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Chapter 6

Vowel representation in the Archaic Greek and Old Aramaic scripts: A comparative orthographic and phonological examination

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Introduction

The single most transformative feature of the segmental script devised for spelling the Greek language in the ninth (or eighth) century BC was the incorporation into that script of symbols that represent vowel characters, thus rendering it the first fully alphabetic system, if by the term alphabet one identifies a segmental script regularly spelling both consonant and vowel sounds. The Northwest Semitic script that was adapted to create this Greek spelling system, Phoenician, was one that fundamentally operated using only symbols for consonants. This Greek development of distinct characters for vowels stands as a major conceptual advance in the history of writing. As is well known, however, the advent of the Greek alphabet does not mark the beginning of the written representation of Greek vowels. Both of the Greek scripts that are antecedent to the alphabet, Linear B and the Cypriot syllabary, operate fundamentally as vocalic scripts: that is to say, every symbol of those two syllabic scripts that spells a consonant also encodes a vowel value (i.e. CV and CCV symbols), and each of the syllabaries includes symbols for spelling a vowel that is not accompanied by a consonant (i.e. V symbols). In addition, as is also well known, Northwest Semitic consonantal scripts, other than Phoenician, operated with a spelling strategy that utilised consonant characters to mark the presence of a vowel – the characters conventionally called matres lectionis ‘mothers of reading’. In the pages that follow it is argued that, while it was Phoenician symbols that provided the Greek alphabet with its initial set of vocalic letter-forms, there is evidence for Greek adaptation of a system of matres lectionis that characterised Aramaic scribal practice. The discussion will thus entail an examination of Greek utilisation of certain Phoenician consonantal symbols (ʾalep, he, ḫet, ʿayin, yod, waw) to represent Greek
vowel sounds and, in some instances also Greek consonant sounds, vis-à-vis Aramaic orthographic procedures for signalling the presence of /ī/ and /ū/ with the consonantal symbols yod and waw, and the presence of word-final /-ā/ (and /-ē/ and /-ō/) with he.¹

The phonology of Greek vowels and their orthographic representation
As a starting point for this investigation let us begin with Greek phonology and consider the phonemic inventory of archaic Greek vowels. The early Greek vowel phonemes form, grosso modo (refinements will be made below), a symmetrical triangular system, with vowel length being phonemic throughout the system:

<table>
<thead>
<tr>
<th>High</th>
<th>/ī/</th>
<th>/ū/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid</td>
<td>/ē/</td>
<td>/ō/</td>
</tr>
<tr>
<td>Low</td>
<td>/ā/</td>
<td>/ā/</td>
</tr>
</tbody>
</table>

In both the Mycenaean and Cypriot syllabic scripts distinct symbols exist for spelling each of the qualitatively distinct vowels, but, in contrast, vowel quantity is not distinguished in syllabic spelling. In other words, long vowels are not distinguished graphically from qualitatively corresponding short vowels.

This spelling practice of not distinguishing phonemic vowel quantity also by and large characterises the archaic local Greek alphabets. One might imagine that this was a necessary consequence of the finite quantity of graphemic raw material that the Northwest Semitic consonantal script could contribute to its Greek adapters. In other words, the available Semitic consonantal graphemes had to provide both consonantal and vocalic symbols to the Greek alphabet, and in order to accommodate, vowel length was ignored. A necessary premise to this view is the permissibility of not distinguishing phonemic vowel length in Greek spelling practice, which is on display in the Greek syllabic scripts.

The Greek vocalic adaptation of Semitic consonantal symbols
Moving vertically within the oral cavity, from low to high vowel positions, the Greek adaptation of Semitic consonantal characters for spelling Greek vowels can be set out in the following way. Here the adapted Semitic script is identified as Phoenician, as is the widely-held position; Aramaic has been at times proposed to be the donor script (as by Segert 1963), though the proposal has not been judged convincing (see McCarter 1975, 125 note 1 and the discussions of Greek and Phoenician letter-forms on pp. 65–102; and see more recently Krebernik 2007). In terms of phonetic value, the adapted Phoenician consonantal characters are of two types: (1) symbols used for spelling obstruents (both stop and fricative sounds) and (2) symbols used for spelling glides (that is, so-called semi-vowels). Obstruent symbols are adapted for spelling low and mid vowels, glide symbols for spelling high vowels.

The adaptation of the Phoenician obstruent symbols
The initial symbol of the Semitic script, ’Aleph, spells a phonemic glottal stop /ʔ/; Greek had no such phonemic consonant and the adapters assigned to ’Aleph the value of short and long low central vowels /ā, ā/. Semitic Heth (as by Segert 1963) for vowel representation.

The adaptation of the Phoenician glide symbols
The case of the adaptation of Phoenician glide symbols, yod and waw, is at once both simpler and more complex. The automatic phonetic relationship between glides and vowels that leads to the alternation of consonantal [y] and vocalic [i] and of consonantal [w] and vocalic [u] in the appropriate conditioning contexts gives a naturalness to the Greek choice to adapt Semitic yod for spelling the short and long vowel phonemes /ī/ and /ū/ and the choice to adapt waw for spelling /ē/ and /ō/. Precisely the same strategy occurs in Old Aramaic, as we shall see, and thus there is quite clearly historical orthographic precedent within Semitic as well. This is a ‘simpler’ aspect of the Greek adaptation of yod and waw for vowel representation.

