Cambridge Semitic Languages and Cultures

Points of Contact

The Shared Intellectual History of Vocalisation in Syriac, Arabic, and Hebrew

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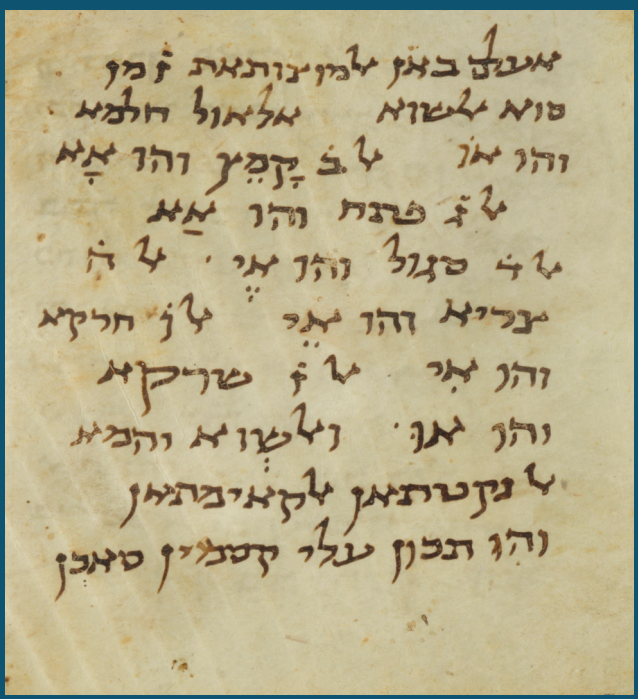

UNIVERSITY OF CAMBRIDGE
Faculty of Asian and Middle Eastern Studies

https://www.openbookpublishers.com

Semitic Languages and Cultures 10.

ISSN (print): 2632-6906
ISSN (digital): 2632-6914

ISBN Paperback: 9781800642966
ISBN Hardback: 9781800642973
ISBN Digital (PDF): 9781800642980
DOI: 10.11647/OBP.0271

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2. CONCEPTUALISING VOWELS

> *The discussion on the 'kings'; but if you want to say the discussion on the 'melodies' or the discussion on the 'inflections', then that has the same meaning.* (Abū al-Faraj Hārūn [d. c. 1050], *The Guide for the Reader* [Khan 2020, II:117])

Even from our earliest sources, Semitic linguists had long grappled with the differences between vowels and consonants, both phonetically and in terms of their traditional orthography. The primary distinction for many was that vowels could be pronounced on their own, whereas consonants required a vowel to facilitate their articulation. They were ultimately familiar with this concept due to contact with the Greek grammatical tradition, and they adopted the ideas of 'sounding' letters and phonetic 'movement' to explain it. Conversely, many linguists also recognised that Semitic writing systems did not clearly delineate vowels and consonants, leading to diverse interpretations as to the nature and function of the *matres lectionis* letters. These three concepts—sounding letters, movement, and *matres lectionis*—were fundamental for talking about vocalisation, and their principles crosscut the Arabic, Syriac, and Hebrew philological traditions. This section addresses each of them in turn.

1.0. Sounding it Out: Construction of a Vowel Category

One of the most common ways that medieval Semitic linguists described vowels was with the concept of 'sounding' letters. Quite simply, vowels were called 'sounding' because they had

 https://doi.org/10.11647/OBP.0271.02

some inherent sonorous quality, whereas consonants were 'soundless' unless accompanied by a vowel. This idea can be traced back to the Greek linguistic tradition, but entered Semitic linguistics through the Syriac grammarian Jacob of Edessa (d. 708). Jacob first adapted the Greek concept of sounding letters in order to solve a particularly thorny issue in his career: it was impossible to write a satisfactory grammar with only the rudimentary Syriac diacritic system. As a result, he calqued a Greek concept of vowel letters from Dionysius Thrax's *Technē Grammatikē—phōnēenta* 'sounded ones'—into Syriac as *qɔlɔnɔyɔtɔ*. Jacob's eighth-century successor, Dawid bar Pawlos (fl. c. 770–800), clarified the meaning of this term (Gottheil 1893), and by the tenth century, Hebrew scholars had adopted the concept as well. The word—now calqued into Arabic as *muṣawwitāt*—appears in phonological contexts in Judaeo-Arabic linguistic texts from this time, including the work of Saadia Gaon (d. 942) and several Masoretic treatises. The division of 'sounding' and 'soundless' letters is also attested in Ibn Sīnā's writing (d. 1037), even as his Syriac contemporary, Elias of Ṭirhan (d. 1049), modified Jacob of Edessa's original *qɔlɔnɔyɔtɔ* model to fit a different Syriac phonological understanding.

These terms—*phōnēenta*, *qɔlɔnɔyɔtɔ*, *muṣawwitāt*—are often translated as 'voiced', reflecting modern linguistic terminology (e.g., Talmon 2000b, 250). This is also the etymology of the English word 'vowel', ultimately descended from Latin *vocalis* 'sounding, vocal', itself a calque of Greek *phōnêen*. However, none of the authors discussed below use these terms to refer to the modern concept of linguistic voicing. Instead, they indicate a distinct

phonological category which includes the vowels (indeed, all of them 'voiced'), but (generally) not consonants, voiced or otherwise. I translate them as 'sounding' to avoid conflating these concepts.

1.1. The First Sounding Letters

The earliest evidence of Syriac sounding letters comes from Jacob of Edessa (d. 708), a seventh-century bishop and grammarian whose work reflects a combination of Greek concepts and Syrian terminology. Even in the seventh century, Jacob was already part of a Syriac tradition that had dealt with vowel notation for hundreds of years, and had developed a written system of diacritic dots to indicate non-consonantal phonetic information. These dots were placed based on the relative quality of vowels in a given word when compared to a homograph, and were thus a form of relative vowel notation (Segal 1953, 3–6, 9–12, 28; Kiraz 2012, I:12, 20, 64; 2015, 36–37, 94–98). The diacritic system evolved throughout the sixth and seventh centuries, eventually allowing scribes to use multiple dots to mark more than one vowel in a single word, but it did not reach a level of one-to-one correspondence between vowels and signs until the eighth century (Segal 1953, 9, 29–30; Kiraz 2012, I:12, 21, 70–71; 2015, 101–2). Thus, at the end of the seventh century, Jacob of Edessa lacked graphemes for the absolute marking of Syriac vowels. To some extent, it seems that he was content with this writing system, as he composed a short grammatical tractate, *On Persons and Tenses*, which laid out some rules for Syriac morphology as they related to the placement of the dots. He also wrote his *Letter on*

Orthography to one George of Sarug, pointedly detailing instructions for how scribes should use the diacritic dot (Phillips 1869; see also, Farina 2018). However, this relative dot system was insufficient for writing a proper grammar of Syriac, so later in his career Jacob took more drastic measures (Segal 1953, 40; Talmon 2008, 167).

In the introduction to his landmark grammar *Turrɔṣ Mamllɔ Nahrɔyɔ* (*The Correct Form of Mesopotamian Speech*), Jacob explains the process by which the Greeks increased the number of letters in their alphabet from an original seventeen to its full twenty-four (Wright 1871, ר; Farina 2018, 176–77). He then addresses an unknown correspondent—their name is lost from the manuscript—who has requested that Jacob create additional letters to complete the Syriac alphabet (see Merx 1889, 51; Segal 1953, 41–43). Whether or not this correspondent was real, the idea of adding new letters to Syriac seems to have weighed on Jacob for some time, and he acquiesces, saying:

ܗܟܢܐ ܐܡܪ ܐܢܐ . ܕܣ ܡܫܬܟܚ ܡܕܝܩܐ ܕܡܠܐ ܠܗܕܐ ܕܠܐ ܒܗ ܐܬܝܪ
ܒܠܝ ܫܬܝܩ ܣܘܡܟܝܐ . ܕܣ ܕܝܟܐ ܐܢ ܒܫܒܝ ܠܟ ܗܒܠܐ ܕܗܘܝ
ܠܗܕܐ ܡܟܬܒ ܡܬܒܥ ܕܝܘܢܐ . ܕܡܢ ܠܗܠܐ ܠܗܘܢ ܒܗ ܫܘܢ
: ܡܒܝܢ ܡܢܗ ܫܘܢ ܒܗ ܗܒܠܐ ܐܢ : ܒܢܝܢ ܣܘܡܟܝ ܐܢ ܫܢ .
ܡܠܗ ܡܢ ܠܟ ܫܢ . ܒܫܒܝ ܡܢ . ܫܢ ܐܢ ܠܗܠ ܫܝ ܐ
ܡܟܬܒ ܒܗ ܫܘ ܒ ܒܗ : ܗܒܠܐ ܐܡܪ ܐܢ ܫܢ ܫܢ ܡܢ ܠܗܠ
ܡܢ ܡܢܗ ܡܟܝ ܠܟ ܗܢ ܡܟ : ܡܐ ܒܫ ܠܗܠ ܡܐ
ܒܝܐ

Thus, I say that there should be established accurate [morphological] rules for this speech, without the addition of these 'sounding letters' which this script lacks, [letters] through which one can demonstrate the application of the rules and the proper forms of the nouns and verbs that are

> established by them. But I have been compelled by two things: by your request, and by the danger of the loss of [previous] books, which is what motivated those who came before me. This I have considered: that only for the sake of the meaning [of words] and the construction of rules are the letters added—insofar as they may show the change and pronunciation of the sounds—and not for the sake of perfecting and re-arranging the script. (Wright 1871, ܨ, Bodl. 159 fol. 1a, col. 1)

Diverging from *On Persons and Tenses*, Jacob admits that the Syriac writing system is insufficient for writing a comprehensive grammar and that the diacritical dots cannot compensate for that deficit.[1] Consequently, he introduces seven letters of a new type—*ʾatwɔtɔ qɔlɔnɔyɔtɔ* 'sounding letters'—solely for grammatical explanations, and he uses them throughout the text to transcribe examples of Syriac morphology. Six of these letters are novel symbols, likely modified forms of the Greek vowel letters, and this addition is an imitation of the process that Jacob claims occurred in the Greek script (Segal 1953, 42).[2] However, he does retain the *ʾalaph* to represent a low backed *a*-vowel. He does away

[1] Judith Olszowy-Schlanger (2011, 366) and Nabia Abbott (1972, 6–7) suggest that complete vocalisation systems were prerequisites for the production of true 'grammars' of Hebrew and Arabic, respectively. Jacob seems to have reached the same conclusion for Syriac.

[2] Note that despite their similarity to the Greek vowels, Jacob's vowel letters are not the source of the West Syriac vocalisation system that uses Greek letter-form signs. J. F. Coakley (2011) has shown that these signs are not attested until approximately the tenth century; see also, Kiraz (2012, I:79–80); Loopstra (2009, 279).

with the other Syriac *matres lectionis*, with *waw* and *yod* both becoming regular consonants in the classification of sounding letters. Moreover, unlike the Greeks, Jacob only intended for his letters to be pedagogical tools, not permanent additions to the Syriac alphabet, and accordingly, they are only used in *Turrɔṣ Mamllɔ Nahrɔyɔ* and in Bar Hebraeus' discussions of Jacob (Segal 1953, 44; Kiraz 2012, I:73–74).

Strange orthography notwithstanding, the term *ʾatwɔtɔ qɔlɔnɔyɔtɔ* (sing. *ʾɔtɔ qɔlɔnɔytɔ*) reveals Jacob's conception of vowels as a phonological category. He uses it twice in the extant introduction (Wright 1871, ܟ, Bodl. 159 fol. 1a, and ܒ, Bodl. 159 fol. 2a, col. 1), setting it against the *ʾatwɔtɔ dlɔ qɔlɔ* 'letters without sound' (Wright 1871, ܒ, Bodl. 159 fol. 2a, col. 1), that is, the consonants. As Rafael Talmon points out, these two categories are calques of Greek terms for vowels and consonants: *phōnēenta* 'sounded' and *aphōna* 'soundless' (Talmon 2008, 177; 2000b, 250).

