Accent, p. 234) on the other. The original accent perhaps survives in πᾶς 'all' and εἷς 'one'.

Analogic Processes, Nouns and Adjectives: Proto-Greek
Greek paradigms of all varieties are greatly affected by allomorph loss (levelling). This is particularly pronounced in the non-themed noun and adjective paradigms which retain only traces of the rich inherited diversification by ablaut and accent. Such traces may for instance be seen in the declension of πατήρ (the allomorphs are πατήρ 'father', πατόρ-, πάτερ, πατρά-), ἄρην 'lamb'. Two opposing forces determine the direction of the levelling: something like:

the columnar principle (see Alternations, Accent) is visible, for instance, in the instances where the lengthened grade appropriate to the nominative singular is carried through (μνηστήρ 'suitor' → μνηστήρος, μνηστήρας; ἄγων 'contest' → ἄγωνος).

But then, conditioned sound change has the effect of:

(a) lining up the sigmatic nominative singular and 'dative' (see p. 244; p. 247) plural and their inherited or analogically restored sibilant endings against the other case forms and their lucid vocalic endings, and of

(b) exposing the endingless variety of the animate nominative singular as well as the endingless vocatives (unless indeed eliminated and replaced by nominatives) and neuters to the loss or alteration of word-final consonants.

These conditions operate in favour of the prevocalic stem being generalized, at least as long as the other allomorph remains phonologically excluded before σ, ζ or at word-end. In Mycenaean, the dative of the numeral 'one' is still (h)eme (< *sem-), with the neuter > ἐν (Phonology, Syllabicity, p. 234); as against ἐν-(i) elsewhere. In general, the analogical changes affecting noun and adjective declension may be classified into
those which serve to make forms in paradigms more uniform (such as the Attic replacement of dative plural -σαι < -ησι by such forms as δειμουσι ‘divine powers’), and those that make different paradigms more uniform.

**Analogic Processes, Verbs: Proto-Greek**

Verbs may be classified by the allomorphic relationship that exists among their stem forms. Where the present stem differs from the general verb stem ('impure' verbs), the alternations mostly reflect the conditioned sound changes affecting *j*. Analogic regularization is prominent in contexts where the intervocalic *s* of the aorist and the future, as in ἔλευσι ‘freed’, ἄλω, was restored ((*γεύο-ω (pres.) > γεύω ‘give a taste’: (*ἐγεύοσσα >) ἐγεύοσσα (cf. Distributional Gaps, p. 232) :: ἄλω : ἔλευσι), or in the replacement of -ἐω (preserved in Elis; < -ἐβο) by -ἐυω (ἐγεύοσσα (ἐλύσα) : γεύο (ἄλω) :: ἔβασαίευσα : βασαλέυω ‘am king’), where the dominance of the general over the present stem is altogether characteristic.

Another typical concatenation of sound change with analogic change, pre-Mycenaean but subsequent to the loss of word-final -t (Phonology, Syllabicity, p. 234) in ἔφερε(τ) may explain the active primary endings in thematic paradigms (see Phonology, Other Consonants (b) (d), pp. 235ff.; Verb Paradigms: Non-past, p. 254).

An example of still another kind of analogic action is seen at work in the verb ‘to be’, where, though generally a high degree of allomorphy is retained, the smooth breathing of ἔστι replaces an expected rough breathing in εἶ (cf. Distributional Gaps, p. 232), εἶ(ι) (< *s-enti), etc.

**Dialects**

As indicated, many developments belong to the several dialects which begin with second-millennium Mycenaean (recorded in the difficult Linear B syllabary) and with the evidence from epic scansion and diction. They are then attested in rich but uneven profusion, both in inscriptions that are written alphabetically (except in Cyprus) in the Greek states and, to an extent, in stylized literary usage. They largely (but not entirely) end with the spread of the Attic Koinē in Hellenistic times. The archaic picture is dominated by a twofold division:

1 South Greek, that is, Mycenaean (which became extinct) and, in later terms, Arcado-Cyprian and Ionic-Attic; and

2 the rest, giving rise to Aeolic on the one hand and Doric-North-west Greek on the other hand. It is difficult to distinguish tentative Proto-Greek reconstructions from the effects of contact among dialects already established.
Phonology: Dialects

In the area of sound change the dialects exhibit some sweeping transformations.

According to the grammarians’ statement, as well as to their practice when dealing with texts, word accent becomes generally retracted, hence non-distinguished, in literary Lesbian Aeolic. In Doric, too, there are modifications.

The labiovelars, preserved as such in Mycenaean and indirectly, in one faint trace, in Arcadian, have elsewhere merged with the labials, except that before front vowels they were palatalized into dentals in the non-Aeolic dialects (though the details are not always clear).

The phoneme *h of whichever origin may be considered as having been preserved though not written in Mycenaean, but between vowels it was not in contrast with θ (hiatus; see Phonology, Other Consonants (b) (d), p. 235f.; Phonology, Vowels, p. 237). At word beginning this h (<>) is extant as a prosodic feature in many dialects, including Attic whereas it is merged with zero in the many ‘psilotic’ ones; the aspiration of stops (θ ϕ χ) is not affected. In the interior of words this loss becomes general.

Word-internal hiatus is progressively eliminated through vowel contraction.

Three processes have particular importance for the dialect structure of Greek.

One is the change from *-t(h)i- to -si- which is South Greek and thus shared by Mycenaean, Arcadian and Ionic-Attic (e.g. τιθηνα ‘places’, λεγονοι ‘they say’ > λέγουσιν, Myc. korisio ‘Corinthian’, with exceptions that remain unclear).

The other concerns an extensive class of consonant clusters in occurrence before vowels. These sequences lead to geminate liquids and nasals in Lesbian and Thessalian Aeolic but to single liquids and nasals with compensatory lengthening of preceding short vowels elsewhere; in this way syllabic prosody (length) is preserved in both blocs. The clusters in question are *sr (> ρρ), *sl (> λλ), *sn, *ns (> νν) in non-psilotic dialects with aspiration on a preceding word-initial vowel; on *-ns- see Phonology, Laryngeals, p. 233); *-rj- > -pp-, *-nj- (as well as *-mj- > *-nj-) > -νν- (and *-wj- > *-j- ?) after *e, *i, *u, while *-arj-, *-anj-, *-amj-, *-anj-, *-omj- (including *-rj-, *-nj-, *-mj-) > αυρ, αυν, ωρ, ουν respectively; *-awj- seems to merge with *-ajw- into -αυ(F)- and ultimately Att. α (Hom. αχτος ‘eagle’, Att. αχτος (but *-ij- remains apart: > -λλ-, except in Cyprus where *-alj- > -αλλ-). The clusters *-sw- and *-ws- (?; see ειω Phonology, Other Consonants, (c), p. 235) are treated like *-sn-, *-ns- (Proto-Gk *naswos ‘temple’ > Lesbian νεως [i.e. -FF-], Lac. ναςως, Ion. νηςως, Att. νεως), *-sj- and *-js- apparently in part like -jH- (cf. Phonology, Laryngeals, p. 232). Clusters like *-nj- gave rise to a new -νσ-, which, along with word-final -νς, when retained or restored earlier (cf. Phonology, Other Consonants, p. 235; Alternations, Analogic Processes, p. 238; see
also Distributional Gaps, p. 232), remained in being (πᾶνος ‘all’) in Arcadian, Central Cretan, Argive, Thessalian (and possibly Mycenaean) went to -ο- (παῖος) in Lesbian and in Cyrenaean, and to Θ with compensatory lengthening (see Phonology, Vowels, p. 237) elsewhere, including in Ionic-Attic. Third, w (F) is lost (> Θ) before vowel at different times in different dialects (modern Tsakonian preserves it): (a) intervocically (still Myc. *newos, Cyprian veFο- ‘νέος’; (b) after liquid or nasal (extant in some dialects; lost in Ionic and in some Doric dialects with, elsewhere without, compensatory lengthening of the preceding vowel, (see Phonology, Vowels, p. 237) – but it was still intact when *-rwad > -ρη in Att. κόρη and when *VCCoteros → VCότερος (rather than -ώτερος: στενάτοτερος ‘narrower’ > στενότερος, like μεσότερος ‘fuller’); see Alternations, Analogic Processes, p. 238); and more resistant; (c) initially, except that it was lost in Ionic-Attic (also, *Fp- widely > #δ-). It is, however, recognizable by its metrical effects in Homer, and by the failure of certain vowel contractions to take place (see Phonology, Vowels, p. 237). Besides, *tw > (o)ο, (x)x, and *kw > κw.