¹ The author wishes to express his heartfelt appreciation to Prof. P. Kyle McCarter (Johns Hopkins) and Prof. John Huehnergard (Texas) for their kindness in reading the manuscript of this chapter and offering invaluable feedback.
phonemic inventory of Greek in the early first millennium BC. The adaptation of yod differs, however, from the adaptation of ʿalep and ʿayin in that the Greek language of the adapters was undoubtedly characterised by the presence of a non-phonemic [y] that occurs automatically as the tongue moves into and out of certain articulatory positions (for discussion with bibliography, see Woodard 2014, 61–62). Such an articulation of [y] finds widespread expression in local Greek alphabetic spellings, being represented by an iota, as in, for example, Pamphylian δια (i.e. δια) for δια, ‘through’; Argive δαμιοργο (title of officials [IG IV.506]; and Ionic Διοφανης, for the accusative of Διοφανης, ‘physician’. The Greek letter iota is the adaptation of Semitic yod, and iota appears in the Greek alphabet in the position occupied by yod in the Phoenician consonantal script.

The outcome of the Greek process of adapting waw for spelling the short and long vowel phonemes /ŭ/ and /ū/ shows divergence from the regular Phoenician-Greek positional correspondence that we have thus far observed. The Greek vowel character dubbed u-psilon, adaptation of waw for vowel spelling, appears as a supplement to the Phoenician abecedarium, added immediately after the final letter taw (source of Greek tau). There is, nevertheless, a symbol that appears in the Greek script at the position of waw that shares both the name and the value of the Semitic consonantal character, but not its shape. The shape of this symbol, Greek wau, spelling the glide /w/, would appear to have been influenced by the form of the preceding letter, epsilon, that vocalic character adapted from Semitic he.2

Summary of the adaptation of the Phoenician consonantal symbols

These several Greek adaptations of Phoenician consonantal symbols for use in spelling vowels, as well as consonants, are summarised in Figure 6.1.

Notice that Phoenician obstruent symbols supply the Greeks with letters that represent only vowels, while the glide symbols provide letters that can spell both Greek vowels and consonants. This is not, however, the entire Greek story, as we have already noted. But before completing that story let us consider the use of consonantal symbols for vowel representation in Old Aramaic script.

The phonology of Old Aramaic vowels and the matres lectionis

The inventory of vowel phones in Old Aramaic (the language of the ninth and eighth centuries BC being that of principal interest for the present investigation)3 can be charted in the following way, though the status of the mid vowels and their vocalic quantity in this early period of the attestation of Aramaic is a matter of some disagreement (see, inter alia, Andersen and Freedman 1988, 17, 44; Creason 2004, 398; Gzella 2014, 81; 2015, 38):

<table>
<thead>
<tr>
<th>High</th>
<th>/ɪ/</th>
<th>/ʊ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid</td>
<td>/e/</td>
<td>/o/</td>
</tr>
<tr>
<td>Low</td>
<td>/ä/</td>
<td>/ā/</td>
</tr>
</tbody>
</table>

In the writing of Old Aramaic, consonantal symbols – matres lectionis – could be used to mark the presence of vowels: specifically, the relevant consonantal symbols are (at the least) yod, wau, and he. In this way Aramaic writing differs from the recording of Phoenician language, though matres lectionis do occur at times in the Phoenician writing of foreign names (see Millard 1991, 109, with bibliography in note 7). The

2 Some, such as Jeffery (see Jeffery and Johnston 1990, 18, 24–25), would find a protoform of Greek wau in the cursive waw seen in Samaritan sherds.

3 On the periodisation of Aramaic, its background, and inevitable problems, see, inter alia, the remarks of Gzella 2015, 47–48. For a succinct inventory of the major texts of the ninth century (Kilamuwa, KAI 24 [representing 'the use of Phoenician as a prestige language in a primarily

Aramaic Context' (Pardee 2009, 51 note 2); i.e. the inscription is written in Aramaic script but records Phoenician language and, à la Phoenician scribal practice, uses no matres lectionis (see, inter alia, Cross 1995, 395–396 for discussion of the phenomenon)]; Tell Halaf, KAI 231; Tell Fekheriyeh, KAI 309; Melqart stele, KAI 201; Tell Dan, KAI 310) and the eighth century (Sam'al, KAI 214–218; Zakkar stele, KAI 202; Sefire treaty inscriptions, KAI 222–224; funerary inscriptions from Neirab, KAI 225–226; Kuttamuwa, Pardee 2009; Bukan stele, KAI 320) see Merlo 2014, 109–110.
Aramaic *matres lectionis* – *yod, waw, and he* – constitute a subset of those five letters that we have seen, thus far, to have been adapted for the writing of Greek vowels. One significant difference between the Greek use of Semitic consonantal symbols for spelling vowel sounds and the Old Aramaic use of *matres lectionis* is that in the Semitic case *long vowels* are so marked, whereas in Greek practice a single symbol can mark a vowel for quality irrespective of its quantity.