Jacob's source for these words is likely the *Technē Grammatikē* (*The Art of Grammar*) of Dionysius Thrax, a Greek grammarian who lived in the second century BCE (Fiano 2011; see Merx 1889, 9–28, 50–72; Talmon 2000a, 337–38). In it, he classifies the Greek alphabet according to the amount of airflow through the mouth during the articulation of each letter, saying: "Of these letters, seven are vowels (*phōnēenta*), α, ε, η, ι, ο, υ, and ω. They are called *phōnēenta* because they form a complete

sound (*phōnē*) by themselves" (Davidson 1874, 5).[3] The other seventeen letters are consonants, which "are called consonants because by themselves they have no sound, but produce a sound only when they are combined with vowels." The defining feature of a vowel in the *Technē* is thus that it can be pronounced alone, whereas consonants need a vowel to accompany them. The consonants are then further divided into 'half-sounding' (*hēmiphōna*): ζ ξ ψ λ μ ν ρ σ; which "are called *hēmiphōna* because, being less easily sounded than the vowels, when attempted to be pronounced alone, they result in hisses and mumblings" (Davidson 1874, 5–6). That is, these eight consonants are continuants[4] (/z/, /ks/, /ps/, /l/, /m/, /n/, /r/, /s/) which allow the partial passage of air, but cannot be fully articulated without a vowel. Finally, nine consonants are 'soundless' or 'mute' (*aphōna*): β γ δ κ π τ θ φ χ (Davidson 1874, 6). These nine are stop-plosives (/b/, /g/, /d/, /k/, /p/, /t/, /t^h/, /p^h/, /k^h/), which do not allow continuous airflow without an adjacent vowel.

This division of letters into 'sounding', 'half-sounding', and 'soundless' is traceable to Aristotle's *Poetics* (Davidson 1874, 5, n. §), where Aristotle refers to the vowels as *phōnēen*, the continuant liquid consonants (/r/, /l/, /m/, /n/) plus /s/ as *hēmiphōnon*, and the rest of the consonants as *aphōnon* (Morag 1979, 87; see also, Merx 1889, 191). This arrangement differs slightly from that of Dionysius Thrax, but the division is still based on how long a particular phoneme can be held in continuous pronunciation,

[3] Greek text published in Bekker (1816, II:629–43). Quotations in this paragraph are from Davidson's (1874, 630–32) translation of §7.

[4] Including the double consonants, i.e., /ks/, /ps/.

similar to the *Technē*'s division according to relative amounts of obstructed airflow. It is more likely that Jacob adapted his terms from the *Technē* than from Aristotle. While Jacob was quite adept at Greek in general, it is clear that Syriac grammarians engaged with the Greek grammatical tradition specifically via the *Technē*, as evidenced by Joseph Huzaya's translation of the text into Syriac in the first half of the sixth century (Talmon 2000a, 337–38; Van Rompay 2011b; King 2012, 191; Farina 2018, 168). Notably, though, Joseph did not translate the phonetic portions of that work, which included the section on sounding letters (Merx 1889, 28–29; King 2012, 191). Additionally, Jacob does not adopt Dionysius Thrax's 'half-sounding' category at all. Instead, he dispenses with the *hēmiphōna* subdivision and separates the Syriac letters into just two groups: either 'sounding' (i.e., vowels) or 'soundless' (i.e., consonants), according to whether or not a letter can be pronounced on its own.[5] As such, Jacob's implementation of Syriac sounding letters is likely his own interpretation of the *Technē*, and not derived from Joseph Huzaya.

This distinction between 'sounding' and 'soundless' letters persisted within the Syriac grammatical tradition, and a fuller explanation of them appears in the work of Dawid bar Pawlos (fl. c. 770–800). A Miaphysite monk and grammarian from the second half of the eighth century (Brock 2011), Dawid is the author of a fragmentary grammatical text, which reads:

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[5] Later in his *Turrɔṣ Mamllɔ*, Jacob does adapt a separate Greek tripartite division of consonants, likely also borrowed from the *Technē* (Talmon 2008, 167–69).

> ܡܬܦܠܓܢ ܕܝܢ ܐܬܘ̈ܬܐ : ܠܩܠܢܝܬܐ ܘܠܕܠܐ ܩܠܐ . ܘܩܠܢܝܬܐ ܕܝܢ ܡܬܩܪ̈ܝܢ ܆ ܡܛܠ
> ܕܗܢܝܢ ܒܗܘܢ ܘܠܗܘܢ ܩܠܐ ܡܫܡܠܝܐ ܘܠܐ ܣܢܝܩܝܢ ܠܫܘܬܦܘܬܗܘܢ ܒܫܘܡܠܝܐ
> ܕܢܩ̈ܫܬܐ ܕܩ̈ܠܐ ܕܝܠܗܘܢ . ܐܠܐ ܚܕܐ ܡܢܗܘܢ : ܡܢܗ̇ ܘܠܗ̇ ܡܫܡܠܝܐ ܗܘܠܟܐ
> ܕܝܠܗ̇ . ܘܒܪܘܟܒܗܘܢ ܕܥܡ ܗܢܝܢ ܕܕܠܐ ܩܠܐ . ܟܠܗܘܢ ܒ̈ܢܬ ܩܠܐ ܡܬܚܘܝܢ ܆
> ܘܡܫܘ̈ܚܬܐ ܒܗܘܢ ܡܬܡܫܚܢ . ܘܟܡܝܘܬܐ ܕܢܩ̈ܫܬܐ ܕܝܠܗܘܢ ܕܡܫܘ̈ܚܬܐ
> ܕܡܐܡܪ̈ܐ ܘܕܡ̈ܕܪܫܐ ܆ ܒܗܘܢ ܡܬܝܕܥܐ ܘܡܬܓܠܝܐ . ܗ̇ܢܝܢ ܕܝܢ ܕܡܬܩܪ̈ܝܢ ܕܠܐ
> ܩܠܐ . ܥܠ ܕܠܐ ܡܫܟܚܢ ܒܠܚܘܕܝܗܘܢ ܠܡܫܡܠܝܘ ܒ̈ܢܬ ܩܠܐ ܐܝܟ ܩܠܢܝܬܐ ❖
>
> Letters are divided into ‘sounding’ and ‘soundless’. The sounding are so called because they are a complete sound, in and of themselves, and do not need partners for the completion of the beats of their sounds. Instead, one of them is, in and of itself, its own complete syllable, and by combining them with those which are soundless, all units of sounds are manifested. The poetic metres are measured by them, and the quantity of the beats of the metres of homilies and hymns are known and revealed by them. Then those which are called ‘soundless’ are thus because they are unable to make complete units of sounds alone, as the sounding do. (Gottheil 1893, cxvii, lines 5–12)

He maintains the two-way division of sounds into vowels and consonants, using the same ‘sounding’ terminology as his Greek and Syriac predecessors. For Dawid, just as for Jacob, the distinguishing feature of the *ʾatwɔtɔ qɔlɔnɔyɔtɔ* is that they can be pronounced alone, each forming a complete syllable without the addition of consonants (the *dlɔ qɔlɔ*). This feature of vowels was central to Syriac poetry and prosody, which measured verses according to their number of syllables (Brock 2016, 9–10). As Dawid points out, each syllable—or ‘beat’[6]—necessarily contains

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[6] In fact, the word ‘beat’ (*nqɔshtɔ*) is sometimes used in Syriac grammar as a general term for ‘vowel’; see Segal (1953, 7, 54, 171); Kiraz (2012, I:59).

a single vowel, and consequently sounding letters are his most basic unit for quantifying metre. However, while this concept of vowel phonology became important in the Syriac linguistic tradition from as early as the seventh century, it appears that early Arabic grammarians adopted a different interpretation of the Greek 'sounding' terminology.

This alternative Arabic conception of phonetic 'soundingness' was related to the Greek divisions of letters, but it did not apply to vowels, and the pathway by which it entered the Arabic tradition is less clear. Talmon argues that due to the dual function of the *matres lectionis* in Arabic, eighth-century grammarians did not perceive vowel letters as a 'sounding' category distinct from the consonants. As such, while they were, to some extent, aware of the three-way Greek division of *phōnēenta* (vowels), *hēmiphōna* (liquids or continuants), and *aphōna* (all other consonants or stop-plosives), they dispensed with the 'vowel' category and adapted the Greek concepts only to describe groups of consonants (Talmon 1997a, 217–21; 1997b, 285). The clearest of these adaptations is from the teachings of the Kufan grammarian al-Farrāʾ (d. 822), who—at least according to the commentary on *Kitāb Sībawayh* by Abū Saʿīd al-Sīrāfī (d. 979)—described the consonants *ṣād* and *ḍād* as *muṣawwit* 'sounding'. He further describes the consonants *bāʾ* and *tāʾ* as *ʾakhras* 'mute'. In addition to *ṣād* and *ḍād*, al-Sīrāfī suggests that al-Farrāʾ's *muṣawwit* letters also included *thāʾ*, *dhāl*, *ẓāʾ*, and *zāy*. He further equates the *ʾakhras* category with Sībawayh's *shadīd* 'strong' letters (i.e., *bāʾ*, *dāl*, *tāʾ*, *ṭāʾ*, *jīm*, *kāf*, *qāf*, and *hamza*) (Talmon 1997a, 211–12).

The connection here is that al-Farrāʾ's *ʾakhras* and Sībawayh's *shadīd* letters both describe plosive consonants in Classical Arabic (Semaan 1968, 56, 60–61; Sībawayh 1986, IV:434).[7] These consonants allow no passage of air at the moment of their articulation, and so they are 'mute'. They contrast with the continuous airflow of what Sībawayh calls the letters of *rikhwa* 'softness', namely the fricatives (al-Nassir 1993, 38–39; Brierley et al. 2016, 164), which roughly correspond with al-Sīrāfī's interpretation of *muṣawwit*. Talmon thus suggests that *muṣawwit* 'sounding' and *ʾakhras* 'mute' were al-Farrāʾ's adaptation of the Greek *phōnēenta* and *aphōna*, reapplied to suit an Arabic phonological tradition that did not have a distinct subset of vowel letters (1997a, 212–13). In this understanding, 'sounding' consonants were those that allowed some continuous airflow during articulation, whereas the 'soundless' consonants were those that required the addition of a vowel in order to produce a stream of air.

Talmon also suggests that there is a second interpretation of these terms which is attributed to al-Khalīl ibn Aḥmad al-Farāhīdī (d. 786/91), preserved partly in the lexicon *Kitāb al-ʿAyn* and partly by the later lexicographer al-Azharī (d. 980) (Makhzumi 1985; Arzandeh and Umar 2011). In this system, the consonants are divided into two groups. The first is called *mudhliq* 'smooth', which includes the liquids and labials (*nūn, mīm, lām, rāʾ, bāʾ, fāʾ*). This group may correspond to Aristotle's *hēmi-*

[7] Sībawayh also includes *jīm*, which was probably an affricate (Brierley et al. 2016, 160, 172; see also, Ibn Jinnī 1993, 61).

phōnon, which likewise included the liquid consonants. The second group is then called either *ṣutm* 'solid' or *muṣmit* 'silent', which includes the rest of the consonants, and parallels Aristotle's *aphōnon* group (Talmon 1997a, 215–17; 1997b, 261–62). Consequently, these three pairs of early phonetic terms—*muṣawwit–ʾakhras*, *shadīd–rikhwa*, and *mudhliq–muṣmit/ṣutm*—may all be variations of the same Greek linguistic concept of 'sounding' letters (Talmon 1997a, 221; 1997b, 285; 2000b, 250). However, that concept seems to have permeated the Arabic grammatical tradition at several different points, and was not systematically calqued or applied to vowels during the eighth century.[8] This situation would change during the ninth century, as the Greek-Syriac-Arabic translation movements facilitated a more systematic transfer of Greek technical language into Arabic.

1.2. Sounds in Translation

From the late ninth century on, the Arabic word *muṣawwita* took on a meaning much closer to the original 'vowel' meaning of *phōnēenta*, although it remained uncommon for Arabic grammarians to use it to describe their vowel phonology. Likely the earliest extant examples of this new usage are in the book known as *al-Muqtaḍab* (*The Digest*) by the Basran grammarian al-Mubarrad (d. 898). He uses the term twice, first writing: "Among the letters of interchange are the letters of lengthening and softness, and the sounding [ones], which are *ʾalif*, *wāw*, and *yāʾ* (فمن حروف البدل

[8] On early contact between Arabic and Greek grammatical teaching, see Versteegh (1977). See also, Talmon (1997a, 209, n. 3); Mavroudi (2014).

حروف المدّ واللين والمصوتة وهي الألف والواو والياء). Later on, he says: "If you make a diminutive from a quintiliteral noun and its fourth [radical] is one of the sounding letters—which are *yāʾ*, *wāw*, and *ʾalif*—then no part of its plural or diminutive is apocopated (اذا صغرت اسماً على خمسة ورابعه احد الحروف المصوتة وهي الياء والواو والالف فإن جمعه وتصغيره غير محذوف فيهما شيء)" (al-Mubarrad 1965, I:61, 119; Talmon 1997a, 210–11). In both instances, the word 'sounding' (*muṣawwita*) indicates some quality of the three Arabic *matres lectionis*, especially when they act as 'letters of lengthening and softness' (*ḥurūf al-madd wa-al-līn*). That is, when they represent long vowels (see below, present chapter, §3.0). Talmon also notes that each time, al-Mubarrad lists the letters which fall into this 'sounding' category, possibly because he is aware of a foreign origin of the term *muṣawwita* and does not expect his audience to know exactly what it refers to.