The Ionic-Attic addition of the movable -v to certain suffixes (-e[v], -oι[v], -Θε[v]), whatever its origin, is not a phonological matter.)

Morphology

Both in nouns (and adjectives) and in verbs, non-thematic and thematic formations are to be distinguished. The latter are characterized by the presence of an -ο/ε-, preceding, and frequently somehow amalgamated with, the inflectional endings. Except for some uncertain traces, thematic conjugation fixes one particular ablaut shape of the stem for the whole paradigm. In a non-thematic paradigm, on the other hand, the stem is in principle subject to gradation. In nouns and adjectives the masculine and neuter o-stems of the second declensions are thematic; the α/η/α-stems of the ‘first’ declension, non-thematic in early IE times prior to the destruction of the laryngeals, were assimilated in several respects to the o-stems, which they provide with parallel feminine paradigms. There is a tendency for the thematic inflections to increase in number; most productive formations are thematic.

Some pronouns other than the personal pronouns are thematic in this wider sense (that is, incorporating the first-declension paradigms) – a state of affairs which has facilitated the analogical intrusion of specifically pronominal case endings into thematic noun and adjective paradigms.

Morphology: Noun and Adjective Derivation

Greek has inherited four IE derivational processes for nouns and adjectives, namely compounding, suffixation, reduplication and accent shift (as when agents (τομός ‘cutting’) are distinguished by oxytonesis from objects (τόμος ‘slice’)).
Etymologically, some derivational suffixes are grammaticalized from second members of compounds, as in Hom. ἀραγωνίς ‘furorous’ (built on the likes of θυ-ώδης ‘having the odour (cf. Lat. odös) of incense’ – an example of the most common type of compound, possessive (or bahurvīhi; see Chapter 4, p. 121; for hypostases, see Syntax: Trends, p. 257), though in Greek associated directly with the verb ὀδόωδα ‘smell’). This works well because synchronically, both compounds and words derived by suffix are overwhelmingly exocentric. Examples of endocentric, that is, purely determinative compounds where the meaning of the first member merely narrows down that of the second, are rare and technical in nature, though a few are ancient (e.g. προ-πάτωρ ‘forefather’). Suffixes, too, are rarely endocentric; diminutives, for instance, are not yet well established in ancient Greek and are likely to show their exocentric origins (cf. -ίοςκος with its English cognate, -ish).

Moreover, there prevails a state of quasi-complementarity between compounds and derivatives in the sense that only primitive (βαθύ-ζωνος ‘deep-girded’) adjectives, but not suffixed ones, may function as underlying attributes in compounds (only Hom. θεό-ειδής ‘having a god’s appearance’, not **θεό-ειδής ‘having divine appearance’). Noun and adjectives are built either directly on verb roots (‘primary’) or on existing noun or adjective stems (‘secondary’) that may themselves be derived from roots in turn. It is worth noting that the two comparative and superlative formations are quite different in this respect: while the forms in -ίων (-ιων), -ιπτος are primary and at best coexist with adjectives based on the same root, those in -τερος, -τατος are derived from adjectives.

An inherited paradigmatic relationship obtains among the Caland suffixes: the comparatives and superlatives in -ίων (-ιων), -ιπτος just mentioned are associated with adjectives in -ρός (-ι in compounds) or -ύς, adverbs in -α, neuters in -ος with adjectival compounds in -ης (τοχύς ‘swift’, θάσσων τάχιστος; τάχος n. ‘swiftness’ τάχα ‘swiftly’; κυράς ‘famed’, κυδί-άνώρα ‘famous’, κύδος ‘fame’, n. ἐρι-κυδής ‘glorious’, κύδιον (comp.), κύδιοτος (superl.), κράτις ‘strong’, κάρτα, κράτος κρέσσων, κράτιστος). In the Greek period, adjectives in -νος, -μος, -αλέος, -εδ(α)νός are added to the list.

Declensional Endings
Since IE times, nouns, adjectives, and pronouns are inflected for number (singular, plural, dual) and case. With this framework there intersects the further distinction of gender (animate – that is, masculine and feminine – and neuter) which is semi-derivative in nature. These distinctions are defined syntactically. Of an agglutinating structure in which the endings for case and for number are separately segmented there are only the barest hints, and these are disparate: while the animate accusative plural ending *-ns, -ns suggests, for a remote IE antiquity, the sequence *-m ‘accusative’ + *-s ‘plural’, the...
creation in Aeolic, of a new dative plural, (πόδες 'feet':) πόδεοι. (cf. p. 247) after (φιλοί 'friends':) φιλοι constitutes a much later analogical process implying the reverse order, 'plural' + 'dative'.

Paradigm classes ('declensions') differ chiefly (a) because of conditioned sound changes (thus, -v (< *-m) after vowel in λόγο-ν alternates with -α (< *-η) after consonant in πόδ-α; (b) because of case syncretism combined with the redistribution of suffixes as allomorphs ('dative' sg. λόγοι 'word' < early IE dat. *logo- + -ej (by an ancient contraction) but 'dative' sg. πόδ-ι < locative *pod-i); and (c) because of the invasion of noun and adjective paradigms by pronominal endings and vice versa (see Pronouns, p. 248).

As for the IE inflections for nouns and adjectives see Table 2.10 in Chapter 2, p. 60f.

Noun and Adjective Paradigms: Syncretism
Case syncretism begins in Proto-Greek. The instrumental is separately maintained in Mycenaean though written unambiguously in the plural only (anijapiτάδιφα 'with reins', popî ποδ-φί (ποτ-φί) 'with the feet'). Aside from this, the earlier locative, dative, and instrumental merge into the Greek 'dative', where the surviving endings, one each for each position in the paradigm, may be those of the earlier locative, or of the dative, or of the instrumental. Similarly, ablative (case of 'separation') and genitive merge into the new 'genitive' (cf. Syntax: Trends, p. 257). The old meanings are recoverable from the distinctions observed in traditional case syntax ('dative of time or place' vs 'indirect object' vs 'instrumental dative'; 'genitive of separation' vs 'attributive genitive', etc.) in so far as these are not merely translational devices.

Noun and Adjective Paradigms: *o-stems
The thematic vowel of the e/o-stems ('second declension') is -e- in the vocative singular and anciently in the nominative/accusative/vocative neuter plural; otherwise -o-. The accentuation is columnar (cf. Alternations, Accent, p. 239), except for the isolated vocative singular ὀδελφε (see Phonology: Indo-European, 4, p. 231). 'Contract' nouns (νοῦς < *νόφος) and the so-called 'Attic' (i.e., non-Hellenistic) type (Ηλεως) result from late contraction and the treatment of ὀφο > ὕν respectively, with minor analogical adjustments.