There is some local variation in the use of *matres lectionis* within the Old Aramaic period. Gzella (2014, 78) would characterise such variation in the following succinct manner. Materials from Sam'al (Zincirli-Höyük), in southern Anatolia, show only the use of *matres lectionis* in word-final position; central Syrian inscriptions show the use of *matres lectionis* word finally and occasionally word internally (see, *inter alia*, remarks of Fitzmyer 1986, 144–145; Rollston 2006, 63); while in the early Aramaic inscription (c. mid-ninth century) in Phoenician script (see Andersen and Freedman 1988, 44; Cross 1995, 395–396, 408–409; see also Kaufman 1982, 142–143)4 from Tell Fekheriyeh in eastern Syria, *matres lectionis* are used to register the presence of long vowels both word finally and, teasingly, word internally (see, *inter alia*, Kaufman 1982, 155–157; Sasson 1985, 87; Andersen and Freedman 1988, 42–47; Millard 1991, 108–109). Such a distribution, Gzella suggests, ‘may result from a greater familiarity with cuneiform spelling in eastern Syria’: it is an interesting notion that clearly references the intrinsic vowel representation of the largely syllabic script of the Assyrians. The idea that the very introduction of *matres lectionis* into Aramaic spelling practice occurred under the influence of Assyrian syllabic spelling is found at least as early as Muraoka 1983–1984 (see Gzella 2014, 86–87). The origin of the *matres lectionis* is likely to be sought in the phenomenon of ‘historical spelling’ (see below) in word-final position. Any Assyrian influence in the matter of vowel representation would likely be limited to a sort of secondary enhancement, following from Aramaean familiarity with Assyrian orthography.

**Old Aramaic *matres lectionis* and Greek glide symbols**

There appears to be overall consistency in the *quality* of the vowels signalled by the use of the *matres lectionis* in Old Aramaic. *Yod* is used to register the presence of /ī/ and *waw* the presence of /ū/. Thus, *mutatis mutandis*, their use in this regard is identical to the Greek adaptation of *yod* and *waw* for spelling the high front and high back vowels. This agreement in Aramaic and Greek use could of course be viewed as coincidental and attributed to the cross-linguistic phonetic relationship between high vowels and glides (i.e. semivowels) to which we earlier drew attention. Yet the phonetic relationship between high vowels and glides would not necessarily obviate the possibility of some historical connection between the two practices, Aramaic and Greek.5

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4 On comparison with other Aramaic inscriptions of the ninth century (possibly late tenth for the Gozan text), with bibliography, see Cross 1995, 394–399, 405.

5 In instances in which *yod* and *waw* mark the presence of the second element of a diphthong, /αι/ and /αι/ respectively, the eventual contraction of the diphthong, to /αι/ and /αι/, would result in *yod* and *waw* effectively also marking the presence of mid vowels – one instance of so-called ‘historical spelling’ (see, *inter alia*, the thoughtful discussion of Andersen and Freedman 1992, 81 and passim).

6 Early examples have been claimed also in the eighth-century inscription of Barrakib from Sam'al (Zincirli-Höyük; KAI 216.15–17; see Tropper 1993, 137).
Thus in archaic Greek, as in Old Aramaic, the glide symbols spell both consonant and vowel phones.

'Alep as an Old Aramaic mater lectionis

There has been a good bit of back and forth regarding the prospect of a fourth mater lectionis in use in Old Aramaic writing practice – namely the letter ʿaleph (see, inter alia, the discussions in Cross and Freedman 1952; Garbini 1956; Koopmans 1962; Fitzmyer 1967; Degen 1969; Segert 1975), which we saw to provide the Greeks with a vowel character, alpha, spelling the short and long vowels /ā/ and /ā/. The most recent thorough examination of the matter is Andersen and Freedman 1992, in which the authors reach, broadly, the same conclusion as set out 40 years earlier in Cross and Freedman 1952. This conclusion is principally negative: Andersen and Freedman contest or dismiss most claimed instances of a mater ʿalep, both word finally and word internally (at least earlier than what they allow to be the use of word-internal ʿalep to spell /-ā-/ in the period of the Dead Sea Scrolls [see Anderson and Freedman 1992, 84]).

They can do so by making recourse to the notion of ‘historical spelling.’ That is to say – ʿalep spells a glottal stop (/ʔ/); there are instances in which a glottal stop occurring adjacent to a vowel ceases to be pronounced through sound change, while the ʿalep that had represented the glottal stop remains fixed in the spelling; thus, the ʿalep would appear to serve no consonantal function, but this is only a consequence of orthographic persistence (ibid., 82–83, 85–86, 88). In other instances, in which the etymology of a word is less clear, they argue that an ʿalep which has been interpreted as a mater lectionis likely actually does symbolise a glottal stop, occurring adjacent to a vowel cease to be pronounced through sound change, while the ʿalep that had represented the glottal stop remains fixed in the spelling: thus, the ʿalep would appear to serve no consonantal function, but this is only a consequence of orthographic persistence (ibid., 82–83, 85–86, 88). In other instances, in which the etymology of a word is less clear, they argue that an ʿalep which has been interpreted as a mater lectionis likely actually does symbolise a glottal stop, notably in the case of the suffix -k that indicates definiteness, which they would read as /-ʔk/, as opposed to /-āk/ (ibid., 83–85); though they allow (p. 83) that orthographic perseverance might possibly also be at work here (i.e. that the glottal stop had ceased to be pronounced).