Likely the earliest extant example of *muṣawwita* outside of grammar is in the translation of Aristotle's *Poetics* by the Christian philosopher Abū Bishr Mattā (d. 940), which he produced from a Syriac version in the late ninth or early tenth century. Interpreting through the Syriac technical terms of his source text, Abū Bishr ultimately calques *phōnēen*, *hēmiphōnon*, and *aphōnon*, respectively, as *muṣawwit* 'sounding', *niṣf al-muṣawwit* 'half of the sounding', and *lā muṣawwit* 'not sounding' (al-Badawī 1953, 126; Morag 1979, 87). Al-Fārābī (d. 950/951), perhaps the foremost Islamic scholar of Aristotle, also commented on the *Poetics*, although he does not include Aristotle's classification of sounds. Nevertheless, he does use *muṣawwita* to describe "a letter representing a long vowel" in other works (Morag 1979, 88).

Muṣawwita in these contexts is a calque of the Syriac *qɔlɔnɔytɔ* as used by Jacob and Dawid bar Pawlos, and by extension, it is an indirect calque of the Greek *phōnēenta*. Each of these terms is derived from the basic word for 'voice' and 'sound' in its respective language—*ṣawt*, *qɔlɔ*, and *phōne*—and classifies vowels as a specific phonological group according to their 'sounding' quality. This quality is the fact that they can be pronounced on their own with a continuous and unobstructed airstream. Morag has noted that the Greek *phōnēenta* was "conveyed to Arabic via Syriac (the middle link being missing)" (Morag 1979, 89), but the 'missing link' is the use of *qɔlɔnɔyɔtɔ* among ninth-century Syriac translators.

This transmission of calques occurred amidst the Greek-Syriac-Arabic translation movements of the Abbasid Caliphate, during which time Syriac translators, most famously the Christian physician Ḥunayn ibn Isḥāq (d. 873), used Syriac as a tool for converting Greek technical terms into Arabic. Sebastian Brock describes Ḥunayn's translation process as follows: "having collected together the best and oldest Greek manuscripts he could find, he translated from Greek into Syriac and only then from Syriac into Arabic" (Brock 2016, 11–12; see also, Versteegh 1977, 3; Butts 2011). Syrian translators thus assigned Greek terms which already had Syriac calques—for example, *phōnēenta* and *qɔlɔnɔyɔtɔ*—a direct Arabic technical equivalent; in this case, *muṣawwitāt*. The tenth-century lexicographer Ḥasan bar Bahlul (fl. 942–968) confirms this connection in his Syriac-Arabic lexicon. He gives only one Arabic word to define *qɔlɔnɔyɔtɔ*, and that word is *muṣawwitāt* (Duval 1901, 1794, 1931). Bar Bahlul claims

to have compiled much of his lexicon from the lexica of Ḥunayn and another ninth-century scholar, Ḥenanishoʿ bar Serosheway (d. c. 900) (Van Rompay 2011a).[9] He even names Bar Serosheway as his source for the term *muṣawwitāt*, suggesting that it was known by Syriac-Arabic translators well before Bar Bahlul's lifetime.

At the same time that *muṣawwitāt* began to appear occasionally in Arabic grammatical texts and translations of Greek works (e.g., al-Mubarrad and Abū Bishr), it also saw some use referring to vowels in Masoretic texts that analysed Hebrew phonetics (Talmon 1997a, 209–10). These texts constitute a subgenre of Masoretic treatises written mainly in Arabic around the tenth century to discuss the functions of the Hebrew vowels and accents. They often classify vowels with the term *muṣawwitāt*, and I refer to treatises of this type as '*muṣawwitāt* texts'.[10]

One of the most significant of these texts is known as *Kitāb al-Muṣawwitāt* (*The Book of the Sounding Ones*), first published by Allony based on a partial manuscript from the Cairo Genizah (Allony 1964; 1965).[11] Allony adopts the title *Kitāb al-Muṣawwitāt* for this work and attributes it to Moshe ben Asher, the father of

[9] Unfortunately, these other lexica are not extant.

[10] Following the usage of Ilan Eldar, Nehemia Allony, and Israel Yeivin; see below, and also Allony (1965); Allony and Yeivin (1985); Eldar (1986).

[11] Allony published a description of the manuscript fragments (Cambridge, UL: T-S Ar.32.31 and Paris, AIU: IX.A.24) and their contents in 1964, before publishing the full Arabic text, with Hebrew translation, in 1965. He later discovered another fragment (Cambridge, UL: T-S Ar.33.6), which he argues is also part of this text (Allony 1983).

the famous Tiberian Masorete Aharon ben Asher (d. c. 960) (Allony 1965, 136). He justifies this attribution simply by the appearance of the word *muṣawwitāt* in it along with other medieval references to a lost work by Moshe ben Asher with that same title (Allony 1964, 9–10; Eldar 1986, 52). However, while the extant fragments do include the word *muṣawwitāt* several times, they do not actually contain a title, nor do they indicate that this particular treatise should be associated with Moshe ben Asher.[12] Noting this inconsistency, Eldar undertook a study to ascertain a sturdier provenance for Allony's text. He argues that the use of word *muṣawwitāt* to refer to vowels is more common than Allony initially thought, and thus cannot be used to infer the title of the text. He further suggests that the phrase *kitāb al-muṣawwitāt* may refer to this genre of Arabic-language Masoretic texts that dealt with vowels and accents, rather than to a specific treatise with that title. Consequently, he concludes that it is doubtful Moshe ben Asher wrote this particular *muṣawwitāt* text, and that it is impossible to determine the true author or title without further evidence (Eldar 1986, 53–55).

The first fragment of this text begins with a passage that is reminiscent of Jacob of Edessa's alphabetical struggles:

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[12] The closest extant text to this title is probably *Kitāb al-Muṣawwitāt al-Watariyya* (*The Book of Stringed Instruments*) by the ninth-century polymath Abū Yūsuf Yaʿqūb al-Kindī (d. 873). It discusses the musical properties of instruments with various numbers of strings and includes an accurate citation of Psalm 33 according to the Septuagint numeration (al-Kindī 1962, 67–92, esp. 90). On early Arabic Bible translations, see Griffith (2013, 106–8).

> אבין אן אל[עבר]אנין יסתעמ[ל] מנטיקהם אל ז [אלתי תסתע]מל חרפהם פליס תזיד עלי אלז שי כאל [אחרף אל]די לא יוגד שי מסת[עמל] אלא כב [חרף]
>
> ...I specify that for the Hebrews,[13] their speech utilises the seven, which [in turn] utilise their letter[s]. You cannot increase the seven, just like the letters, for which nothing is used except twenty-two letters. (Allony 1965, 136, lines 1–3)

'The seven' in this passage refers to the seven vowels of the Tiberian Hebrew recitation tradition (see Khan 2020, I:244), and the author insists that one cannot add to that number.[14] Similarly, there are twenty-two letters in the Hebrew alphabet, and that number is fixed, such that there are two groups—the seven and the twenty-two—that do not overlap. From this point on, the author refers to the seven as *al-muṣawwitāt* 'the sounding ones' (Allony 1965, 138, line 9; 140, lines 24 and 28; 144, line 53), maintaining the same two-category phonological distinction as Jacob of Edessa. The author also refers to the letter *yod* as *al-ṣūra al-muṣawwita*—literally 'the sounding form'—when it functions as a *mater lectionis* representing the vowel /i/ (Allony 1983, 119–20, lines 106–9).

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[13] Allony notes that the lacuna in this word could allow 'Syrians' (*suriyyāniyyīn*) or 'Babylonians' (*kasdāniyyīn*), though given the rest of the text, 'Hebrews' is the most reasonable reconstruction (1965, 136, n. 1).

[14] Similar descriptions appear in Arabic grammars of Coptic, which refer to the seven Coptic vowels as *ʾaḥruf ṣawtiyya* or *ʾaḥruf nawātiq* (Bauer 1972, 147–48; K. Versteegh 2011).

Allony and Yeivin (1985) published four more of these *muṣawwitāt* texts, and together they show that the idea of distinguishing vowels from consonants according to 'soundingness' was not a rare phenomenon among Masoretes. Two of the four use the word *muṣawwita*, the first of which is T-S Ar.53.1.[15] Most of this fragment is an explanation of Masoretic accents, but the first few lines read, "Know that the *muṣawwitāt* are seven, excluding the *shewa*… (…אעלם באן אלמצותאת ז מן סוא אלשוא)" (Allony and Yeivin 1985, 91, lines 1–2). It proceeds to list the Tiberian Hebrew vowels. The second fragment is T-S NS 301.62, which discusses the accents and the *bgdkpt* letters, but says in passing, "If two accents are adjacent, then none of the *mulūk*—I mean, the *muṣawwitāt*—may be between them (אן אלתקיא אללחנין לם יכן בינהם שי מן אלמלוך אעני אלמצותאת)" (Allony and Yeivin 1985, 115–16, lines 38–39). *Mulūk* 'kings' was another name for the Hebrew vowels in the medieval period, so this text represents a combination of vocabulary from different sources, and the author does not expect that their reader will necessarily know both terms.

Another of Allony and Yeivin's fragments, T-S Ar.31.28, reads:

> אעלם באן אלאחרוף אואכרהא עלי ג אקסאם אלאול הם אליח חרף בעד
> אויה כלהא גזם אעני שְוָא ליס יכרג מנהא שי אלי אלז מלוך
>
> Know that for endings [of words], the letters are according to three groups. The first is those eighteen besides *ʾaleph*,

[15] Baker and Polliack identified this fragment as part of ʿAlī ben Judah ha-Nazir's *Kitāb Usūl al-Lugha al-ʿIbrānīyya*, but this designation is unverified (and seems to me unverifiable) since the rest of that book is not extant (Baker and Polliack 2001, no. 7717)

> *waw*, *yod*, and *he*ʾ. All of them are *jazm*; I mean, *shewa*. Nothing is pronounced from them towards any of the seven *mulūk*. (Allony and Yeivin 1985, 101–2, lines 53–58)

While this fragment does not contain the word *muṣawwita*, it is clearly familiar with the idea that consonants are unique in their 'soundlessness'. The author has adopted the Arabic grammatical term for the jussive mood, *jazm* 'cutting off' (i.e., a vowelless inflectional ending), to describe the characteristic of the consonants that causes *shewa* to be silent at the end of a word. This quality is opposed to that of the Hebrew *matres lectionis*, which, as the text later explains, have more vowel-like effects (Allony and Yeivin 1985, 103–5). It is worth noting that, in contrast to Jacob of Edessa, the Masoretic *muṣawwitāt* texts tend to account for the *matres lectionis* with an additional group of 'letters' which have characteristics of both vowels and consonants.

Besides these fragments, there is a more well-known Masoretic source which may also be considered a *muṣawwitāt* text: *The Treatise on the Shewa*. This anonymous tenth-century treatise is part of a larger work, but the extant portion focuses on the features of the Tiberian *shewa*.[16] It describes the *shewa*, saying: "Know that the *shewa* [.....], and that is that it serves symbols—by which I mean the seven kings, which are called *al-muṣawwitāt*

[16] Hence the name. See Levy (1936); Khan (2020, I:117–18). Eldar has argued that this treatise is from the same work as Allony's *Kitāb al-Muṣawwitāt*, but I am sceptical of this association. The two texts employ different, somewhat idiosyncratic terminology to name the Hebrew vowels (see below, chapter 4, §3.0), which suggests that they have different authors. It is possible that the two works share some source material; see Eldar (1988); Khan (2020, I:119).

(אעלם אן אלשוא [.....]רה ודלך אנה יכדם סי[מני]ם אעני אלסבעה מלוך אלדי תסמא אלמצותאת)" (Levy 1936, א). This author directly equates the *muṣawwitāt* with other categorical terms for Hebrew vowels, including 'symbols' (*simanim*) and 'kings' (*mulūk*). This variation suggests there was a pluriformity of vowel terms in the *Treatise*'s Masoretic source material, which includes some Hebrew texts that are likely from the ninth century.[17] It likewise confirms that some Masoretes had adopted the idea of *muṣawwitāt* by the tenth century.

It is clear that the phonological distinction of vowels as 'sounding ones' in contrast to consonants was known to certain Masoretes, but the concept also extended to other sectors of the Hebrew linguistic tradition, including Saadia Gaon's (d. 942) commentary on *Sefer Yeṣira* (The Book of Creation) (see Khan 2020, I:127–29). While Saadia generally favours the term *naghamāt* 'melodies, tones' to refer to vowels,[18] he does use *muṣawwitāt* a few times in the second chapter of this book (Lambert 1891, 24–28). While explaining the units of speech, Saadia says that the most basic audible unit is a *ṣawt* 'sound', "and it is what one does not comprehend, as someone says, *ʾāā* or the rest

[17] Hebrew passages and quotations occur frequently throughout the *Treatise*. On changes in authorial language in Masoretic sources, see Khan (2020, I:116–17).