The genitive singular goes back in part to *-o-so > 'spurious' -ov and its equivalents in the non-Attic dialects, an intrusion from the interrogative pronouns, and in part to *-o-sjo > -ovo (Myc. -ojo), Thessalian (and, alongside -oo = -ov, in Homer), at home, perhaps, in the demonstratives. On the dative singular in -oι see Distributional Gaps, p. 232; in Arcadian, Boeotian etc., the old locative (as in the isolated Attic οἰκοί > *-o+i) does duty for the 'dative'.

The nominative plural ends in an -οι of pronominal provenience; cf. the 'dative', below. The accusative plural in *-ons is retained as -ονς in the
Argolid and in Crete, as -οις in Lesbos, and elsewhere as -ως and as -ους, as in Attic. In the nominative/accusative/vocative neuter *-e-H₂ is replaced by the -α of the ‘third declension’. The genitive plural ends in *-o-om > -ων (Cyprian -ω is obscure) with an IE contraction. ‘Dative’ plural functions either as an old pronominal locative (with -ατι for *-su) in the Mycenaean dative-locative ‘-o-i = οί(h)i (e.g. ‘te-o-i’ = theoihi), Lesbian, Old Attic, Homeric etc. -οι with the intervocalic -α- analogically restored; or as a pronominal instrumental form, Myc. instr. ‘-o’ = -ois (e.g. ku-ru-so = khrusois ‘golden’). Similarly, elsewhere -οις, < *-ojs < *-α + ojs (though Lesbian τοις in τοῖς θεοίς could be a truncated proclitic locative).

The dual, where it survives (see Syntax: Trends, p. 257), ends in -ω, probably < *-o-H₁ (inherited at least in the masculine) for the nominative/accusative/vocative, and in Hom. -ουν (< *-oisin?), Arcadian -ουν, generally > -ουν for the genitive/dative’.

**Noun and Adjective Paradigms: *ā-stems**

In the *ā-stems (‘first declension’) an originally derivational H₂ has become amalgamated with preceding and following affixes to form a set of inflectional endings.

The nominative singular feminine -ā, -η (see (e), p. 237) represents *e-H₂-0, and -α (-jα, -α – these variants partly governed by Sievers’ Law; see 7, p. 231) < *-jH₂-0. The masculines have -ζ (νευζαίας etc.), analogically from the o-stems. In the accusative singular, -āν, -ην < *-eH₂-αν (generalized from occurrence before a word-initial η(Η)V-), and (f.) -αν (-jαν, -αν) < *-jH₂-αν (7; cf. Alternations, Analogic Processes, p. 238). There are sporadic vocatives in -α: νύμφα ‘bride’ (Hom.), Att. στρατιώτα ‘soldier’, perhaps likewise < *-eH₂ when before *#(Η)V-; on the accent of δέσποτα etc. see 4, p. 231. The genitive -ας, -ης etc. of the feminines, and rarely for masculines, is best reconstructed as *-(j)eH₂-ας, with a circumflex accent of possibly analogical origin when accented. More commonly, the masculines have endings transferred from the o-stems: Homeric-Aeolic and Boeotian -α-ο, Dor. etc. -ά, Ion. -ηο > -ωο. In Attic, the analogy, say, στρατηγῶν (‘generals (gen. pl.)’): στρατηγοῦ (gen. sg.): δικαστῶν ‘judges’: x has produced the type δικαστοῦ, and further, with appropriate accentuation, πολίτου. The ‘dative’ (j)αί, -(j)η (with Attic -η rather than -α to keep the paradigm orthographically uniform) is < -(j)-eH₂-εί; dialects in which o-stems have the old locative -ατι as a ‘dative’ show the locative form -ατι, < *H₂-i.

The nominative/vocative plural -ατι counterpart to the -οτι of the o-stems (see p. 245). The accusative plural too, is patterned on the *-ons of the o-stems: Proto-Greek *(j)-οις > *(j)-ον in Arcadian, Cret. *(j)ον, Lesbian *(j)ον, Ion.-Att. etc. *(j)-ον. The genitive plural, Hom.-Aeolic *(j)ενον and Myc. *(j)ον, Dor. etc. *(j)ήν, Ion. -(j)έν, Att. -ών with accent fixed – except in the adjectives where the accentuation is made uniformly columnar for
all three genders – due to the contraction across \( y > 0 \), has the original pronominal ending (Proto-Gk \(*\-\ddot{a}s\ddot{o}n\)). In the ‘dative’ the foundation is IE \(*-\ddot{i}\)-\(H\zeta-su\), with Gk \(-\ddot{a}i\) for \(*-su\), hence Myc. \(-\ddot{a}(h)i\), OAtt., Cret. \(-\ddot{a}oi\) (and OAtt. \(-\ddot{a}oi\)), with analogically restored \(-\sigma\), and then, in further parallelism to the o-stems, \(-\acute{\alpha}oi\), \(-\acute{\alpha}ς\) (see p. 245). True to the non-thematic background of the \( \ddot{a} \)-stems, there is a Mycenaean instrumental, \(-\acute{n}i\-\acute{j} a\-\pi\) (see p. 244).

The nominative/accusative/vocative dual is at first \(-\omega\) (Myc. \( to\-pe\-zo = \tau \rho \pi \dot{e}z\ddot{o}\ ‘\tau\rho\alpha\dot{e}z\alpha′\); Att. \( \mu\gamma\dot{a}l\omega\ ‘great (f.)’), then \(-\acute{\alpha}\) (so even in Ionic-Attic!) in analogy to the o-stems. The same relationship exists, \( mutatis\ mutandis \), for the genitive/dative (Myc. \( wa\-na\-so\-i \ ‘kings’ = \( \text{Φωνάςουν} \) but Att. \( \delta\rho\alpha\chi\mu\alphaίν ‘drachmas’ \) and Arcadian \( \kappaράναυν ‘sources’\)).

**Noun and Adjective Paradigms: ‘Third Declension’**

Non-thematic (‘third declension’) nouns and adjectives include stems ending in stops, in \(-\omicron\), in \( \nu \) and Mycenaean \(-m\), in \(-t\), \(-v\), \(-\omicron\), as well as certain heteroclitic nouns. There is much less Greek innovation and Greek productivity here than in the other two ‘declensions’. Paradigms have been elaborately and usefully classified according to their accentual behaviour (Rix 1976: 123–4) which represents in-between states between an anciently ablauting and accent-alternating condition on the one hand and the accomplished columnar principle on the other. Monosyllables have retained the alternating accent.

The nominative singular masculine and feminine is of two kinds which may have been very anciently related to one another by a sound change: (a) zero ending with lengthened grade of the final vowel, that is, \( \eta \) or \( \omicron \) in correlation with the accentual type (\( \epsilon\nu\mu\varepsilon\nu\dot{e} \ ‘\text{well-disposed}', \text{πατήρ}; \text{τέκτων} ‘carpenter’); and (b) ending \(-\varsigma\) with antedesinental ablaut variants, again in some relationship to accentuation but with some analogical obscuration. The accusative singular masculine and feminine ending is \(*-m > -\nu\) after vowels, and, automatically, \(*-\eta > -\alpha(\-\alpha\nu)\) after consonants (see 7, p. 231). The vocative singular masculine and feminine, where it has a special form, is endingless (with replacement of the \( o\)-grade by the \( \omicron \)-grade where the nominative singular has that grade) and may show a retracted accent: \( \pi\acute{\alpha}\tau\acute{e}r, \mu\acute{\alpha}\ ντι \ ‘seer', \dot{\alpha}να \) (with \(-\kappa\# > \theta\#\)). The nominative/accusative/vocative singular neuter is endingless as in Indo-European, often with final zero grade (\( \mu\acute{\epsilon}\lambda\) with \(-\tau\# > \theta\#\), etc.). In the genitive singular, Greek has generalized the ablaut variant \(-\varsigma\). Generally in the oblique cases lengthened-grade or full-grade stem forms intrude; the old zero grade is in retreat (\( \pi\acute{\omega}\tau\acute{r}\dot{\omicron}ς, \chi\acute{\epsilon}ρ\dot{\omicron}ς ‘hand’ < \(*_{\theta}\acute{g}\text{esrós}, \kappa\nu\nu\dot{\omicron}ς ‘dog’, \text{Att. oίος ‘sheep’ < \(*_{\theta}\text{Howjós} \) etc.). The ‘dative’ singular in \(-i\) is one of the two old locative forms (the other is \(-0\), surviving in such adverbs as \( \acute{\alpha}λ\nu, \acute{\alpha}δ\dot{e}ς\)), no longer with full grade in the stem and the zero-grade ending properly unaccented (\( \acute{\alpha}λ\dot{e}ι \ ‘always’, \dot{\acute{\alpha}}\dot{e}ι, \) with acute,
Att. ἂ may be * < αῖφες-ι. In Cor. Cyprian Δι Φεί the true dative ending is preserved. In Mycenaean (though not in Mycenae itself) this ending is in normal use for the dative-locative of all classes (di-we) except that the s-stems show the common -ι (we-ι Φείτει ‘year’).