The most likely possibilities for the use of ʿalep as a mater lectionis in Old Aramaic are provided by certain particles, chiefly the clitic conjunctions spelled as w- and p- in KAI 214 and 215, eighth-century inscriptions from Samʿal, products of the reigns of the Aramaean kings Panamuwa I (ruled c. 790–750 BC) and Panamuwa II (ruled c. 743–733/732 BC), respectively (on whom see, inter alia, Younger 2016, 413–419; for the inscriptions from Samʿal, see Tropper 1993). The spellings with ʿalep contrast with expected w- and p-. Andersen and Freedman are quick to embrace the possibility that the particles spelled with ʿalep actually end in a glottal stop, being variants occurring ‘in a regional dialect’ (1992, 87), and fall back on a default position expressed throughout the study: ‘Why didn’t they use he?’ – a reference of course to the recurring Old Aramaic use of he to record word-final /-ā/. Might the answer be here that the ʿalep is recording the presence of a clitic-final – not actually word-final – vowel? And/or, might the vowel it is marking be short /-ā/ – which is surely the anticipated vowel in at least the case of w-? In the end the authors appear to give some allowance to the prospect that in the eighth-century Aramaic of Samʿal ʿalep might serve as a mater lectionis, writing (ibid., 87):

And even if these alephs were used as vowel letters rather than the well established he, the practice was restricted to a few special particles, and very circumscribed in both space and time; that is, it cannot possibly be recognized as a central and lasting contribution to Aramaic spelling.

Concerning the use of ʿalep as a mater, it should be noted too that in the consonantal script of the Phoenicians of Cyprus ʿalep is frequently used in word-initial position to signal the presence of a prothetic e-vowel. Thus, the demonstrative pronoun, masculine ‘zēd and feminine ‘zdō (for the masculine compare Punic spellings in Latin script, esde and esse), is spelled ʿzē, attested already in the eighth century BC (see Harris 1936, 23–24; Woodard 1997, 172; Krahmalkov 2001, 17–18, 21–22, 76–77; Hackett 2004, 367, 376; Steele 2013, 196–199).

He and the mid front vowel phonology of Archaic Greek dialects

As Andersen and Freedman have just reminded us, he is the Aramaic mater lectionis that records the presence of the long vowel /ā/ in word-final position. Let us recall as well that he can also signal word-final mid vowels /-ē/ and /-ō/ as early as the Tell Fekheriyeh inscription. When Semitic he was adapted as a Greek vowel character, i.e. e-psilon, it was used to spell both short and long e-vowels as was noted above. This characterisation, however, requires further explication in that one can identify one single long mid front vowel in ancient Greek dialects. On the one hand, there is that long e-vowel that continues Proto-Greek ʰe (as in the final syllable of Attic μητήρ, Doric ματήρ, from *mātēr ‘mother’). On the other, there is a qualitatively different long mid front vowel that arose secondarily (as in είς [spelled with an ei digraph], from earlier *esmi ‘I am’). The former (inherited) is typically judged to be a somewhat lower vowel than the latter (secondary) mid vowel; plotting this lower vowel (/ē/) into Greek vowel space would produce an arrangement of front and central vowels such as the following:

| High   | i/ι |
| Mid    | ē/ε |
| Low    | ā/ ā |

7 To this they add (p. 89): ‘Admittedly it is a difficult case, but even if it were agreed that the aleph in these circumstances is a vowel letter rather than a consonant, then it should also be noted that this usage of aleph was experimental, sporadic, and evanescent, since it was not carried forward in the standard spelling procedure of later Aramaic inscriptions.’

8 The word for ‘two’ is also spelled with a prothetic vowel signalled by ʿalep in an inscription from Larnaca (CIS 1.10.3).
In some local archaic Greek alphabets e-psilon is used for spelling both of the long mid front vowels (/ē̞/ and /ē̞/), but not in all. Although Attic and Ionic are closely related dialects – forming a dialectal subgroup – archaic Attic and Ionian alphabets differ in this regard, with distinct symbols being used for the two long mid front vowels in Anatolian, i.e. East, Ionian alphabets but not in Balkan, i.e. West, Ionian or in archaic Attic alphabets, which thus tolerate a degree of qualitative, as well as quantitative, ambiguity. In Aegean insular, i.e. Central, Ionian alphabets the situation is different still, and to this matter we shall soon turn.