[18] For brief discussions of this term, see below, present chapter, §§2.2 and 4.0.

of the *muṣawwitāt* (فهو ما لا يعقل كقول قائل اا او سائر المصوتات)" (Lambert 1891, 26, lines 11–12).[19] Like Dawid bar Pawlos, Saadia interprets the vowels as the smallest units of pronounceable speech, which can be articulated without the aid of any other letters. Interestingly, Saadia does not use the term *muṣawwitāt* when he describes the vowels in the fifth chapter of his Hebrew grammar, *Kutub al-Lugha* (*The Books of the Language*) (Skoss 1952; Dotan 1997; see Khan 2020, I:124–25). It is not clear if he changed or updated his vocabulary on this topic, but we do know that he wrote the commentary in 931, after *Kutub al-Lugha*.[20] It may be that he drew some connection between *naghama*, which can indicate both the vowels and accents in Hebrew recitation, and the Arabic verb *ṣawwata*, which is a common term in Arabic musicology (Morag 1979, 89–90). Either way, Saadia maintained nearly the same conception of 'sounding' ones that Jacob of Edessa introduced to the Syriac grammatical tradition in the seventh century.

As already discussed, the most likely path by which the concept of 'sounding letters' entered Arabic linguistics was through ninth-century Syriac translators, but how did it reach the

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[19] Saadia probably wrote this commentary in Hebrew characters, but Lambert transcribed the non-Hebrew portions of the text in Arabic script. My quotations follow Lambert's transcription. Saadia also mentions that the introduction to the "books on *manṭiq* (speech/logic)" is about *al-muṣawwitāt* (Lambert 1891, 26, line 20).

[20] Saadia refers to *Kutub al-Lugha* at least twice in his commentary (Lambert 1891, 45, 52 [Arabic]; 76, n. 1 [French]; see also, Malter 1921, 44, n. 57).

Masoretic tradition? It could have been through contact with Arabic grammarians, but Talmon argues that this explanation is unlikely, as the use of *muṣawwitāt* as a word for vowels remained quite rare in Arabic grammar even in the tenth century (Talmon 1997a, 221). Instead, the similarities between the Masoretic 'sounding' category and the Syriac *qɔlɔnɔyɔtɔ* letters suggest that the Hebrew interpretation is more closely related to Syriac grammar. As we will later see,[21] there is significant evidence of early contact between Masoretes and Syriac grammarians in the realm of vocalisation, but for the case of the *muṣawwitāt* the point of transmission may also be the translation movement. As Syriac translators converted Greek and Syriac texts into Arabic, they became readable not just to Arab grammarians, but also to Masoretes and other Jewish scholars who were native Arabic speakers. Bar Bahlul, the tenth-century lexicographer who recorded the ninth-century use of *muṣawwitāt* to calque *qɔlɔnɔyɔtɔ*, even reports personal contacts with his Jewish contemporaries. In his lexical entry on the Syriac word *brɔshit* 'in the beginning', he claims to have read a Jewish *tafsīr* 'commentary' before going and asking a Jew to explain the meaning of *reshit* in Hebrew (Duval 1901, 435). This account suggests that Bar Bahlul interacted with educated Jews in the course of his lexicographic work, and these interactions—or similar ones by his predecessors[22]—could have facilitated the transfer of *muṣawwitāt* into Masoretic circles.

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[21] See below, chapter 3, §1.0.

[22] Another possible contact is Timothy I (d. 823), an Eastern Catolicos who reports the discovery of some Hebrew manuscripts in a cave near Jericho that were read with the assistance of Jews from Jerusalem

Even as the tenth century passed, the term *muṣawwitāt* to describe vowels did not gain popularity among Arabic grammarians. The phonologist Ibn Jinnī (d. 1002) does make a passing reference to *al-ḥurūf al-thalātha al-layyina al-muṣawwita* 'the three soft sounding letters' in his *Kitāb al-Khaṣāʾis* (*The Book of Characteristics*) (Talmon 1997a, 210, n. 5; Ibn Jinnī 1952, 44, n. 112), but he does not apply it to their technical usage in his large book on Arabic phonology, *Sirr Ṣināʿa al-Iʿrāb*. He briefly explains *ṣawt* and the verb *ṣawwata* more generally, but this discussion appears unrelated to sounding letters (Ibn Jinnī 1993, 9–11).

The only other Arabic author in our corpus who discusses 'sounding' vocalisation is Ibn Sīnā (d. 1037), a Persian physician and polymath who wrote mostly in Arabic and was more of a philosopher than a grammarian by trade. He produced his own Arabic version of Aristotle's *Poetics*, in which he translates *phōnēen* and *hēmiphōnon* as *muṣawwit* and *niṣf al-muṣawwit*, respectively, like Abū Bishr a century before him (Morag 1979, 87–88). However, he translates *aphōna* not as *lā muṣawwit* (like Abū Bishr), but rather as *ṣāmit* 'soundless, silent', using the same root as al-Khalīl's *muṣmit* category of non-liquid (or non-labial) consonants.

Ibn Sīnā also wrote one work that specifically classifies Arabic vowel phonology: *Risāla Asbāb Ḥudūth al-Ḥurūf* (*The Treatise on the Causes of the Occurrence of Letters*). He wrote this essay near the end of his life, apparently at the request of a grammarian in

(Butts and Gross 2020, 18). Timothy also had some contact with the Arabic grammatical tradition (King 2012, 199–201).

Isfahan, to lay out his understanding of speech on both mechanical and phonological levels (al-Tayyan and Mir Alam 1983, 9). As such, the first three sections focus on the physics of sound waves and the anatomy of the mouth and throat (al-Tayyan and Mir Alam 1983, 53–71). Then, in the fourth section, he explains the articulation of each Arabic *ḥarf* 'letter, phoneme' (pl. *ḥurūf*) as it relates to the mechanical principles. Two of these *ḥurūf* are *al-wāw al-ṣāmita* 'the soundless *wāw*' and *al-yāʾ al-ṣāmita* 'the soundless *yā*" (al-Tayyan and Mir Alam 1983, 83–84). He groups them with the other consonants, indicating the quality of *wāw* and *yāʾ* when they are consonantal (i.e., /w/ and /y/, respectively). By contrast, the next three *ḥurūf* are *al-ʾalif al-muṣawwita* 'the sounding *ʾalif*', *al-wāw al-muṣawwita* 'the sounding *wāw*', and *al-yāʾ al-muṣawwita* 'the sounding *yā*" (al-Tayyan and Mir Alam 1983, 84). *Muṣawwita* is thus Ibn Sīnā's term for a *mater lectionis* acting as a vowel, similar to the occasional usages found in the works of al-Mubarrad, al-Fārābī, and Ibn Jinnī as well as the 'sounding form' (*al-ṣūra al-muṣawwita*) of *yod* mentioned by at least one Masorete (see Allony 1983, 119–20, lines 106–9; Talmon 1997a, 211 n. 7).

There is a second version of the *Risāla* which contains substantial variations from the first, especially in the sections on phonetics. It is not clear that Ibn Sīnā himself edited or rewrote the text (al-Tayyan and Mir Alam 1983, 13). The extant version begins, "The foremost *shaykh* said… (قال الشيخ الرئيس…)," in reference to Ibn Sīnā, possibly indicating that it was written by someone who heard or studied the original.[23] In any case, the alternate

[23] For this type of scholastic transmission, see Schoeler (2006, 32–33).

text of the section on *ṣāmita* and *muṣawwita* letters warrants further discussion. This version places *al-wāw al-ṣāmita* and *al-yāʾ al-ṣāmita* among the other consonants, according to the order of their articulation points in the mouth, rather than at the end of the alphabet before the vowels (al-Tayyan and Mir Alam 1983, 124). It then introduces the vowel section, saying, "As for the *muṣawwitāt*, their status and influence are problematic for me (اما المصوتات فأمرها وتأثيرها عليّ كالمشكل);" he proceeds to explain "the small and large *ʾalif*s," "the two *wāw*s," and "the two *yāʾ*s" (al-Tayyan and Mir Alam 1983, 128). While *muṣawwita* appeared in the first version of the *Risāla* to describe a few letters, in this version it is a categorical term, indicating a group which contains all of the *matres lectionis* as well as the Arabic short vowels. This usage corresponds to both the *Turrɔṣ Mamllɔ Nahrɔyɔ* and the Masoretic *muṣawwitāt* texts, both of which use 'sounding' to differentiate vowels and consonants as phonological categories. Notably, in Ibn Sīnā's system, *ʾalif* does not have a *ṣāmita* form, precisely because the Arabic *ʾalif* has no consonantal quality.[24] This concept may correlate with Jacob's understanding of the Syriac *ʾalaph*, which he used to represent one of his 'sounding' letters. On the other hand, *ṣāmit* does not mean 'soundless' in the same way as Jacob of Edessa's *dlɔ qɔlɔ*, literally 'without a sound'. Rather, it is an adjective ('soundless, silent'), more immediately similar to Greek *aphōna* 'soundless' and al-Farrāʾ's *ʾakhras* 'mute'.

[24] Ibn Sīnā gives *hamza* a separate entry, effectively the consonantal form of *ʾalif* (al-Tayyan and Mir Alam 1983, 72). For the quality of *ʾalif* in Classical Arabic, see Alfozan (1989, 37); Semaan (1968, 57–58).

C. H. M. Versteegh has noted the similarity between this Arabic terminology and the Greek, pointing out that the *ṣāmitāt* and *muṣawwitāt*—which also appear in Ibn Sīnā's *Fann al-Shiʿr* (*The Art of Poetry*)—are calques of *aphōna* and *phōnēenta*. He further highlights that Ibn Sīnā refers to fricative consonants as those letters which have *niṣf ṣawṭ* 'a half sound', a calque of *hēmiphōna*, the term which Aristotle used for liquids (and /s/) and which the *Technē* used for continuants (Versteegh 1977, 21). It seems that Ibn Sīnā, specialising as a physician and philosopher, was more likely to engage directly with translations of Greek ideas—such as those of Aristotle and Dionysius Thrax—than the Arabic grammarians who preceded him.

Meanwhile, Ibn Sīnā's contemporary, the Syriac grammarian Elias of Ṭirhan (d. 1049), modified Jacob of Edessa's original *qɔlɔnɔyɔtɔ* terminology in his grammar, *Memrɔ Gramaṭiqɔyɔ* (*The Grammatical Essay*). He lays out his understanding of sounding letters explicitly, saying:

ܢܕܥ ܕ.. ..ܐ ..ܗ .. ܒܝܫ ܒܠܐ . ܡܒܫܩܠ ܡܒܐܒܫܝ ܠܚܕܕ ܒܝ ܢܕܥ
ܐܝ ܡܬܒܥ ܡܚܐܘܠ ܡܒܐܒܫ ܒܠܡ .. ܬܡܥ ܠܡܠܝ ܡܒܫܪܫ ܡܒܐܒܫ
ܒܠܡ ܒܝ ܐܕܠܚ ܐܘܥܦܒܫ ܡܒܐܬܒܫܒܫ ܡܚܢܡܐ ܠܕ ܡܚܬܥܐ ܬܟܠ
ܡܒܫܠܩ ܒܠܒ

It is necessary to know that the sounding letters are three, being *ʾalaph*, *wāw*, *yod*, and the rest of the other letters [are pronounced][25] with them. They are the letters for the construction of nouns or verbs (which indicate action), the vocalisations made known by production from these three sounding ones. (Baethgen 1880, ܠ, lines 11–15)

[25] Baethgen's edition reads ܬܡܥ 'they cling to', but this is probably an error for ܬܥܡ 'they are pronounced'.

Even though Eastern Syriac had six distinct vowel qualities (see Segal 1953, 33; Knudsen 2015, 91–99), Elias asserts that only the three Syriac *matres lectionis* are *qɔlɔnɔyɔtɔ*. The implication here is that the sounding ones are the letters *ʾalaph*, *wāw*, and *yod*, and not the vowel phonemes themselves. This explanation contrasts the Masoretic *muṣawwitāt* texts, which consistently list seven 'sounding ones'—the seven unique Tiberian vowel phonemes—and do not refer to any of the twenty-two Hebrew letters as inherently *muṣawwita*. This difference might be traced back to Jacob of Edessa, who referred to his new vowel letters specifically as sounding letters (*ʾatwɔtɔ qɔlɔnɔyɔtɔ*), but it is also similar to Ibn Sīnā's use of the word *muṣawwita* as an adjective for the Arabic *matres lectionis*. Elias' view that the sounding letters are required for the pronunciation of other letters is also consistent with Dawid bar Pawlos and the Masoretic *muṣawwitāt* authors, who all maintained that the vowels were essential to the articulation of the consonants.