The nominative/vocative plural masculine and feminine ends in -ες, with analogical adjustments in the stem allomorphs which are in part already Indo-European. The accusative plural masculine and feminine ending is -ν, -ν-ν, originally with zero grade on the stem suffix though in Greek full grade (Hom. ἄνεφεςες) spreads. The nominative/accusative/vocative neuter has generally -Η2 > -α (e.g. Hom. γένεα, Att. γένη < *γενΗ2εςΗ2); whether the type ὁδὸς ‘water’, an old ‘collective’ neuter for stems in -ς, -ν, and -ρ, is linked to -Η2 by a prehistoric sound change is uncertain. The genitive plural ending is *-ομ (earlier *-ο-ομ) with transfer from the *-ο-ομ > *-ομ of the o-stems; the stem shape is usually that of the genitive singular. The ‘dative’ plural has the locative ending -α for *-ς-υ in analogy to singular -ι and to instrumental plural -φι (?); survivals of the original zero grade in the stem include φρασόι (ṇ ... ν ...), and πατρόαοι (with accent according to Wheeler’s Law (see Phonology, Accent, p. 234) after *η > ρη). In Northwestern Greek, -οις is imported from the thematic declension (πάντοις); on -εςι see Declensional Endings, p. 244. These innovations have the advantage of eliminating the effects of the conditioned sound changes affecting s-clusters. The instrumental plural in -φι functions as instrumental (and locative) in Mycenaean where it is clearly distinct from the dative(-locative); this is not true of the (artificial) Homeric use (and probably also the Boeotian use in ἐπιπατρόφιον ‘patronymic’) of -φι as a general oblique not restricted to the plural.

The nominative/accusative/vocative dual masculine and feminine ends in -ε < *-Η1; the stem allomorph is that found in the n.pl. The neuter ὀσόε ‘eyes’ (< *Η2εκέριηΗ1) shows the inherited *-ηΗ1; in other words the masculine and feminine -ε has replaced it. In the oblique dual cases, the thematic -ουν, -οιν has taken over.

**Pronouns**

The Greek personal pronouns contain a core of inherited forms, sometimes enlarged by enclitic particles and modified in other ways. The important elements in the core are first-person singular nominative: ἦγω < *(Η1)εγοΗ2, ἦγων < *(Η1)εγΗ2ομ; enclitic accusative με < *με; genitive Hom. μεν, Att. μον, that is, an innovated *με-μο with the ending of the interrogative pronoun; ‘dative’ μοι < *μοι. Second-person singular nominative: *μΗ2 > Hom., Dor. το-νη, Ion.-Att. σο with ο- from the accusative, and -Η2 > -θ by generalization from antevocalic sentence context; in the accusative, *τε competes with *τε, the latter > ς; the ‘datives’ τοι and οοι are self-explanatory. First-person plural nominative: *(Ης-μεσ > Dor. ἦμμες,
Lesbian ἀμιζες, *(H)μη-με-ες (?) > Att. ἰμείς (see Phonology, Laryngeals, p. 233); accusative *(H)μη-με > Dor. ἀμιζες, Lesbian ἀμιζε, Hom. ἰμη-ες, Att. ἰμείς (similarly, gen. ἰμείων etc.). The second-person plural forms have analogous explanations, starting, perhaps, from *(H)μη- so as to account for Lesbian ἀμιζες, Att. ἰμείς etc. The antecedents of the dual forms, Att. νῶ νοῖν, ὀφο ὀφοῖν are uncertain. The reflexive pronouns (also anaphoric) accusative Φή (Pamphylian), Lesbian Φε, Hom., Att. ἐ, gen. Att. οὖ, ‘dat.’ Att. ὅ go back to *sw-. The forms in οφ- (centring around οφ- ?) are quite obscure. (Possessive pronouns are either thematized (-ο-, -eH2) or derived by -tero/ eH2 from the personal pronouns, hence Att. σός, ἰμητερος.)

The other pronouns show many of the pronominal endings (cf. Declensional Endings (c), pp. 243f.). The demonstrative ὅ ὅ το (< *so, *seH2, *tød – the neuter ending is -d > 0 as in ὅ, ἐκείνο) with its anomalies is ancient (especially the suppletion between τ- and the endingless so in the nominative singular masculine – perhaps a connective particle reinterpreted; in Att. (ἡ δ') ὅ this has been normalized). Particularly striking is the fact that the genitive plural Doric τῶν (Att. τῶν) tallies exactly with Sanskrit tāsām (*tāsöm). The genitive plural masculine is assimilated, like much else in the paradigm, to the nouns and adjectives but had at one time been *tajsöm; the -οj- recurs in the nominative plural masculine. When ὅ ὅ το becomes the ‘definite article’ (see Syntax: Trends, p. 257) it is replaced by composites (ὅδε, ὅνε, τῶνν, τῶνν; οὗτος) of varying opacity. There is, however, the stem of Latin is surviving in Cypriot accusative singular masculine and feminine ιν and in Hom. Μυκ. μν, Dor. νν, if indeed < *(H)im-*(H)im with apocope and assimilation.

With *ίς rimes the interrogative/indefinite pronoun τίς τί (with fixed intonational acute), τίς τί, accusative singular masculine and feminine in the Ωδηνν of the Odyssey (though this is likely to be secondary) once before consonant and once before vowel, οὔτιν(’) ἐγώ... 1 369 – an illustration of how the stem τιν- could have started, under the influence of εὐ(’) with which it was paired (thus Ζην, interpreted in the Homeric text as Ζην’, gave rise to Ζηνα and further to Ζηνος etc.). The etymon is *kwí- (nom. acc.); *kwí-, *kwó-, hence Attic τοῦ and the like. The allomorphs with π- in πόσο(σ)ος (< *kwotj-; cf. Lat. quot(idem)) etc. reflect the treatment of the labiovelars.

The relative pronoun is ὅς (ἡ ὅ) < *(H)jo- (see Syntax: Dependent Clauses, p. 259).