The Attic-Ionic shift of /ā/ to /ē̞/

With regard to the Attic and Ionic dialects we need to peel back yet another layer of phonological complexity in the matter of the long mid front vowels. Common to Attic-Ionic is the shift of inherited long /ā/ (the low central vowel) to /ē̞/ (the lower mid front vowel). In other words, in Attic-Ionic the inherited long vowels /ā/ and /ē̞/ merge as /ē̞/ (as seen in the two syllables of Attic μήτηρ ‘mother’). This is usually understood to be a change that was initiated in a Proto-Attic-Ionic period – in other words, prior to the migrations of Ionic speakers to Anatolia, c. 1050–950 BC (on the migrations, see recently Herda 2013, 426–428). The change was thoroughly in Ionic (including West Ionic), but in Attic /ā/ was preserved when it followed the vowels /i/ and /e/ and when it followed the consonant /r/ (cf. Ionic χώρη and Attic χώρᾱ ‘space’). It is generally held that the Attic-Ionic diachronic shift of /ā/ to /ē̞/ passed through an intermediate stage in which the changing phoneme was manifest as a long low front vowel /ā/; in other words, /ā/ → /ē̞/ → /ē̞/. The failure of the shift to occur in Attic after the sounds /i/, /e/, and /r/ is commonly interpreted as an Attic Rückverwandlung – a réouverture – from /ē̞/ to /ā/ in this phonological context. Some instances of the secondary long vowel /ā/ arose early enough to take part in the change to /ē̞/; others developed subsequent to the completion of the change and remained /ā/ (see, inter alia, Szemerényi 1968; Lejeune 1982, 235–236, 369; Ringe 2003, 247–250).

The chronology of the Attic-Ionic shift

An absolute chronology of the changes is a matter of approximation (on the relative chronology of the change, see Lejeune 1982, 369; Gates 1976). Alan (1987, 23) suggests about 900 BC for the shift of /ā/ → /ē̞/: if correct it would mean that the realisation of /ē̞/ was achieved independently in Attic and Ionic (as they had separated by this date), a feasible scenario, though one might wonder if the date is a bit too late and that the shift was in progress prior to the Ionian migration. For the further shift of /ē̞/ → /ē̞/, Alan (page 24) would propose a date of c. 700 BC for Attic, which is perhaps about right for Attic: the seemingly earliest attestations of the shifted inherited */ā/ are spelled with e-psilon (c. 625–600 BC; see Threatte 1980, 130–132; see also Jefferies and Johnston 1990, 71), though even if the Attic vowel sound were still somewhat lower than /ē̞/, e-psilon might very well have been the letter co-opted for its representation. In any event, at least non-Balkan Ionic must have lagged somewhat behind a 700 BC date in light of the apparent alphabetic attestation of the low front vowel /ā/ in Central Ionic c. the middle of the seventh century, to which we shall return shortly.

Het as a Greek consonant and vowel symbol

These observations regarding the shift of /ā/ to /ē̞/ return us to considerations of the Greek adaptation of Semitic consonantal symbols for vowel spelling, as there is one additional instance of such adaptation beyond the five cases considered thus far: those of ἁλήπ, ήε, ής, γόδ, and ως. The Semitic letter he, representing in Phoenician another obstrener – a voiceless pharyngeal fricative /ħ/ (on he and its value see Woodard 1997, 136, with notes 9 and 10; Hackett 2004, 367–370) – was adapted as the Greek letter eta or heta, the latter being the earlier name of the letter, which will be used herein. Much as in the case of iota and wa, the letter heta could be used to spell both a consonant and a vowel of Greek. The consonant that it represents is the glottal fricative /ħ/; the vowel is the lower long mid front vowel that we have just been considering, i.e. /ē̞/, as spelled, for instance, in archaic East Ionian alphabets. In the various attested local archaic Greek alphabets these two values are distributed, to a certain degree, in a complementary fashion: some use the symbol for its consonantal value and some for its vocalic value, and these latter are the alphabets that record the so-called psilotic dialects – being those that appear to lack conspicuously the consonantal phoneme /ħ/ in word-initial position – the position to which occurrence of this consonant is commonly restricted in the Greek language of the first millennium BC. East Ionic is one such dialect, as is Lesbian, the Aeolic dialect of Asia Minor. That Lydian too is a language that fits this description clearly suggests that absence of word-initial /ħ/ is a Sprachbund feature of western coastal Anatolia, as Oettinger (2002) has argued (see also Melchert 2014, 70; regarding so-called psilosis in Carian see Herda 2013, 422 note 5, with bibliography). This is further borne out by the Ionic dialectal divergence in occurrence of word-initial /ħ/: only East Ionic is so characterised, revealing that the loss of /ħ/ occurred relatively late, after the dialectal separation of Central and East Ionic from one another.

This complementarity in the use of heta in epichoric alphabets may reasonably be viewed as the consequence of several factors: of the phonemic inventory of Greek dialects; of accepted Greek spelling practices; of the process of the spread of the alphabet within the archaic Greek world. Thus, if a dialect lacks the consonant /ħ/, self-evidently its speakers would have no need for an alphabetic symbol representing that sound (at least for writing their own dialect). Greek alphabetic practice tolerates quantitative ambiguity; hence, the letter e-psilon, from Semitic he, would effectively constitute the default symbol for representing both the short and the long mid front vowel – and, as we have noted, it was in fact so used in various archaic Greek alphabets.
(even if this entailed some qualitative difference). Given such tolerance, when a dialect possessed the consonant /h/, then heta, one might imagine, was preferentially employed for consonantal, rather than vocalic, use, with epsilon reserved for the latter.