With the help of the *ʾatwɔtɔ qɔlɔnɔyɔtɔ*, Elias discusses how the *matres lectionis* function in Syriac orthography, and here he adds a concept that we have not yet seen:

..ܟܬܘܒܬܐ ..ܫܠܝܫܝܐ ..ܦܬܚܐ ..ܡܦܩ ܟܬܘܒܬܐ ܕܬܪܥܝܡ ܕܒܬܪ ܐܬ ܠܬ ..ܟܬܘܒܬܐ
..ܫ .. ܟܬܘܒܬܐ ܕܚܠܦ ܐܟ .. ܟܬܘܒܬܐ ܟܬܘܒܬܐ ܕܒܝ ܕܒܝ ܝܫܝ ܠܟ ..ܟܬܘܒܬܐ
..ه .. ,.. ..ܡܝܡ .. ..ܡܠ .. ..ܟܬܘܒܬܐ ܕܟܠܟ ܟܬܘܒܬܐ ܕܚܬܪ

We consider the *waw* [and the *yod*][26] to be the vocalisation of *ḥrure*, *qum*, *prishɔ*; *ḥlimɔ*, *purqɔnɔ*, and *priqɔ*, because these are sounding letters, or half-soundings: those which

[26] This phrase seems to have dropped out of Baethgen's edition, but the following examples imply that Elias also meant *yod* here.

> bestow vocalisation in Syriac, Arabic, and Greek speech. That is, *waw* and *yod*. (Baethgen 1880, ـحث, lines 18–21)

The words which Elias lists are usually spelled with *waw* or *yod* as *matres lectionis* representing their internal vowels. Because these letters function as vowels rather than consonants, Elias designates them 'sounding letters', just like Ibn Sīnā does for the Arabic *matres wāw* and *yāʾ*. Elias then adds a Syriac concept that is reminiscent of the Arabic short vowels: the *pelgut qɔlɔnɔyɔtɔ*, literally 'half of the soundings'. These half-soundings can still bestow vocalisation on consonants, but the phrase designates vowels which do not have individual letters. Instead, they are represented by vocalisation points alone. Due to the standard practice in Syriac of nearly always representing *u*- and *i*-vowels with a *mater lectionis*, these 'half-soundings' are most commonly /a/, /e/, and /ɔ/ (Baethgen 1880, ـحا, lines 1–2). This half-sounding terminology notably contrasts Ibn Sīnā's idea of letters with 'half of a sound', which are fricative consonants, ultimately derived from the Greek concept of *hēmiphōna* 'half-sounding' liquids or fricatives. It seems that rather than copying this Greco-Arabic category (just as Jacob of Edessa did not adopt it), Elias reapplies the idea of a half-sounding letter to the vowels that do not appear with *matres lectionis*. His description thus diverges from the Greek notion (e.g., from the *Technē*) of a 'half-sounding' being a letter that allows partially-obstructed continuous airflow.

As for the letter *ʾalaph*, Elias grants it even more 'soundingness' than *wāw* and *yod*, again aligning with Ibn Sīnā's interpretation of the *muṣawwitāt*. Shortly after arguing that *ʾalaph* is silent by itself (Baethgen 1880, حد, lines 3–4),[27] Elias writes:

..ز ..ص ..له .ܟܬܒܝ ܟܬܒ ܕܐ ܡܢ ܡܢ ܟܬܒ ܡܠܦ ܐܢ ..ع..ܫ ..ܐ ..ܟ .. ..ح ..ز ..ع ..ح ..ط ..ي ..ك ..ن ..ر ..ش ..ت ..ث ..خ ..ذ ..ض ..ظ ..غ

If someone were to say, "Therefore, when we say *ʾalɔhɔ*, *ʿabdɔ*, and *barnɔshɔ*, the *heʾ*, *dalat*, and *wāw* are not vocalised, but rather the *ʾalaph* [is vocalised], the *ʾalaph* that you assert that is silent." We respond: *ʾalaph* is completely one of the sounding ones. It bestows movement to other letters, and since it precedes the rest [of them], *wāw* and *yod* sound out, just like *ʾalaph*. Therefore, it is not correct to associate movement with the other [letters]. (Baethgen 1880, حد, lines 10–14)

Elias claims that *ʾalaph* is entirely a sounding letter, and so has no inherent phonetic quality at all—hence, it is silent. Nevertheless, it always provides 'movement' (*zawʿɔ*; i.e., a vowel) to other letters. Meanwhile, *wāw* and *yod* are modelled after *ʾalaph* in that they are sounding letters that can bestow movement, but are not "completely one of the sounding ones." That is, they do not exclusively represent vowels. The idea of *ʾalaph* as the most sounding of the Syriac *matres lectionis* again likely extends back to Jacob of Edessa, who took *ʾalaph* alone from the Syriac alphabet to

[27] Arabic grammarians make a similar designation for the *matres lectionis* letters, which are called *sākin* 'still' when they represent long vowels. See present chapter, §§2.0–3.0.

serve as one of his vowel letters. It also corresponds to Ibn Sīnā's description of the Arabic *ʾalif*, which was a pure *muṣawwita* letter, whereas *wāw* and *yāʾ* had both *muṣawwita* and *ṣāmita* 'soundless' forms. In this way, both Elias' and Ibn Sīnā's views on the sounding letters are distinct from the Masoretic and earlier Syriac understanding, which considered the 'sounding ones' as a category that included all vowel phonemes, rather than just the *matres lectionis* letters.

The notion of sounding letters as an explanation for the difference between vowels and consonants is fundamental to much of medieval Semitic vocalisation, and the comparison of sources from different linguistic traditions reveals a clear continuation of the idea from pre-Islamic sources until the eleventh century. This chain of transmission begins in Greek works, including Aristotle's *Poetics*, but especially the *Technē Grammatikē* of Dionysius Thrax, which categorised letters as *phōnēenta*, *aphōna*, and *hēmiphōna*. From there, early Syriac grammarians, like Jacob of Edessa and Dawid bar Pawlos, adapted these terms to create two categories of Syriac letters: 'sounding' (*qɔlɔnɔyɔtɔ*) vowels and 'soundless' (*dlɔ qɔlɔ*) consonants. At the same time, their Arabic contemporaries did not adopt any 'sounding' categories for vowels, although they did interpret the earlier Greek terminology in different ways to describe groups of consonants. The ninth-century translation of Greek technical terminology did allow for the penetration of 'sounding' vowel phonology into Arabic, but most Arabic grammarians did not adopt it. That said, the translation movement did allow Hebrew Masoretes to write their own

muṣawwitāt texts in the tenth century, adopting the same 'sounding category as Syriac grammarians to describe their seven vowels. Also building on earlier Syriac foundations, Elias of Ṭirhan adopted the sounding letters for his *Memrɔ Gramaṭiqɔyɔ*, although he modified Jacob of Edessa's original concept to suit his understanding of the *matres lectionis*. Meanwhile, the sounding terminology did see some use among Muslim scholars to describe vowels, but it seems that that use was limited to non-grammatical realms. Evidence of this usage comes from translations by Abū Bishr and al-Fārābī, as well as Ibn Sīnā's discussions of *muṣawwitāt* and *ṣāmitāt*. By contrast, the idea of vowels as 'motion' was much more widespread in the Arabic grammatical tradition, a concept that became practically universal among medieval scholars of Semitic languages, as we will now explore.

2.0. Vowels as Phonetic Motion

The most common and well-known Arabic term for 'vowel' is *ḥaraka* 'movement' (pl. *ḥarakāt*), which somehow describes the phonetic transition between two consonants which are *sākin* 'still'. It appears in the earliest eighth-century Arabic grammatical sources (see Talmon 1997, 135–37), and continues to see use in grammars of modern Arabic. However, the origins of the term are obscure, and other words that translate as 'movement' were used in relation to vowels and recitation in both Greek (*kinesis*) and Syriac (*zawʿɔ/mzitʿɔnɔ*) prior to the earliest attestations of *ḥaraka* in Arabic grammar. It is difficult to draw a direct conceptual link between these early terms and the Arabic word, although some scholars have argued for such a connection. That

said, both Syriac and Hebrew scholars eventually adapted *ḥaraka* and *sākin* to describe their own respective vowels and consonants.

This section traces the application and development of these words for 'movement' and 'stillness' in the field of vowel phonology. It begins with the origins of the word *ḥaraka* in the Arabic grammatical tradition, discussing the theories of C. H. M. Versteegh and Max Bravmann regarding potential connections between *ḥaraka* 'movement' and the Greek word *kinesis* 'movement'. Next, it addresses the late antique Syriac accent system(s) known from sources like Thomas the Deacon (fl. c. 600) and MS BL Add. 12138 (written 899), placing the accent names *zawʿɔ* 'movement' and *mzitʿɔnɔ* 'giving movement' in context with *ḥaraka* and *kinesis*. It then explains how terms derived from *ḥaraka* and *sākin* describe vowels in the Arabic grammatical tradition, specifically discussing Sībawayh's (d. 793/796) *Kitāb* and Ibn Jinnī's (d. 1002) *Sirr Ṣināʿa al-Iʿrāb*. Finally, it analyses the ways in which later Syriac and Hebrew grammarians adapted the Arabic concepts of *ḥaraka* and *sākin* to suit their languages. For Syriac, this analysis relies on the lexica of ʿĪsā ibn ʿAlī (d. c. 900) and Ḥasan bar Bahlul (fl. 942–968), as well as the eleventh-century grammars of Elias of Nisibis (d. 1046) and Elias of Ṭirhan (d. 1049). For Hebrew, it relies on *The Treatise on the Shewa*, other *muṣawwitāt* literature, the writings of Saadia Gaon (d. 942), and Abū al-Faraj Hārūn's (d. c. 1050) *Hidāya al-Qārī* (*The Guide for the Reader*).

2.1. Greek Declension, Arabic Vowels, and Syriac Accents

Though the word *ḥaraka* may be an internal invention as the term for 'a vowel' in the Arabic grammatical tradition, it may also be a calque of a technical term from another tradition—namely, Greek or Syriac. However, the connections between *ḥaraka* and potential source words in these languages are tentative at best. While both Greek and Syriac linguistic texts contain technical terms referring to some fashion of 'movement', neither tradition clearly uses those terms to define the phonetic category of 'vowel' before the eighth century.

Versteegh presents potential links between Arabic *ḥaraka* and Greek grammar in his 1977 book, *Greek Elements in Arabic Linguistic Thinking*. He argues that the early Arabic grammatical tradition had contact with a living teaching tradition of Greek logic and grammar before the ninth century. This contact may have been between Greek and Arabic scholars directly, though it may also have been facilitated by Syriac-speaking intermediaries (Versteegh 1977, 6–10, 38–42; see also, King 2012, 203–4; Mavroudi 2014). He adds that such contact need not have resulted in Arabic grammarians systematically copying large swathes of Greek grammatical teaching, but rather that specific technical terms may have passed individually between the Greek and Arabic traditions (Versteegh 1977, 15, 89). We have already seen this sort of ad hoc transfer in the borrowing of 'sounding' terminology in early Arabic grammatical texts, and the same process may have allowed Arabic grammarians to calque the Greek word *kinesis* 'movement' as *ḥaraka*.

Versteegh's two main pieces of evidence that this calquing occurred rely on the scholastic tradition surrounding the *Technē Grammatikē* (*The Art of Grammar*) by Dionysius Thrax (Versteegh 1977, 23–24). He calls attention to the importance of the *scholia* of the *Technē*—that is, its marginal commentaries—in understanding *kinesis* as a grammatical term. First, he notes the similarity between a line in the *scholia* (Hilgard 1901, 383, lines 3–4, and 550, line 24) and a passage in *al-Īḍāḥ fī ʿIllal al-Naḥw* (*Clarification of the Reasons of Grammar*) by the grammarian Abū al-Qāsim al-Zajjājī (d. 938/939) (al-Zajjājī 1959, 72, line 2–3), observing:

> There is a striking terminological similarity between Zajjājī's words 'It (sc. the declension) is a vowel ['movement'] that enters speech after the completion of its phonetic structure' (*hiya ḥaraka dākhila ʿalā ʾl-kalām baʿda kamāl binā'ihi*) and a text in the scholia on Dionysios Thrax where a grammatical case is defined as 'a movement that occurs at the end of a noun' (*onómatos katà to télos ginoménè kinesis*). (Versteegh 1977, 23)

In both texts, the author describes an inflectional ending as a 'movement' added to the end of a word, and the latter suggests that this 'movement' (*kinesis*) was a technical term in the Greek grammatical tradition. Second, Versteegh finds additional evidence for this technical usage of *kinesis* elsewhere in the *Technē*'s *scholia*, remarking that "the Greek word *kineisthai* is used in the sense of 'to be declined,'[28] and the word *akinetos* sometimes has the meaning 'undeclined'" (Hilgard 1901, 427, line 11; Versteegh

[28] See Hilgard (1901, 230, line 26).