**Verb Paradigms**

For the verb, Greek has increasingly created fully fledged paradigms in which every root has, ideally, the finite forms which result, through the agency of verb stems from the large-scale though not really unlimited intersection of so-called tense and mood with voice, person (in the three numbers), and time reference (‘primary’ vs ‘secondary’), all expressed by (partly segmentable) personal endings. By the same token, it has certain non-finite forms which are
noun/adjective paradigms derived from verb stems or isolated forms of such paradigms. Verb stems are characterized by ablaut, suffixation, and reduplication, but, except for prefixation by preverbs (see Syntax: Trends, pp. 257f.), not by compounding. Past-tense subparadigms in the indicative carry an optional (archaic and poetic) or (later) obligatory prefix, the ‘augment’ ē- (see Verbs: Augment, p. 252). Prehistorically, however, the paradigms are not ‘complete’, and some of the grammatical categories which they are to embody later on are lexical in origin. Aspect differences, for example, were often inherent in particular roots (e.g. (f)dr- was aoristic or ‘punctual’) while they are later carried by the stem-forming devices (e.g. the -od- of the aorist). In such cases, the lexical principle lives on in the guise of suppletion (elídon ‘saw’ vs elífro[v]); no suppletive paradigms are of PIE antiquity. An ancient close and somewhat exclusive relationship between middle voice and perfect tense is visible in the fact that the ‘active’ perfect, with its special endings, is stative in meaning, often still intransitive like the middle and unlike the active in the other tenses, and that the ‘perfect middle’ (kàllîummaí ‘have been, am left’) is innovated. In Homer, active and middle can be nearly complementary: φugí ‘say’, but normally φátó (cf. Chapter 3, Morphological Categories, pp. 81–8).

As a rule of thumb for non-suppletive paradigms, aspectually durative roots (non-prefixed) form relatively simple imperfects and, needing as they do a ‘punctualizer’, relatively complex aorists (mostly σ-aorists), while punctual roots have simpler aorists and more elaborate (e.g. reduplicated or suffixed) imperfects. Aspect, in other words, is visible in the past (‘secondary’) indicative. Beyond that, there is great complexity. In the event, Greek has two complements of stems: of ‘present stems’ (a ‘present’ being the primary tense that goes with an imperfect in stem formation (see above)), and ‘aorist stems’. In addition, there is the perfect system.

Verbs: Present Stems

Root presents, non-thematic (type eímu ‘shall go’): stem equals root; full grade in the singular indicative ipf. and subjunctive, zero grade elsewhere (μεν 1 pl.) except for analogical levelling.

Reduplicated non-thematic presents (reduplication vowel: i (type tìómu)); same ablaut scheme as above (cf. Chapter 2, p. 56).

Nasal presents, non-thematic (cf. Chapter 2, p. 57): (a) νη/να presents (Hom. δάμνημα ‘subdue’) and (b) νι/νυ presents (δείκνυμι ‘show’). These are transformed from the IE presents with nasal infix (full grade -ne-; zero grade -n-(-m-)) between the second and the third consonant of the root (or nasal after the second consonant of the ablauting root; under either interpretation the grades are again distributed as above). In Greek only such instances survive directly in which the third consonant was H₂, so that a present stem *dm-ne-H₂ (or dm-n-eH₂)/dm-n-H₂ from the root *dmH₂- (as in ἀδματος
untamed') accounts for δάμνημι/δάμνημαν/δάμνημεν. The -vv/-wv- presents then go back in principle to *[ne-w-/-n-u from roots ending in -u- (-w-),
*veu- being replaced by -vv- on the analogy -va- : -va- (< -H2-v-; lengthening substitutes for ancient -e- insertion) :: -wu- : x. Nasal presents have been made thematic by analogy with the thematic endings (Ion. τίνουσι 'they pay' ← *k-ι-w-ν-εντί (see Phonology: Dialects (b), p. 242); similar but less telling ἀμπράτανο 'fail', ἀπο-λι-μ-πάνο 'leave') and, by some different route, ὀμνύω 'swear'.

-ε/-o (thematic) presents with e-grade on the root: φέρω 'carry', ἐκο 'drive' < H2-e-, ἐκεί < e-γ-, τιμέω 'shame' < τεφετ-ς, τρέω 'tremble' < tress-, ἀρω 'flow' < sreiv-; frequently inherited. There are no inherited examples in the zero-grade type γράφω 'scratch, write'.

Reduplicated thematic presents with root in zero grade: τίςω *si-sd- (cf. Lat.
*сидо/sedēo), τίκτω *ti-tik- (aor. ἔτεκαν).

-jel presents, (a) primary, with zero grade on the root except in roots without resonants in which the full grade has done duty instead since IE times (οκέπτομαι 'look' with metathesis, IE *spek-j-) and with extensive effects of the sound changes affecting j-clusters, e.g. βάλω 'go' < *g'w-j-; and (b) secondary, that is, in verb stems derived from noun or adjective stems (τιμάω 'honour', ϕιλέω 'love' (a new type in -ω appears from Mycenaean on), γαγέλλω 'report', ϕυλάσσω/ττω 'guard', < ϕυλάκ-ιω, ἐρίζω 'quarrel' < ερίδ-ιω etc.; also τελέω 'attain' (< -s-j- ?)). Verbs in -άω, -εω are non-thematic in Arcado-Cyprian, Lesbian (ϕιλημμ[ι]μ 'ϕιλέω') and Thessalian.

Primary presents in inherited, if semantically ill defined *-ske/sko- are likewise underlain by zero-grade roots: βάλω 'come' < *g'w-m-skéo-, exactly cognate with Skt gácchati which serves there as the usual present from the root. The reduplicated variety, as γη-γνώ-σκω, is only Greek.

**Verbs: Aorist Stems**

There are root aorists with full grade in the first- and second-person plural indicative active as well, in contrast to the presents (see Verbs: Present Stems, pp. 249f.); full grade also in optative and subjunctive while zero grade prevails otherwise. Examples are Hom. ἔφεκα 'wasted away' etc.; in Attic, aside from ἔξεις 'poured' < *-g'hw-m with analogical replacements in the other persons, the formation is limited to roots ending in -eH: ἔβην, ἔβης 'went'. The puzzling indicative singular actives ἔθηκα 'placed', ἔδωκα 'gave', Hom. ἔηκα = Att. ἔκα 'let go' (pl. ἔθεμεν etc.), are Indo-European (cf. Lat. feci).

Non-reduplicated thematic 'second' aorists (ἔβαλε 'threw') seem to be thematicizations, via third-person plural (see Verbs: Present Stems, p. 249) of root aorists (cf. Hom. βλήτο).

The reduplicated variety seems more genuine: Hom. ἔθετον 'spoke' (< *we-wk< dissimilated to *we-jp-) = Skt ávocam.
Sigmatic aorists are on the rise in Greek as elsewhere. Whatever the antecedents, the root vocalism has become identical with that of the present. The *s between vowels is analogically restored. The pervasive quasi-thematic -α- of the indicative (except 3 sg.), optative etc. arose in the first-person singular indicative (> *-s-η) and third-person plural indicative.

The η-aorist with suggestions of an inchoative-stative meaning has its possible IE sources with offshoots in Baltic, Slavic, Germanic and Latin in the form of zero-grade presents in *(e)H₂j- (ἐπάγη ‘it congealed’ (: πηγνύμι ‘fix’)). Later, mostly in Attic, it became a ‘passive aorist’.

The θη-aorist is likewise inchoative and then passivic. Connection with the preterite of Germanic denominatives (Goth. salbōdēs ‘anointedst’) is uncertain.

Verbs: Perfects
The perfect is stative but not inchoative; it denotes a state attained. The Indo-European ‘strong’ perfect stem is characterized by e-reduplication (except that *woj-H₂e ‘I know’ is unreduplicated). The singular indicative perfect and pluperfect active and the subjunctive (?) has originally the ο-grade, the other forms have zero grade (Hom. μέ-μον-α ‘am eager’: μέ-μαμεν (*-mn-); Hom. δείδω ‘fear’ (written for, or actually changed from δέδω) < *de-dwoj-H₂e : δείδετς) – an alternation quite overlaid by analogic levelling. The aspiration of labials and gutturals at root end (τέταχα ‘have drawn up’ from ταγ- (Att. pres. τάττων)) presumably originated in the middle voice where such aspiration was a matter of conditioned sound change (say, in contact with (a)0- in ἔξαχαi (inf.)), then spread to the third-person plural middle where the ending -στα was the only one before which manner of articulation was distinctive (cf. Distributional Gaps, p. 232) and to the active.