However, there are archaic alphabets in which heta serves both functions, consonantal and vocalic (for additional considerations of a still broader use of heta-symbols in archaic Greek alphabets, see Woodard 2014, 36–46). For example, in the alphabet of Rhodes, in the southeastern Aegean, where a Doric dialect was spoken, heta (either \( \text{-h} \) or \( \text{-e} \)) was used to spell both /h/ and the long mid front vowel (see Jeffery and Johnston 1990, 28, 345, 348–349). West of Rhodes, in the Cyclades, the same bivalent arrangement characterises the alphabet of Doric-speaking Thera (see Jeffery and Johnston 1990, 308, 317). To the north of Thera, on the Cycladic island of Paros, home to a Central Ionic dialect, heta (\( \text{=} \)) regularly spells the vowel and sometimes the consonant (see Jeffery and Johnston 1990, 28, 289, 294). Compare the alphabet of Rhodes’ neighbour Knidos (also Doric speaking) in which heta again serves both a consonantal and vocalic function but with the difference that in its use to spell the long mid front vowel the form of the symbol (\( \text{=} \) or \( \text{=} \)) was modified to \( \text{=} \). Knidos thus uses different symbols for the short and the long mid front vowels, epsilon and heta respectively, but at the same time retains (unmodified) heta for spelling the glottal fricative /h/ (see Jeffery and Johnston 1990, 28, 345–346, 351). A similar, though different, situation may obtain in the alphabet of Doric-speaking Corinth. In the Corinthian alphabet heta is used to spell the consonant /h/ while a single letter is used for both the short and the inherited long mid front vowel, but that letter appears likely to be a modified form of the heta-symbol \( \text{=} \), one produced by rounding the forward-facing vertical segments to give the shape \( \text{=} \) (Jeffery and Johnston 1990, 24, 28, 114–115).

Perhaps most interesting of all is a still different permutation. In the mid-seventh-century BC archaic alphabet of the Cycladic island of Naxos (Ionic speaking), heta (\( \text{=} \)) is again used to spell both the glottal fricative /h/ and a long vowel (on the so-called Nikandra statue [SEG XIX 507]; see, inter alia, Jeffery and Johnston 1990, 291 and pl. 55, 2; EG 1, 154–156, with figs 38 a–c; Buck 1955, 189–190; Heubeck 1979, 124–125, with Abb. 52; Woodard 2014, 38). The vowel that is so spelled, however, is only the vowel that arose in Attic Ionic from inherited /ā/. In contrast the inherited long mid vowel /ē/ is spelled with epsilon. That the heta-symbol is reserved in Naxian Ionic practice for spelling only the shifted vowel most probably reveals that the quality of this vowel in this attested dialect is distinct from that of the inherited long mid front vowel. In other words, Naxian spelling is usually understood to preserve the long low front vowel /ē/ – the intermediate vowel in the Attic-Ionic shift /ā/ → /ē/ → /ē/. Thus, the Ionic dialect of the Cycladic island of Naxos of c. 650 BC shows an array of front and central vowel phonemes of this configuration:

\[
\begin{array}{ccc}
\text{High} & 9/1 & \text{Mid} & 9/3 & \text{Low} & 9/5 \\
\text{}/\text{e}/ \rightarrow \text{}/\text{e}/ \rightarrow \text{}/\text{e}/ & \text{}/\text{a}/ & \text{}/\text{a}/ & \text{}/\text{a}/ & \text{}/\text{a}/ \rightarrow \text{}/\text{a}/ & \text{}/\text{a}/ \rightarrow \text{}/\text{a}/ \rightarrow \text{}/\text{a}/
\end{array}
\]

A similar array is attested by inscriptions in the alphabets of the Ionian islands of Keos and Amorgos (see Smyth 1894, 167). The long low central vowel /ā/ is here placed in parentheses. One fully expects that the shift to /ā/ was no longer a productive process in this period and that new instances of the long vowel /ā/ had been generated (on the phonology and its relative chronology, see, inter alia, Lejeune 1982, 131–132, 369). By the last quarter of the seventh century a Naxian example is in fact attested in the aorist participle neseaoa ‘having made’, found in a dedication on the base of the Euthycartides kouros (ID 1; see Jeffery and Johnston 1990, 291; on the inscription see recently Hurwit 2015, 3–10). The distribution of this secondary long vowel /ā/ would, however, have been somewhat restricted in comparison to /ē/. Allen (1987, 23–24) would date the appearance of the new instances of /ā/ to about 800 BC. If the date is accurate, or even close, this could very well mean that the crafting of the Greek alphabet began at a moment when Ionic possessed /ā/ and /ē/ but lacked /ā/. In contrast, outside of Attic-Ionic, inherited /ā/ would have still been robustly attested in this period.