1977, 24). In this way, Versteegh argues that *ḥaraka* originally also meant 'declension', and its usage eventually expanded to include vowels that did not represent case endings (Versteegh 1977, 24). Notably, the *Technē* itself does not use this *kinesis* terminology, but the parallels between the *scholia* passages and the technical usage of *ḥaraka* in the Arabic grammatical tradition are indeed striking.

Also striking is that the *Technē*, in conjunction with the grammatical teaching tradition surrounding it, is the most likely source for the introduction of the 'sounding' letters to the Syriac grammatical tradition. As discussed above (present chapter, §1.1), Jacob of Edessa (d. 708) probably had in mind Joseph Huzaya's sixth-century Syriac translation of the *Technē* (Merx 1889, 28–29) as well as the Greek vowel term *phoneenta* when he categorised vowels as *ʾatwɔtɔ qɔlɔnɔyɔtɔ* 'sounding letters' in his *Turrɔṣ Mamllɔ*. This term eventually proliferated from Syriac into the Arabic and Hebrew linguistic traditions with the additional calque *muṣawwitāt*, although this transfer did not fully occur until the translation movement. If *ḥaraka* in fact derives from *kinesis*, then it likely emerged in such a Greco-Syro-Arabic linguistic context where the *Technē* was a well-known source.

Versteegh himself hints at this possibility of a connection to *muṣawwitāt*, suggesting that after the translation movement and the broad introduction of Greek logic into Arabic grammar, grammarians reinterpreted the term *ḥaraka* as a signifier of physical movement, rather than inflection. This reinterpretation, he suggests, resulted from an understanding of *muṣawwita* within the

Stoic framework of aural sound as a 'body' with movement (Versteegh 1977, 24–25; see King 2012, 204–5). He again cites al-Zajjājī, who describes the Arabic case endings as descriptions of jaw 'movements' related to their phonetic articulation (al-Zajjājī 1959, 93–94). Another supporting source is Ibn Sīnā's *Risāla Asbāb Ḥudūth al-Ḥurūf*, where he describes the *muṣawwitāt* in terms of the upward and downward motion of air (al-Tayyan and Mir Alam 1983, 84–85). As such, the two notions of *ḥaraka* as grammatical 'declension' and of physical 'motion' could have entered the Arabic grammatical tradition from Greek twice, at two different times.

Versteegh's argument—that *ḥaraka* is derived from a Greek *grammatical* term—is itself a response to the earlier theory of Max Bravmann, who first hypothesised that *ḥaraka* was a metrical term meant to indicate the musical 'movement' from one stationary consonant to the next. As such, *ḥaraka* originally meant 'syllable'. For Bravmann, *ḥaraka* was also a calque of *kinesis*, but it was based on the Aristotelian logical conception of *kinesis* as "a specific form of change, namely the realisation of something potential" (Versteegh 1977, 22–23; Bravmann 1934, 12–18). Versteegh takes issue with the possibility that such an Aristotelian idea could have entered the Arabic intellectual milieu prior to the ninth-century translation movement, while *ḥaraka* is attested in Arabic grammar even before al-Khalīl (d. 786/91) and Sībawayh (d. 793/6). Aristotelian *kinesis*, he reasons, could not then be the source of *ḥaraka*. Hence his search for a grammatical usage of the Greek word.

Despite this quest, he does not consider the possibility of whether the word *kinesis* as a grammatical term in the *Technē scholia* could itself have developed from a Greek metrical term or from the Aristotelian idea of 'realising potential', so that grammatical *kinesis* could then appear, now calqued as *ḥaraka*, in eighth-century Arabic sources without any philosophical baggage. In fact, the use of *kinesis* to mean 'declension' or 'inflection' may have both been more widespread and persisted later in Greek grammar than Versteegh thought. The term appears in the Greek grammatical text *Peri tēs tou Logou Suntaxeōs* (*On the Construction of Speech*), written by the ninth-century Patriarch of Jerusalem, Michael Synkellos (d. 846) (Browning and Kazhdan 2005). He produced this work in Edessa around the year 810 and was clearly influenced by the teachings of the *Technē Grammatikē* (Wouters 1983, 321–22; see edition of Donnet 1982).[29]

Versteegh and Bravmann's competing hypotheses are not necessarily mutually exclusive, though neither unequivocally tells the full story of *kinesis* in the early Islamicate Middle East. For despite Versteegh's scepticism, this idea that a vowel is the necessary movement after a consonant, and thus nearly equivalent to 'syllable', almost exactly matches the description that Dawid bar Pawlos (fl. 770–800) gave for the Syriac *qɔlɔnɔyɔtɔ*, even though the term 'movement' does not appear in his grammatical writings. He noted that only the sounding letters can be pronounced "in and of themselves" (Gottheil 1893, cxvii, lines 5–12; see above, present chapter, §1.1). In fact, we have seen that this precise quality, namely for a vowel to be pronounced *in and*

[29] I am grateful to Daniel King for drawing my attention to this source.

of itself—the very ability to create a syllable—was the defining characteristic of 'sounding' letters for a number of medieval linguists, including Jacob of Edessa (d. 708), Saadia Gaon (d. 942), and Elias of Ṭirhan (d. 1049).

These 'sounding' principles are directly linked to the Greek grammatical tradition, and their appearance among Semitic authors like Dawid bar Pawlos reinforces the possibility of an intellectual pathway that could convey *kinesis* from Greek into Syriac or Arabic. Additionally, Talmon (2003, 32–33) has shown that Dawid may have had knowledge of early Arabic grammatical principles, and so could be one of the 'Syriac intermediaries' that Versteegh suspects transferred Greek concepts into the pre-Sībawayhan Arabic tradition. Similarly, Daniel King (2012, 199–201) has identified a letter written in 785 by the Catolicos Timothy I, an Eastern patriarch who lamented the success of Arabic grammarians in comparison to contemporary advancements in Syriac, and seems to have had direct interactions with some Arabic scholars. It seems then that some Syriac scholars in the latter half of the eighth century knew of developments within the Arabic linguistic tradition at the time of Sībawayh and al-Khalīl, and could have been conduits between the Greek and Arabic traditions for ideas about vowels and *kinesis*. Conversely, Dawid bar Pawlos' description of the *ʾatwɔtɔ qɔlɔnɔyɔtɔ* could have been influenced by contemporary conceptions of vowels (i.e., *ḥarakāt*) in Arabic. This type of intellectual exchange could have occurred—as Versteegh suggests—around just a few technical terms, with Greek, Syriac, and Arabic scholars all understanding vowels as vocalised 'movements' in similar, if slightly varied,

ways. Furthermore, and again in line with Versteegh, this exchange would not have required a full pre-ninth-century importation of Aristotelian logic into Arabic (or even into Syriac), but rather just the description of vowels and syllables as given by Dawid bar Pawlos and a few lines from the *Technē*.

Versteegh briefly revisited the topic of *ḥaraka* and *kinesis* in another book, *Arabic Grammar and Qur'anic Exegesis* (1993). In it, he simultaneously asserts that there was new evidence of pre-Sībawayhan contact between Arabic scholars and sources of Greek logic (Versteegh 1993, 23–25), while also backtracking on his original claim that *ḥaraka* began as a term for 'declension' on analogy with a Greek *kinesis* term (Versteegh 1993, 32). After analysing the vowel terminology in eighth-century *ḥadīth* (see below, chapter 4, §1.1), he concludes that the Arabic declensional terms *naṣb* 'standing upright', *khafḍ* 'lowering', and *rafᶜ* 'rising' were originally names for vowel phonemes, and their use as the names for case endings was a secondary development. Extrapolating from this discovery, Versteegh asserts that the naming of vowels, rather than cases, with these terms precludes *ḥaraka* from originally being a term for 'declension' in the same way as Greek *kinesis*. He goes so far as to admit specifically that he was incorrect when he made that claim in 1977. However, his first idea may actually be more accurate than this revision. It seems to me that there is no reason that the Arabic case names could not have originated as phonetic descriptors of vowels (as Versteegh argues), while the category of vowels in general (i.e., *ḥarakāt*) was derived from a Greek term for declension; or rather, a term for 'sounds at the end of nouns'.

At any rate, Versteegh does not explain why these two separate naming conventions could not coincide. The early use of the Arabic declensional terms (*naṣb*, *rafʿ*, *khafḍ*) as names for vowels—even as late as the ninth century (Versteegh 1993, 18–19)—demonstrates that the line between inflection and vocalisation in early Arabic grammar was blurry at best. That fluidity must have been almost necessary if a Greek term for 'declension' were to make the leap to meaning 'vowel' in Arabic. Still, while it remains unclear whether *ḥaraka* was originally a term for 'declension' or 'vowel' (or 'syllable'), in some sense it does not matter for the present discussion. Either way, the most plausible—if by no means confirmed—source of *ḥaraka* is the Greek word *kinesis*, and it encompassed, to some extent, all of the vowel phonemes that could potentially occur at the ends of Arabic words.

One fact that does seem certain is that in contrast to Arabic, there is little evidence of a grammatical term of 'movement' being used to define vowels in Syriac before the second half of the ninth century.[30] This later development was likely a result of continued contact with Arabic grammar, rather than an import from Greek, and suggests that there may not have been a Syriac 'intermediary' in the transfer of *kinesis* to Arabic. That said, the Syriac *recitation* traditions do include the names of certain accent signs based on the concept of 'movement', a phenomenon curiously similar to what Bravmann argued for Arabic.

The earliest Syriac accent signs appear in the fifth or sixth century, and they seem to reflect an early tradition that predates the split between the East and West Syriac accent systems. These

[30] See discussions of Bar Bahlul and Ibn ʿAlī's Syriac lexica below.

include thirteen early signs, possibly invented in part by Joseph Huzaya (fl. c. 500–530) and known from the appendix of MS BL Add. 12138 (written in 899); as well as a few pre-seventh-century manuscripts (see Loopstra 2009, 46; 2014, I:VII–VIII, XIII, L–LVI; Segal 1953, 60–66; see also, Kiraz 2015, 108–19; Loopstra 2019). Segal notes that some of these accents derived their names from Greek (1953, 75), but none of them had names equivalent to 'movement'.

New accents developed in both the East and West Syriac recitation traditions between the seventh and tenth centuries. In the Eastern system, the new signs included *mzi*ʿɔnɔ 'causing movement', a supralinear dot that appears at the end of a clause to mark a pause with rising tone (Segal 1953, 81). It appears throughout BL Add. 12138 (Loopstra 2014, I:LXVI), so it developed no later than the ninth century, and is likely much earlier. Segal speculates that its name comes from the energy or stress in the noticeable movement of breath or vibration that accompanies this rising tone, although he notes that Elias of Ṭirhan (d. 1049) attributes it to the movement of the tongue (Segal 1953, n. 5). As for the Western tradition, new signs appear in a short work on accents by Thomas the Deacon from the first half of the seventh century (Martin 1869, ܫ–ܒ; Kiraz 2015, 120–21). He refers to *zaw*ʿɔ 'movement' (Martin 1869, ܒ, lines 15 and 22), a single supralinear dot at the end of a word that originally emphasised a word or phrase in contrast to that which followed it. Over time, the usage of *zaw*ʿɔ expanded to indicate any emphatic accent with a rising tone, similar to the Eastern *mzi*ʿɔnɔ (Segal 1953, 122). This accent persisted in the Western tradition as Jacob of Edessa

(d. 708) revised the accent system near the end of the seventh century, and by the eleventh century Elias of Ṭirhan claims that the Western *zawʿɔ* and Eastern *mziʿɔnɔ* are equivalent (Segal 1953, 145).

Segal points out that the West Syriac linguistic tradition experienced greater influence from Greek rhetoric than the East Syriac tradition did, and Western authors match the names of accents to Aristotelian categories of speech as early as the sixth century (Segal 1953, 120–21).[31] It would not be surprising if *zawʿɔ* as a general term for 'final rising tone' was related to *kinesis* in a similar manner, but it is not clear how or why a Greek term for 'inflection' might have been adapted to refer to 'accentuation' in recitation. Moreover, there is no obvious connection between the Syriac accent names and the word *ḥaraka* in Arabic, except to say that they could have a common origin in *kinesis*. It is perhaps best to think of the respective Greek, Syriac, and Arabic conceptions of phonetic 'movement' as the products of an interlinked network of contemporaneous grammatical traditions, rather than a single linear pathway whereby terms moved from Greek to Syriac, and then to Arabic.