The k-perfect, also with the same reduplication and the same endings as the strong perfect, is a Greek innovation – in Homer competing with the strong perfect with full-grade, root-final η-: ἔστμαμεν ‘stand’, but ἐστήκε. In Attic etc. it partakes of the active and often transitive meaning of which it is the resultative, expressing the state of having acted. Its formal prehistory is probably somehow connected with the aorists of the type *ε-θηκα. In later antiquity the perfect begins to function as a past tense.

Verbs: Futures
As far as the futures are concerned, the question is to what extent they are special uses of subjunctives. In ἔδομα (‘shall eat’ (Hom. pres. inf. ἔδεμναι) πίνωμι etc. this is clearly the case. In the case of ordinary -αυ/ο-futures like δείξω this remains the simplest assumption though futures and desideratives in Celtic, Italic and Indic could point to another source as well. Many have a restored intervocalic s where the preceding vowel was long as in τυμήσω ‘shall honour’, the first-person singular having precisely both
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functions. Such a state of affairs was altered only by the analogic introduction of the lengthened thematic vowel in the subjunctives (τεμέω). After short vowels (mostly < -H-), where the consonant preceding them was frequently a liquid or nasal, s was lost by sound change and contraction ensued (τεμέω 'shall cut'), and this was then transferred, especially in Attic, to roots and stems ending in nasals and liquids without any laryngeals (διγγελέω).

Verbs: Augment

The augment, *(H)e-, nearest the verb when in co-occurrence with other prefixes (e.g. προσ-έ-φην 'said'), like other such prefixes marks the point beyond which which finite-verb accent is not retracted inasmuch as those prefixes had borne the accent to which finite verb forms were enclitic in main clauses. The augment is optional in poetry, except in the 'gnomic' aorists expressing sententious truths, and apparently in Mycenaean. It is ε- before preserved consonants (εδίδουν 'I gave', ἔδωκα, ἠδεδώκειν ...). Both *(H)j-e-HC ... (by lengthening) and *(H)e-i-HV ... (by ancient contraction; e.g. *(H)e-H3er-to > *(H)o-or-to > ὁρτο 'arose') will appear as long vowels. Augmented forms from verbs beginning with *#se-, #je- > *#e-, and, later, *#we- > *#e- naturally undergo the more recent contraction into Att. ε- (εἱρπον 'crept' < *(H)e-serpom) unless analogically disturbed. An anteconsonantal augment η- is uncertain. The small class of Homeric and Ionic iterative past tenses in -έκει-ο- (μικρόκεκτο 'battled', στρέψακε 'twisted'; Ἡδ. λάβεσκε 'took') is always without augment.

Verbs: Mood

The subjunctives are formed by adding the thematic vowel, *-e/-o- to the appropriate stem as it appears in the indicative (e.g. Hom. ἤκεν, to match the indic. ἤκεν; sigmatic aorists preserved in certain dialects); if the indicative stem is thematic to begin with, lengthening ensues by ancient contraction (φέρομεν φέριτε), with some further analogical regularizations. In Attic, aside from remnants like ἔσομαι, ἐδομοι which have become futures, these characteristic long vowels are transferred to non-thematic sub-paradigms as well (e.g. aor. δειλεμον).

The optatives are based on the ablauting suffix *-jeH/-iH1. In a non-thematic subparadigm this accounts for such forms as *H1s-jeh1-t > εἰτη, *H1s-iH1-te > *ειτε > εἰτε of the present of the verb 'to be', with full grade of the optative suffix in the active singular and otherwise zero grade, added to this root/stem as it occurs elsewhere in the present. Thematic indicatives are matched by optatives in -οτ- (< *-οτ- < -οiH1 (?) in the expected non-ablauting fashion).
Verbs: Personal Endings

The verbal personal endings, of varying segmentability and linked, in part, by ablaut relationships, may be seen at the intersection of the following variables:

(a) person (1 to 3)
(b) number (sg., pl., dual)
(c) voice (active, middle)...
(d) 'primary'/secondary' imperatives/perfect (the voice distinction is neutralized in the perfect tense; see Verb Paradigms, p. 249). Taken together with stem formation, mood, and augment (see Verbs: Present Stems, p. 249 to Verbs: Mood, p. 253) there is considerable redundancy; the 'primary'/secondary' division, for instance, is distinctive by itself only in so far as it serves to keep injunctives — a verbal category for non-temporal statement perhaps still extant in Mycenaean — apart from non-past indicatives: cf. Chapter 4, Verb Conjugation, p. 111f. Matters may be tabulated as in Chapter 2, pp. 60–2.

The second-person singular imperative is either endingless (Gk φιλε-θ) or, in non-thematic tense stems, has the ending *-θι > -τι. Imperatives could be amplified by affixing the pronominal ablative *to-et > τότ 'from there on forever' (ἐντω). There were further analogical elaborations of these juxtapositions in Greek as in other IE languages.

Verb Paradigms: Past

The tabulation, taken together with the rules of stem formation (see Verb Paradigms, p. 249 to Verbs: Futures, p. 251; Verbs: Mood, p. 252f.), and allowing for modifications by analogy, affecting in particular the verbs έιμι and είμι and imperfects like Attic ἔδειδον, accounts for most of the actual forms.

In the matter of past-tense indicatives it is sufficient to recall that the sigmatic aorists were built up from the first-person singular (*Η-δέ-θη-σ-η > ἔδειξα) and third-person plural active with the result of establishing 'alpha-thematic' conjugation (thus 2 sg. *[Η]-δέκ-σ-σ, was replaced by ἔδειξες etc.). The first-person plural in -μεν (Ion.-Att, Lesbian, Arcadian) against -με (elsewhere) is obscure. The third-person plural partly ends in -ν (as in -ον < * -ο-ντι ἐφερον, partly in -ν (μον < μοιν with analogical -ν from -ον; ἔδειξεν etc.), partly in -ον where it is transferred from the sigmatic aorist, with great productivity in a number of dialects and exclusive currency in Attic tense stems ending in (Greek) vowel (ἔδοον 'they gave').

The first-person singular middle (ἐφερομην), a Greek innovation, is without explanation. The second-person singular ending is -σο (ἐπετεληξό ἦστεν struc thyself' (pluperf.)); σ > 0 after vowel (ἐφερεο > ἐφερον; ἔδειξαο (alpha-thematic (see above)) > ἔδειξω), but analogically restored in


... similarly, the third-person singular has -το. In the first-person plural -μεσθα (Hom.) may be the inherited primary ending (cf. Hitt. -wasta), and -μεθα (secondary) the outcome of the relationship *-μες : -ιμ : -μεσθα : X. The second-person plural in -οθε is puzzling. The third-person plural:

(a) *-ντο in ἐφέροντο;
(b) *-ντο (or *-εντο?) in ἐθεντο (*(H₁)e-dʰΗ₁-το (-εντο?));
(c) *-ντο > -ατο in pluperfects, in the optative, and, fundamentally after consonants or, in Ionic, after *s > θ or *j > θ (Hom. Ion. ἐκέατο ‘lay’, but Attic (innovated) ἐκείντο);
(d) ‘alpha-thematic’ -αντο (ἐδειξαντο).

The dual endings fit the schematic analogies set by the rest of the paradigm.