There are further alphabetic corollaries to these phonological observations. One corollary is that at the time of the Greek adaptation of the Phoenician script alpha would have been used relatively more frequently, if not exclusively, for representing the short vowel /ā/ among Ionian speakers. Furthermore, if the shift of /ā/ → /ē/ occurred c. 700 BC, or somewhat later, as must be the case in the eastern Mediterranean, then at the time of the Greek adaptation of the Semitic script the vocalic value assigned to heta among Ionians would have been /ē/. Other dialects present in the eastern Mediterranean in the ninth century lacked this vowel, still possessing /ā/ instead. Cypriot is a notable example. For speakers of a dialect such as Cypriot, heta could function to represent the glottal fricative /h/. For speakers of Central Ionic dialects, such as Naxian, heta would serve both functions, spelling /ē/ and /h/. And let us recall that the loss of /h/ from East Ionic must have been relatively late.

I am of course here operating with the premise that the Greek adaptation of the Semitic script took place within a particular dialect context; in other words, the phonological inventory of some particular dialect – or, in the right setting, dialects, as I believe was the case – provided the targets for assigning Greek values to Semitic

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9 On both Rhodes and Thera, heta is used to spell both inherited /ē/ and a vowel /ē/ that arose secondarily by lengthening; see Buck 1955, 28–30.

10 For the secondary long mid front vowel, the alphabet of Knidos sometimes uses heta, but not most commonly; see Thumb and Kieckers 1932, 197.

11 Jeffery contends for this interpretation of Corinthian e-symbol c, following Gercke 1906, 547–548. For the view that the Corinthian character is a modification of epsilon (rather than heta) see McCarter 1975, 81. For the dialect phonology see Buck 1955, 30.
characters. In any case heta will acquire dialect vocalic values as the Greek alphabet spreads. Moreover, as that alphabet spreads so will the use of heta to spell the glottal fricative /h/. What this means is that with the spread of an abecedarium there is an accompanying spread of what might be called para-alphabetic knowledge, one element of which is the knowledge that heta can be used to spell either a consonant /h/ or a long non-high front vowel, part of a rudimentary pedagogical tradition. Summarising these various observations, a Greek adaptation of heta can be schematised as shown in Figure 6.2.

Heta and he as functional equivalents

It has often been remarked upon that for representing the Greek glottal fricative /h/, the adapters utilised not the Semitic symbol having that value, i.e. he, but used instead heta, the symbol for the pharyngeal fricative /ħ/.

What has not been noticed before, I believe, is that Aramaic he and Greek heta (from heta) show a degree of functional similarity. As we have seen, Old Aramaic he spells both the consonant /h/ and, as a mater lectionis, the long low central vowel /ā/, in word-final position only. Archaic Greek heta spells both the consonant /h/ and the long low front vowel /ǣ/ (which had shifted historically from the long low central vowel /ā/, though this shift must have been pre-alphabetic). While there is no indication that the use of heta was ever limited to word-final position, nor would that be anticipated, the vowel that archaic heta spelled, i.e. /ǣ/, which later shifted to /ē̞/, had a disproportionately heavy and conspicuous morphological distribution in word-final syllables, owing to its occurrence in the paradigmatic marking of the Attic-Ionic first declension – the predominantly feminine noun declension, as in this Ionic paradigmatic pattern:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative/vocative</td>
<td>-ē</td>
</tr>
<tr>
<td>Genitive</td>
<td>-ēς</td>
</tr>
<tr>
<td>Dative</td>
<td>-ἔ</td>
</tr>
<tr>
<td>Accusative</td>
<td>-γν</td>
</tr>
</tbody>
</table>

Heta, then, in its vocalic role, spelling /ā/ in word-terminating phonological contexts was pronounced as a lower front vowel, phonetically similar to tonic /ē/? Possibly – at least in some subset of such contexts. Gzella (2015, 38) suggests that it was ‘presumably’ in the early Old Aramaic period (by which he means ninth to eighth century BC, the period that here interests us) that ‘syllable-final glottal stops began to disappear … with the typically Aramaic shift of /ā/ to /ē/, which suggests that /ā/ sounded like [e] before /ʔ/’. The very idea of such a shift, however, seems mired in controversy. In any event, word-finally instances of both /ā/ and /ē/ were spelled with he (functionally equivalent to Greek heta) as early as the ninth-century script of the Tell Fekheriyeh bilingual, whatever the phonetic particulars of the vowels.

‘Aleph, symbol for the glottal stop consonant, was adapted for spelling Greek short and long /a/. Is it possible that a locally restricted Old Aramaic practice of using ‘aleph to spell /a/ in limited contexts provided inspiration for a Greek adaptation of ‘aleph for spelling the a-vowel phoneme? Notice a-vowels occur conspicuously in alternation with /ē/ (later /ē̞/) in the first-declension paradigmatic pattern illustrated above. Does a local Aramaic alternation of he and ‘aleph for spelling (phonetically variant) forms of the Semitic a-vowel inform the Greek adaptation of ‘aleph to alternate orthographically with heta – functional equivalent of he – in spelling a paradigmatic pattern showing phonological alternations of /a/ with /ē/ (later /ē̞)?