To summarise, the Greek word *kinesis* developed a meaning close to 'declension' in the Greek grammatical tradition of the late antique world. This word may have begun as a metrical term, but it came to refer to the inflected vowels at the ends of Greek nouns in at least some grammatical circles related to the *Technē* of Dionysius Thrax. This idea may have allowed seventh- or

[31] Note especially Thomas the Deacon's use of *paroksotonos* as the name of an accent (Martin 1869, ܟ).

eighth-century Arabic grammarians to calque *kinesis* as *ḥaraka*, most likely to refer to their own case vowels, but this meaning then expanded to refer to vowels in general. The same use of 'movement' does not appear in the eighth-century Syriac grammatical tradition, so it is not clear that Syriac intermediaries would have been responsible for this transmission of *kinesis* into Arabic. Furthermore, Syriac authors used 'movement' terms (*mzi*ʿɔnɔ and *zaw*ʿɔ) to name certain pausal accents in their recitation tradition as early as the seventh century, but the sources examined here suggest no obvious connection between this usage and the technical term *ḥaraka*.

2.2. Movement between Languages: *Ḥaraka* in Hebrew and Syriac

Ḥaraka is so ubiquitous in Arabic grammatical texts that it hardly needs further explanation. It is a categorical term specific to the three short vowel phonemes—/a/, /i/, and /u/—and it appears from grammatical sources in the eighth century. It actually represents one half of a conceptual pair in these Arabic sources, with the 'movement' of a vowel contrasting with the 'motionless' or 'still' (*sākin*) consonants. Syriac and Hebrew authors adapted these phonological concepts by the ninth or tenth century, and modified them to fit their own languages. In the Syriac linguistic tradition, 'moving' and 'still' classifications first appear in lexicographical works from the late ninth century, and they continue into the eleventh-century grammars. In the Hebrew tradition,

they appear in Masoretic treatises and grammatical sources during the same timeframe. For all three languages, 'movement' is essential for facilitating speech.

Sībawayh demonstrates the baseline usage of these classifications in his *Kitāb* by describing individual consonants with the adjectives *mutaḥarrik* 'moved' and *sākin* 'motionless, still' (e.g., Sībawayh 1986, IV:144). A letter that immediately precedes a vowel (*ḥaraka*) is considered *mutaḥarrik*, while a letter that does not precede a vowel is *sākin*. In fully vocalised Classical Arabic, every *mutaḥarrik* letter has a *fatḥa*, *kasra*, or *ḍamma* vowel sign, while every letter that does not have a vowel takes the *sukūn* 'stillness' sign. This fact also leads Sībawayh to classify every *mater lectionis* letter *ʾalif*, *wāw*, and *yāʾ* as *sākin*, even though they stand for long vowels, as they cannot ever take *ḥarakāt* signs (al-Nassir 1993, 109). Sībawayh clarifies part of his understanding of *ḥarakāt* by quoting his teacher, al-Khalīl ibn Aḥmad (d. 786/791):

> وزعم الخليل أنّ الفتحة والكسرة والضمّة زوائد، وهنّ يلحقن الحرف ليُوصَل الى التكلم به. والبناءُ هو الساكن الذي لا زيادة فيه.
>
> Al-Khalīl claimed that the *fatḥa*, *kasra*, and *ḍamma* were additions, and they attach to the letter in order to connect it into speech; and [a letter of] the base structure is the *sākin*, which is not an addition. (Sībawayh 1986, IV:241–42)

Al-Khalīl states that the vowels are not inherent to Arabic words, but rather they are added to consonantal structures in order to create speech. Without them, the base consonants are *sākin*. Thus, for Sībawayh, the vowels are the connective energy that allows groups of consonants to form words and speech.

Ibn Jinnī takes up Sībawayh's division between 'movement' and 'stillness' in his tenth-century book on phonology, *Sirr Ṣināʿa al-Iʿrāb* (*The Secret of Making Proper Arabic*). He devotes a great deal of ink to describing the different ways that one can classify the Arabic letters, and one of these divisions is into *sukūn* and *ḥaraka* (Ibn Jinnī 1993, 62). This contrast is particularly apparent in his description of one Arabic letter—the *hamza bayna bayna* 'in-between *hamza*'—which has characteristics of both a vowel and a consonant. Sībawayh uses this term to refer to a weakened *hamza* that functions more like a *mater lectionis* that lengthens a vowel than as a typical consonant (e.g., the *hamza* in *saʾala* 'he asked') (al-Nassir 1993, 81–82). Ibn Jinnī clarifies what he believes Sībawayh meant, writing: "by saying *bayna bayna*, Sībawayh's meaning was that it is weak, not able to be properly pronounced, but not the total loss of the letter which its vowel is from (ومعنى قول سيبويه بينَ بينَ أي: هي ضعيفة ليس لها تمكن المحققة ولا خُلوص الحرف الذي منها حركتها)" (Ibn Jinnī 1993, 49). That is, the *hamza bayna bayna* is pronounced a little like *ʾalif*, *yāʾ*, or *wāw* when they stand for a vowel. However, in Ibn Jinnī's own words, "even though it has approached *sākin*, it is actually *mutaḥarrika*, such that you count it, in the measure of prosody, as a moved letter (وإن كانت قد قُربت من الساكن فإنها في الحقيقة متحركة، أنك تعتدّها في وزن العروض حرفاً متحركاً)" (Ibn Jinnī 1993, 48). The *hamza bayna bayna* in this context becomes nearly motionless (*sākin*), but not completely still like in Sībawayh's conception of the *matres lectionis*, so it retains its status as a vocalised (*mutaḥarrik*) letter at the onset of a distinct syllable.

The explanation of *mutaḥarrik* and *sākin* letters extended far beyond the Classical Arabic grammatical tradition, with the same terms occurring in Judaeo-Arabic Masoretic treatises. The tenth-century *Treatise on the Shewa* sometimes refers to vowels as *ḥarakāt*, and speaks of specific vowels with phrases like "the movement of *pataḥ*" (*ḥaraka pɔtaḥ*) for /a/ or "the movement of *qameṣ*" (*ḥaraka qɔmeṣ*) for /ɔ/ (Levy 1936, ג, lines 18–19, and כא, line 8). The author demonstrates the full range of their Arabic technical terms in a passage describing the vocalisation of *shewa* on certain pharyngeal consonants when they close an onset syllable:

> פאמא תחת הדֹה אלארבעה אחרף אעני אחהע פאנה לא יתחרך תחתהא בתה לא בפתח ולא בקמץ ולא בתֹנתין ולא בחרכה מן אלחרכאת בל תגדה תחתהא אבדא סאכן ולא יחרכהא לחן ולא תחרכה געיה ולא שיא אכֹר מן אלאסבאב אלמחרכה בתה בל תגדה עלי הדֹא אלחאל דאים כקול בָּאֶשָׁא מַהֲרַי מַחְלָה בַעְלִי נַחְבַי וגֹירהמא ליס פיהא שיא יתחרך ודֹלך ביאנה.
>
> As for [the shewa] beneath these four letters—namely, *ʾaleph*, *ḥet*, *heʾ*, and *ʿayin*—it is not moved at all, not with *pɔtaḥ* nor *qɔmeṣ* nor *ṣere* nor any *ḥaraka*. Rather, beneath them you will always find a *sākin*, and no accent or *gaʿya* or anything else among the causes of movement can move them at all. Instead, they are always found according to this pattern [with a closed initial syllable], as is said: *bɔʾshɔ*, *mahray*, *maḥlɔ*, *baʿli*, *naḥbay*, and others which lack anything that is moved. That is its explanation. (Levy 1936, כא, lines 9–14)

As the author explains, in specific words, a *shewa* sign beneath a pharyngeal consonant always indicates *sākin*, representing silence at a syllable break, and does not move (*lā yataḥarrik*). These

consonants will never take a *ḥaraka*, not even with one of the "causes of movement" (*al-ʾasbāb al-muḥarrika*) that typically "imparts movement" (*yuḥarrik*), such as an accent that elsewhere would change a word's syllable structure and the realisation of the *shewa*.[32]

The above terminology closely resembles that found in *Kitāb Sībawayh* and *Sirr Ṣināʿa al-Iʿrāb*, but the *Treatise on the Shewa* uses this vocabulary for a uniquely Hebrew purpose, applying *mutaḥarrik* and *sākin* to distinguish the types of *shewa*. Broadly speaking,[33] the Tiberian *shewa* comes in two flavours, usually designated in English as 'silent' and 'mobile' (also called 'quiescent' and 'vocalic'). In the Tiberian reading tradition, both types are marked by a vertical pair of dots below a letter, but silent *shewa* indicates the close of a syllable, while mobile *shewa* represents an epenthetic short vowel (usually /a/) (Khan 2020, I:305). Naturally, this fact causes a certain amount of ambiguity, and many Tiberian Masoretes—including the author of the *Treatise on the Shewa*—wrote about how to differentiate the two *she-*

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[32] See also, another section of the *Treatise on the Shewa*: "The Rules of *Shewa* and How Accents and *Gaʿyot* Move It" (Levy 1936, ה, from line 7).

[33] See Khan (2020, I:305–421, 486–95). For simplicity's sake, it may be best to follow the dubious recommendation of Thomas O. Lambdin: "…in fact there are several schools of thought on the subject among the traditional Hebrew grammarians. Since it is completely immaterial to the understanding of the language and to translation, we shall not enter into the dispute" (1971, XXVI).

was. In the *Treatise*, they use the same 'silent' and 'mobile' terminology that we use now, albeit as the Arabic words *sākin* and *mutaḥarrik*:

> הדא אלקסם איצא ינקסם עלי קסמין מנה סאכן ומנה מתחרך. ואלסאכן מתל קולך שִׁמְעוּ שִׁמְעוֹן . . . וקד ביינת לך אן הדה אלשואאת כלהא אלוסטאניה אנמא פעלהא אן תפצל אלכלמה ותקטעהא עלי מא יגב להא מן אלתקטיע ואלתכריג. וכל הדא אלנוע פליס פיה שיא יתחרך בל אן כאנא אתינין פאלתאני מנהמא הוא אלמתחרך אבדא לאן אלתאני הוא אלמאלף אבדא ואלתחריך פהו לצאחב אלתאליף ליס לצאחב אלקטע
>
> This classification is also divided into two groups, including *sākin* and *mutaḥarrik*. The *sākin* is like how you say [the *mem* in]: *shimʿu* [and] *shimʿon*... I have specified to you that these *shewa*s are all internal; one only uses them to separate and split the word, according to what is required for it with respect to splitting and pronunciation. Everything of this type has nothing moving, unless there are two [*shewas*], for then the second of them is always *mutaḥarrik*, because the second is always the combiner. Imparting movement is for the master of combining, not the master of splitting. (Levy 1936, ד, lines 3–8)

The silent *shewa*, which functions precisely like the Arabic *sukūn*, splits words into syllables, and thus it is deemed *sākin*. Meanwhile, mobile *shewa* is *mutaḥarrik*, combining separate syllables via movement. Later on, the author even discusses "the *shewa*, its *ḥaraka*, and its *sukūn* (אלשוא וחרכתה וסכונה)" (Levy 1936, ז, line 11). Besides *shewa*, nothing in the Hebrew or Arabic linguistic traditions has this kind of variable phonological nature, so the Masoretes adapted existing Arabic terminology to describe it.

This association likely began with *mutaḥarrik* describing the status of a consonant with mobile *shewa*, and then shifted to describing the *shewa* itself.

The *Treatise* even applies a Hebrew version of this terminology, suggesting that the Masoretes may have calqued the words *mutaḥarrik* and *sākin* as early as the ninth century (Dotan 2007, 651; Khan 2020, I:116–18). While discussing the pronunciation of conjunctive *waw* with *shewa* but without *gaʿya* (i.e., a type of stress marker), the author writes:

> לאנך אן רפעת אלגעיה מן אלואו פהי אבדא מקטעין מתֹל וּשְׁלַח וסְגֹר וזְהַב וּשְׁבֶה להודיעך כי יש שוא הוא אשר יכרות ויפריד לאילו ובא ללמדך כי השוא המכרת והמפסק אעני השוא העומד יהיה תֹאני לעולם ושוכן כאשר ביארנו ואינו מתנענע כי זה המתנענע יש לו שני.
>
> Because if you remove the *gaʿya* from the *waw*, then [the word] is always split into two [syllables], like *ushlaḥ*, *usgor*, *uzhaḇ*, and *ushbe*. In order to inform you that there is a *shewa* which may cut and separate them, it comes to instruct you that the cutting, stopping *shewa*—I mean, the motionless *shewa*—will always be second. It is as if it clarifies for us, when [the first] is not moved, that the moved one in it is second. (Levy 1936, ו, lines 5–8)

The author explains that there are exceptions to the rule that when there are two consecutive *shewa*s, the second one is always mobile. One such exception is when the first *shewa* in a word is on a conjunctive *waw*. In that case, the situation is reversed, and the second *shewa* is actually *ʿomed* 'standing in place, motionless', while the first *shewa* is *mitnaʿanea*ʿ 'moving'. *ʿOmed* and *mitnaʿanea*ʿ are calques of *sākin* and *mutaḥarrik*, respectively. The language here switches from Arabic to Hebrew, probably reflecting the language of a source text that was used in the compilation

of the *Treatise*. This source was most likely ninth-century Masoretic material written in rhymed Hebrew prose, and it suggests that the Masoretes adapted *mutaḥarrik* and *sākin* to Hebrew prior to the tenth century, before they switched to writing mainly in Judaeo-Arabic (see Khan 2020, I:117–18).