**Verb Paradigms: Non-past**

In the non-past subparadigm, endings differ in part from secondary endings by the addition of *-ι/ (e.g. 2sg., -s : si). First-person singular active: non-thematic -μι, thematic word-end -ω of whatever origin. Second-person singular: non-thematic -αι in Hom. ἐσ-αι with geminate -ss- restored at an early time from other verbs still having this ending; Att. ἐι (see (c), p. 235; Analogic Processes, Verbs, p. 240) continuing the genuine form. Third-person singular: non-thematic *-τι -τι in ἐστι; > -αι after (Greek) vowel in South Greek dialects (τιθησι). The thematic endings of second- and third-persons singular are to be understood as resulting from two analogical processes, first (α) (after the change of -τι to θι) ἐφέρες : ἐφερε : : φέρετι (> Myc. **pherehi) : φέρει (3 sg.) and then (β), say, ἐφερέ : ἐφερες : : φέρει : φέρεις see (d), pp. 235f.; Phonology, Vowels, p. 237; Analogic Processes, Verbs, p. 240). First- and second-person plural: -μεν, -μες and -τε as in the preterite. Third-person plural: *-οντι is recognizable in Myc. e-e-si (ἐχενοι) ‘they are’ with the South Greek change *τι > si (except after s). Non-thematic stems in Attic have mostly -αι (διδόαι) ‘they give’, presumably from the pluperfect. Thematic stems show *-οντι > Dor. -ονη, Myc. Arcadian -ονι, Lesbian etc. -οι, Ion.-Att. -οι. The dual forms are based on the secondary second-person dual.

In the middle the first-person singular has an intrusive -μ (imported from -μι) in -μα instead of -α. This, in turn, analogically changed second-person singular *-σο in -σου: so after consonants (πεταληξα ‘thou hast been (art) struck’ perf.); -αι after vowels, with appropriate contraction of thematic *ο + αι into -ει (βούλει, though mostly spelled -η) and partial restoration of σ- (πεταλῶσι, perf.) from there. Third-person singular *-τον > Myc., Arcadian -τοι; elsewhere replaced by -ται, as above. First-person plural as in the secondary tenses. The third-person plural forms fall in with the examples for the past tense and the active. The endings 1dual -μεσθον, 2, 3dual -οθον are
based on plural -μεθα and on *-ton (2 3 dual act.), and transformed after -σθεν and -θε (2pl. mid.), respectively.

**Verb Paradigms: Perfect**

The perfect endings are straightforward: first-person singular -α from *-H₂e (Luv. -h); second-person singular: -θα < *tH₂e in οθύθα; otherwise replaced by -αε (perhaps on the model of the aorist); third-person singular: -ε from *e; first- and second-person plural as generally in the active; third-person plural with the alpha-thematic -α (Proto-Gk -αντι which surfaces in Dor. -αντι, Arcadian -αννι, Lesbian -ανα, Ion.-Att. -ανα. The second- and third-person dual (επιτοτον) is part of the same system of paradigmatic innovations as for the other tenses.

The pluperfect active is entirely a Greek creation. Some ancient forms are simply like those of the perfect, except that they allow the augment; e.g. Hom, ἐπέπεπεθέμεν 'trusted'). The later paradigm is obscure in origin. The pluperfect middle is likewise due to an analogical build-up; there is no direct connection with parallel entities in Sanskrit and in Anatolian.

**Verb: Imperatives**

Imperatives compete semantically with injunctives – augmentless secondary tenses – (cf. Chapter 4, p. 116) – which explains why some such forms have actually become, or replaced, imperatives: σχές (from ἐκχων), and following it, θές and congeners. As for other second-person singular forms, τίθει is due, along with other such crossovers, to imperatives from contract verbs (φιλε < φιλεφε). Aside from this, -0 prevails in thematic and certain full-grade non-thematic tense stems (Attic in polysyllabic presents like Ἰοτί), -θι after other non-thematic, zero-grade ones (θοθι from οθικ). Imperatives like δείξου are obscure. The second-person plural dual in -τε, -τον is unremarkable. The second-person singular middle of the type φέροι is injunctival in origin; διώξαμε ‘pursue’ may be an old infinitive (really = διωξαμε, **Verb: Infinitives**, p. 256), suitably reaccented. Third-person singular forms are always reinforced by -τω (in Greek restricted to third person) and its analogical extension for the middle, -στω. There are further analogical elaborations in the dialects.

**Verb: Subjunctives, Optatives**

In IE subjunctives had both primary and secondary endings. The latter survive in Arcado-Cyprian and sporadically in Doric. Remarkable is the Homeric ἀγησι (really ἀγησι = Skt ajáti).

The first-person singular optative found with thematic (φέροιμι) and ‘alpha-thematic’ stems remains a puzzle; Arcadian ἕξελαίνωνα is the last remnant of the expected *-o-iH₁-μ (see **Phonology: Laryngeals**, p. 233).
The third-person plural active in -ēv (<*-ent*) is at home in non-thematic tense stems as in eīēv (cf.Lat. sient). The third-person plural middle has -ατο < *-ητο, replaced in Attic by -ντο (φηροντο).

**Verb: Participles**

The ‘non-finite’ participles and infinitives are, at least etymologically speaking, derivational rather than inflectional.

The active participles other than those of the perfect are formed, from IE times on, with *-ent/-ont/-nt*. Non-thematically it is either the case

(a) that root and tense stem suffix have zero grade and the participle suffix has full grade in the ‘strong’ cases and otherwise zero grade; or

(b) that the root is uniformly full grade and the suffix zero grade (with accent on the root). With thematic tense stems, the suffix is *-nt-*. In Greek the ablauting type has all but disappeared, except for some dialectal traces in the verb ‘to be’.

The perfect active participle has a suffix *-wos-* (in the ‘strong’ cases)/-us- (in the weak; f. -usja > -vια). The place of the old accusative singular preserved in Myc. ἀργυρόφως ‘fitted together’ is taken, already in Homer, by ἀργυρόφα, with -τ-, perhaps from the other active participles by way of the ambiguous -ός of the masculine nominative singular (but the neuter in -ός persists).

The middle participles in μενος (accented -μενος in the perfect according to Wheeler’s Law; see Phonology, Accent, p. 234) have a suffix *-μη-νο/ -μηνο- and Skt -āna-); in Greek the postvocalic and post-laryngeal variety, -μενος, was generalized.

**Verb: Infinitives**

Etymologically, active infinitives are case forms of verbal nouns, independently incorporated into the verbal paradigm by the several IE daughter languages. Greek examples are typically old locatives, either in *-θ* or in *-i* (see p. 246):

Mostly from thematic stems, *-s-en-θ*, Myc. e-ke-e ekheen, Att. etc. εχειν; from an s-stem like γένος, enlarged;

*-men-θ*: Doric, Boeotian, Thessalian, Hom. (Aeolic) είμεν ‘be’ < ει-μεν (cf. neuters like εἶμια [<-*-mη*] ‘garment’);

*-(-e)naj* (see p. 18.3; 245): Arcadian, Cyprian Ion.-Att., Hom.; e.g. εἶναι (< *H*-ηναι), Cyprian δοξέναι, Att. δούναι ‘give’ (from a noun of the type Skt vαν-άνα- ‘lust’ ?).

The analogical developments behind the remaining infinitive formations, Lesbian, Hom. -μεναι (είμεναι), -αι (in -σ-аorists like ἑλάσθαι ‘drive’), and the mid. -θαι are uncertain.
Syntax: Trends

Literature on Greek syntax is immense and sophisticated but somewhat fragmented. Some topics have already been taken up; e.g. those connected with morphology (see pp. 243-57). Generally it has proved easier to identify sweeping developments affecting the whole language over long periods than to find dialectal diversification and other detail. The ‘loss of the dual’, the ‘rise of the article’, the elaboration of prepositional syntax, and the competition between genitival and adjectival attributes are celebrated instances (see also p. 258).