We have just noted again that Greek heta provides a functional equivalent to Old Aramaic he. There is another important observation that leads on from this. In the Greek adapters’ decision to make the formal substitution of he for heta, each of the three

<table>
<thead>
<tr>
<th>Greek Adaptation</th>
<th>Phoenician Original</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoneme</td>
<td>Grapheme</td>
</tr>
<tr>
<td>Phoneme</td>
<td>Grapheme</td>
</tr>
<tr>
<td>/h/</td>
<td>he</td>
</tr>
<tr>
<td>/ǣ/</td>
<td>heta</td>
</tr>
<tr>
<td>/ē̞/</td>
<td>eventually</td>
</tr>
</tbody>
</table>

Figure 6.2. Greek Adaptation of Het.
matres lectionis of Old Aramaic, mutatis mutandis, would also provide Greek speakers with letters having both consonant and vowel values – exactly as in conventional Old Aramaic writing practice, as summarised in Figure 6.3.

The pattern of Old Aramaic – Greek equivalency in the use of these dual value symbols of course does not extend to ʿayin, which is not a mater in Aramaic script and provides solely a vocalic value to the Greek script. Likewise Old Aramaic he itself provides only a vowel symbol to the Greek alphabet, its dual vocalic and consonantal function as an Aramaic mater lectionis having been effectively neutralised in Greek adaptation by the functional substitution of ḥet for he: in other words, the Greek adapters treat he as if it were merely a Semitic consonantal character, unneeded consonantally, and, hence, readily available for Greek vocalic use.

We appear to see a bifurcation here in the Greek use of Semitic consonantal characters. Old Aramaic matres lectionis, serve both a consonantal and vocalic function in Greek alphabetic practice; other Semitic consonantal characters serve only a vocalic function in the Greek script. ‘Aleph, however, would present a slight departure from this emerging pattern of bifurcation if in fact, as would seem to be the case, ‘aleph has restricted use as a mater in some local forms of Old Aramaic script. Unlike the case of the conventional matres lectionis, however, Greek has no use for a symbol having the consonantal value of ‘aleph as Greek has no phonemic glottal stop /ʔ/. One could counter this observation by pointing out that Greek has no palatal glide phoneme /y/ yet still adapts Semitic yod (an Old Aramaic mater) for consonantal, as well as vocalic, spelling, using it for non-phonemic [y]. But this objection can itself be reasonably countered: the alphabetic representation of non-phonemic [y] characterises the orthographic practice of both of the Greek syllabic writing systems that preceded the alphabet. The adapters’ decision to utilise the mater lectionis yod to represent a Greek non-phonemic glide [y] represents a transference of knowledge from an earlier Greek writing system to a later one, in a way that is consistent with other such transferences from Cypriot syllabic script for which I have argued elsewhere, most striking of which, I believe, is the incorporation of a [k + s] character (i.e. ξ) into the alphabet (on ξ see Woodard 1997, 146–160, 208–216, 248–249 [and passim for other Cypriot syllabic characteristics manifesting themselves in the alphabet]; see also 2010, 32–34 and forthcoming).

In view of the several observations presented above I would end by offering a few conclusions regarding the Greek adaptation of the Semitic script:

1. The Old Aramaic system of matres lectionis was incorporated into the Greek alphabet by the adapters.
2. As Phoenician letters provided the prototypes of the Greek alphabetic symbols, the adaptation was ultimately realised in a multilingual Aramaic, Phoenician, and Greek setting, such as one that exposed Greek speakers not only to Phoenician speakers and their script but also to the operations of Aramaic-using scribes. The adapters had knowledge of syllabic Cypriot writing practice, and a phase of experimentation in the adaptation must have been localised in Greek-Phoenician communities of Cyprus.
3. The local setting of a phase of adaptation may have been one in which the adapters encountered ‘aleph serving as a mater lectionis for spelling /a/ in limited contexts.
4. The adaptation was made to serve the linguistic needs of East Ionians, in whose dialect /ā/ had shifted to /ǣ/, but also of speakers of Greek whose dialect(s) contained a phonemic glottal fricative /h/, such as Central Ionians and Cypriotes – and possibly even East Ionians if the loss of /h/, an areal feature of southwestern coastal Anatolia, occurred sufficiently late.

<table>
<thead>
<tr>
<th>Old Aramaic Values</th>
<th>Greek Adapted Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoneme</td>
<td>Grapheme</td>
</tr>
<tr>
<td>/y/</td>
<td>yod</td>
</tr>
<tr>
<td>/i/</td>
<td>yod</td>
</tr>
<tr>
<td>/w/</td>
<td>waw</td>
</tr>
<tr>
<td>/u/</td>
<td>waw</td>
</tr>
<tr>
<td>/h/</td>
<td>he</td>
</tr>
<tr>
<td>/ʔ/ (later /ʕ/)</td>
<td>he</td>
</tr>
</tbody>
</table>

Figure 6.3. Summary of Old Aramaic Matres Lectionis Values and Greek Equivalents.