The dual number in noun and verb is inherited. Its gradual disappearance is duplicated almost everywhere in Indo-European; duals and plurals merge into new ‘plurals’; the morphs are usually the old pluralic ones. The dual is preserved in Mycenaean and in Homer (here overlaid with artificial accretions), in Doric and in Boeotian. True to the inherited state of affairs usage is restricted, overtly or anaphorically, to pairs established as such either semantically (όοσε ‘eyes’), or by numeral (Hom. ὁ ὁ δύο). ‘Elliptic’ turns such as πατέρε ‘father and mother’ are survivals and have parallels in other IE languages. In Attic the verbal forms are the earliest to vanish (first persons had been abolished prehistorically). The Atticistic movement of the first century AD gives rise to a contrived revival.

The addition of the definite article furnishes a chronological counterpart to the loss of the dual. In the long view the article is a general Greek innovation which anticipates a widespread if not total IE one. Mycenaean, and possibly the poorly known first-millennium dialect of Pamphylia, do not show it. In Homer (and in poetic language later on) the IE demonstrative ὁ, ἡ, τό (cf. Pronouns, p. 247f.) occurs both in the old and in the new function; expressions abound which, when translated into later prose, require the article (Iliad 1.1 Μῆν... ‘the wrath...’, Odyssey 1.1 Ἀνδόα... ‘the man...’). The shift goes hand in hand with the substitution of new demonstratives to take the place of the old (αὕτων for τόν etc.). Especially characteristic of Greek is the great device of allowing the article to generalize participial expressions like τό ἔξωντα ‘to anyone coming out’ or make all kinds of structures into nouns, syntactically speaking: neuters of adjectives (τὸ καλὸν ‘beauty’), adverbs (τὸ νῦν ‘present’), infinitives (τὸ ἐρωτῶν καὶ ἀποκρίνεσθαι ‘questions and answers’) etc.

Preverbs (prepositions etc.), too, fit into the larger picture. Their threefold use as adverbs, prefixes, and prepositions proper is a synchronic fact for historical Greek. It is the adverbial function which represents the historical centre. As the ‘anastrophic’, orthotone accentuation indicates, ἐπὶ ‘on top’, ἔξω ‘(on the) outside’ are adverbs functioning like other adverbials as independent and somewhat pleonastic elements in the sentence, not tied to any other elements by factors of accentual dependence, selection (‘government’), or word order. But this usage is only a relic. New, often more explicit adverbs (ἔξω, ἐκτός...) take over as the basic, short forms
 Greeks develop mandatory associations with other constituents; thus the archaic...

*γῆς ὁποῖας ἥλθον ‘... from what kind of land I came’ (Soph.), with a ‘genitive of separation’, competes with the innovated (and thenceforth normal) ἐκ Πυλῶν εὐλήλουθες ‘thou hast come from Pylos’ (Hom.) where the very fact that this kind of unaccompanied genitive is obsolescent causes the ‘preposition’ to be ‘governing’ the case form. The preclisis in ἐκ, ἐπὶ (where the grave is no more than a zero sign) is in keeping with this shift. By the same token, a phrase like ἐκ δ' ἤγαγε κλωσὶς Βρούσιδα (Iliad 1.346) simply represents the old state of affairs; only later does it split up, as it were, into ἐκ (τῆς) κλωσὶς ‘(led) out of the tent’ on the one hand and ἐξήγαγε ‘led out ((from) the tent)’ on the other (see also Chapter 13, Prepositions, p. 408). In the latter case semantic change giving an idiomatic meaning to a given adverb + verb construct signals the altered constituency: from the later point of view, ἀπὸ μ' ὀλεῖς (Soph.) ἀπολεῖς με, you will destroy me’ is a classical example of ‘tmesis’, or ‘cutting in two’ a compound verb – not to mention the ordinary augments in ἔξ-έ-βαλε ‘threw out’, ἔξ-ήγαγε. This history is mirrored in the abundant exocentric compound adjectives of the type preverb + noun stem. The Homeric homonyms ἐπιρήτημος, ‘having oars upon it; equipped with oars’ and ἐπιρήτημος, ‘(being) upon the oars; seated at the oars’ illustrate this: one is ‘possessive’ with the adverbial ἐπὶ as a first component (after the manner of ἑνθέως ‘having the god inside, inspired’); the other, a ‘hypostasis’ presupposing an ἐπί that is already a preposition (cf. Morphology: Noun and Adjective Derivation, p. 243). Hypostatic compounds do not, however, militate in favour of exclusively prepositive word order in the underlying phrase since this ordering only reflects the circumstance that compounds need to be inflected. In fact, postpositive word order, in part with ‘anastrophic’ orthotone accentuation, exists – even in Attic prose; ἄλλοπερίς γῆς πέρι (Thuc.) ‘about a foreign land’ – as another facet of the archaic autonomy of the constituents in the phrase (see Chapter 4, Prepositions, p. 120).

Possessive genitives and secondary (see Morphology: Noun and Adjective Derivation, p. 243) adjectives were in ancient competition with each other in Indo-European. Generally, the adjective usage is on the wane. Adjectives of appurtenance show a technical, institutional value, as in the use of Mycenaean and Aeolic patronymics, which are adjectives in -ος (e.g. Thessalian Ἀρχελάτιος), when compared with the style ‘son of … ’ as it prevails in other dialects. Once again, Homer offers both: Τελαμώνιος Αἴας, Α. Τελαμώνιος νῦς vs Πηλέος νῦς (alongside the patronymic nouns Τελαμωνιάδης, Πηληεάδης).
**Syntax: Dependent Clauses etc.**

Greek has inherited at least one device reserved for hypotaxis: the relative pronoun stem, *(H)jo- (perhaps *HΔj-o-*, built on the zero grade of the demonstrative or anaphoric *(HΔ)j-*; see Phonology, Laryngeals, p. 233; Pronouns, p. 248). Other varieties of subordination have a more clearly paratactic origin in Greek and in other IE languages. Indirect questions go back to direct ones (note the uses of τίς, δοτις ‘who’), conditional periods to juxtapositions of wishes (contrary to fact or otherwise as the case may be; this is reflected both in the way in which the conjunctions are paired (Att. εἰθε ‘if only’ vs εί, ἐάν ‘if’) and in the use of the tenses and moods), result clauses with ὅστε to coordination with ὅστε, and so on.

For embedding purposes clauses may be transformed into participial constructions, including the ‘absolute’ genitive (see also pp. 257f.). Mood cannot be preserved in this case but mood-connected devices such as ἄν (κε(ν)) (see below) are.

**Syntax: Word Order etc.**

Enclitics – and de facto enclitics like the oblique cases of αὐτός or like ἄν, the precise cross-dialectal equivalent of enclitic κε(ν) (Chantraine 1968: 82) – take the second place in the phrase regardless of constituency grouping. This ancient, trivial rule (Chapter 2, p. 70), concerning as it does the borderline area between morphology and syntax, is, however, only marginal to the syntax of word order proper. The same is true of postpositions (see p. 258). Apropos of word order it has been said that Greek represents a transition from S(subject)–O(object)–V(erb) order with its contingent accessories such as the location of attributes and relative clauses. These surface phenomena depend, in turn, on the grammar of the stress morphemes (see Phonology: Indo-European, p. 230).¹

**Note**

¹ Extensive reliance on Helmut Rix, *Historische Grammatik des Griechischen* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1976), is gratefully acknowledged.

**References**