The same language appears in other Masoretic treatises from the tenth and eleventh centuries. For example, T-S Ar.53.1, a tenth-century *muṣawwitāt* text, introduces all of the Hebrew vowel signs, then *shewa*, saying, "Additionally the *shewa*, which is the two standing dots, it exists according to two divisions: *sākin* and *mutaḥarrik* (ואלשְוא והמא אלנקטתאן אלקאימתאן והִי תכון עלי קסמין סאכן ומתחרך)" (Allony and Yeivin 1985, 92, lines 8–11). Similarly, Abū al-Faraj Hārūn (d. c. 1050) explains one of the rules of Hebrew phonetics in *Hidāya al-Qārī* (*The Guide for the Reader*), writing:

> ואלחרף קד יערי מן נגמה ואלנגמה לא תערי מן חרף לאן אלנטק לא בד לה מן סאכן ומתחרך פאלמתחרך לא יתחרך אלא בנגמה ואלסאכן מסתגני ען דלך
>
> A letter may go without a vowel (*naghama*), but a vowel may not go without a letter, because articulation must have some *sākin* and some *mutaḥarrik*. So the *mutaḥarrik* is not moved except by a vowel, but the *sākin* has no need of that. (Khan 2020, II:119, lines 676–78)

The *sākin* may not have needed a *ḥaraka*, but the Masoretes certainly did, and they had no problems adapting Arabic linguistic terminology to their writings on Hebrew phonology. Syriac scholars had the same need, and they also adapted these words to describe the language of their Bible between the ninth and eleventh centuries.

Some of the earliest evidence of Syriac authors applying the Arabic ideas of *mutaḥarrik* and *sākin* to vocalisation comes from the Syriac-Arabic lexica of ʿĪsā ibn ʿAlī (d. c. 900)[34] and Ḥasan bar Balul (fl. 942–968). Both of these authors based their dictionaries on the work of earlier ninth-century lexicographers, particularly the famous translator Ḥunayn ibn Isḥāq (d. 873), and both were revised several times after their deaths (see Butts 2009; Taylor 2011). Both lexica also describe the differences in vocalisation between homographic Syriac words using technical phonological terms, and they indicate that a letter is unvocalised with derivatives of the root *shly* 'being still'. In Bar Bahlul's lexicon, this vocabulary is fairly straightforward. For example, he writes: "*ʾabnɔ*, according to Ḥunayn, while the *bet* is *shalyɔ* (ܒ ܕܐܡܪ ܚܢܝܢ ܒܝܬ ܫܠܝܐ ܕܠܐ ܡܬܓܠܝܐ)" (Duval 1901, 17). That is, *ʾabnɔ* 'stone' is pronounced with a *bet* that is *shalyɔ*, meaning 'unvocalised'. *Shalyɔ* here is a passive participle, literally 'made still', and it is the most common way to indicate an unvocalised letter in Bar Bahlul's lexicon (e.g., Duval 1901, 34, 398, 417, 429, 440). It is most likely a direct calque of the Arabic *sākin*, another participial form. Interestingly, Bar Bahlul also applies 'stillness' terminology to letters that have some vocalic quality, writing: "*bʿɔqɔ*, while the *bet* is made still, and the *ʿayin* and *qof* are stood upright (ܒ ܕܐܡܪ ܒܥܐ ܫܠܝܐ ܘܥܝܢ ܘܩܘܦ ܩܝܡܝܢ)" (Duval 1901, 417).[35] While the initial *bet* in *bʿɔqɔ* 'convulsions' lacks a full vowel and never takes vowel points of any kind, it does require a *shewa*-like vocalisation in speech. Bar Bahlul's

[34] Also known as Isho' bar ʿAlī.

[35] 'Stood upright' in this context means that these letters have the vowel *zqɔpɔ* /ɔ/. See below, chapter 4, §2.1.

contemporaries among the Hebrew Masoretes would have described such a *bet* as having *shewa mutaḥarrika*, but he calls it *shalyɔ* 'made still'. This difference between the two languages may reflect a greater concern among the Tiberian Masoretes for proper biblical recitation and orthoepy (see Khan 2020, I:99–105, 441, esp. 452), at least in comparison to Syriac lexicographers.

Like Bar Bahlul, Ibn ʿAlī appears to use terminology similar to *shalyɔ*, although in his lexicon it occurs as an abbreviation, simply the letter *shin*. For example, one entry reads: "*metqbar*, when the *mem* is constrained, the *taw* and *qof* are made still, and the *bet* is opened (ܒ ܡܫܬܩܦ ܡ ܡ ܥܠܝܟ ܬ ܐܬܟ ܩ ܒܚܝܬ ܦܬܚ)" (Hoffmann 1874, 283, line 15). By this description, he means that in the word *metqbar* 'buried', the *mem* is pronounced with /e/, the *taw* and *qof* are pronounced without vocalisation, and the *bet* is pronounced with /a/. The *shin* standing for *shalyɔ* parallels other passive participles that indicate vowels throughout the text (see below, chapter 4, §2.2). Note that like Bar Bahlul, Ibn ʿAlī applies this 'stillness' to both the unvocalised *taw* and to the *qof*, even though the latter must have been articulated with a *shewa*-like vowel to break up the consonant cluster. It thus appears that their descriptions focus more on the graphical appearance of vowel points (or lack thereof) on a fully-pointed letter, rather than on that letter's phonetic realisation. This view explicitly differs from the *Treatise on the Shewa*, where the author asserts that any Hebrew *shewa* at the onset of a syllable must be *mutaḥarrik* (Levy 1936, ח, lines 2–3). As such, if a Masoretic author were

vocalising the word *metqbar*, they would read the *qof* with a mobile *shewa*.

In addition to Ibn ʿAlī and Bar Bahlul's descriptive usages, both lexicographers link *shɔlyɔ* and *shalyɔ* to *sākin* and *sukūn* in their lexical entries for the words. Bar Bahlul equates *shalyɔ* with *sākin*, writing: "*Shalyɔ* is *al-sākin*; *shelyɔ*, *shalyutɔ*, according to Zekaryɔ, is *al-sukūn* (ܫܠܝܐ الساكن. ܫܠܝܬܐ ܫܠܝܘܬܐ ܐܢ السكون)" (Duval 1901, 1980). He includes these two nominal forms—*shelyɔ* and *shalyutɔ*, apparently equivalent to *sukūn*—on the authority of one Zekaryɔ, most likely the Zekaryɔ Maruzɔyɔ whom Bar Bahlul names among his sources in the lexicon's introduction (Duval 1901, 3, line 3). The exact identity of this Zekaryɔ remains unknown, but he may be identifiable with Ishoʿ of Merv, a ninth-century lexicographer known as a source for Ibn ʿAlī's lexicon (Butts 2011). Ibn ʿAlī himself is less specific about *shalyɔ*, but his text does say: "*Shle* is *sakana*; from it *shelyɔ*, which is *sakīna* and *salām* (ܫܠܝܐ . سكن . ܫܠܝ ܫܠܝܐ والسلام السكينة)"[36] (Gottheil 1928, II:436, line 3). That is, the verb *shle* means 'to be still', and its derivative noun *shelyɔ* means 'steadiness and peace'.

In contrast to *shalyɔ*, neither Bar Bahlul nor Ibn ʿAlī defines 'movement' as a general term for 'vowel', even though eleventh-century grammarians would come to use the word *zawʿɔ* 'movement' for exactly that purpose. For those later grammarians,

[36] Gottheil notes six manuscripts that have two sublinear dots, indicating *shle* here, and one that has a supralinear dot, suggesting *shɔlɔ*. He further notes that the manuscript with *shɔlɔ* has the double-dot mark for /a/ in *shalyɔ*, while other manuscripts leave the latter word unpointed. See Gottheil (1928, II:436, nn. 3 and 4).

zawʿɔ is clearly a calque of the Arabic *ḥaraka*, and they likewise calque *mutaḥarrik* with the Syriac *mettziʿɔnɔ* (Kiraz 2012, I:59). While not specifically defining those terms, Bar Bahlul may allude to this later usage in his broader entry on *zawʿɔtɔ* ‘trembling, movement’, saying: “*mziʿ*, according to Zekaryɔ, is *yahīj*, *yataḥarrak*; *mziʿɔnɔ* is *muḥarrik*; *mettziʿɔnɔ* is *mutaḥarrik*; *ʾaziʿ*, according to Bar Serosheway, is *ʾuḥarrik* (ܡܙܝܥ ܐܝܟ ܙܟܪܝܐ يهيج يتحرّك . ܡܙܝܥܢܐ مُحرّك . ܡܬܬܙܝܥܢܐ متحرّك . ܐܙܝܥ ܐܝܟ ܒܪ ܣܪܘܫܘܝ احرّك)” (Duval 1901, 681). That is, *mziʿ* ‘moving’ is ‘becoming perturbed’ (*yahīj*), ‘becoming moved’ (*yataḥarrak*), while the *nomen agentis* form *mziʿɔnɔ* ‘causer of movement’ is an equivalent Arabic active participial form, *muḥarrik*. Then the Syriac participle *mettziʿɔnɔ* ‘moved’ is *mutaḥarrik*, the same as the calque in the later grammars. *ʾAziʿ* ‘I will cause movement’, according to the ninth-century scholar Bar Serosheway, is Arabic *ʾuḥarrik*, which has the same meaning. Similarly, the section on the word *zawʿɔ* lists seven types of physical movement, including the last one: “And for whatever is moved and circled in place, even though it is in some respects similar to them, and in other respects distinct: [all of them are] *al-ḥaraka* (ܘܠܗܘ ܕܒܠ ܕܘܟܬܗ ܡܬܬܙܝܥ . ܘܡܬܟܪܟ ܕܐܦ ܒܡܕܡ ܕܡܐ ܠܗܘܢ . ܐܠܐ ܒܡܕܡ ܦܪܝܫ الحركة)” (Duval 1901, 682). Even without technical grammatical definitions here, *ḥaraka* and *mutaḥarrik* were the default Arabic words to translate *zawʿɔ* in the tenth century.

The more technical Syriac calques of *ḥaraka* and *sākin* become fully evident from the eleventh century, in the Syriac grammars of Elias of Nisibis (d. 1046) and Elias of Ṭirhan (d. 1049). In his *Turrɔṣ Mamllɔ Suryɔyɔ* (*The Correct Form of Syriac Speech*),

the Nisibene Elias distinguishes two relevant terms in this arena: *mettziʿɔnitɔ/mettziʿɔnutɔ* 'moved one, vocalised, vowel' and *shlitɔ* 'made still, unvocalised'. His second chapter begins thus:

ܗܕܐ ܢܡܠܠ ܥܠ ܡܬܚܪܟ̈ܐ ܘܣܟ̈ܢܐ ܕܐܬ̈ܘܬ.

ܡܛܠ ܕܡܬܚܪܟ̈ܐ ܒܝܢ ܠܥܪܒ̈ܝܐ ܐܬܦܠܓ̈ܘ ܒܬܠܬ ܦ̈ܠܓ̈ܐ ܘܒܝܢ ܣܘܪ̈ܝܝܐ ܡܥܪ̈ܒ̈ܝܐ ܒܚܡܫ ܦ̈ܠܓ̈ܐ. ܘܗܟ̈ܝ ܒܝܢ ܐܢ̈ܚܢ ܕܡܕܝܢ̈ܚ̈ܐ ܐܬܦܠܓ̈ܘ ܒܫܒܥ ܦ̈ܠܓ̈ܐ ❊ ܠܡܚܫ ܐܢ̈ܐ ܡܬ̈ܚ̈ܠ̈ܦ̈ܐ

Now we will speak on the moved and motionless letters:

For the moved letters, among the Arabs, are divided into three types, and among the Western Syrians, into five types. Then among us Easterners, they are divided into seven types. (Gottheil 1887, ٣, lines 6–9)

By the 'moved letters' (*ʾatwɔtɔ mettziʿɔnyɔtɔ*), Elias is clearly referring to his seven vowels of Eastern Syriac, contrasting them with the smaller vowel inventories of Arabic and West Syriac (see below, chapter 4, §2.3). *Mettziʿɔnitɔ* is a calque of *mutaḥarrik*, but Elias slightly extends its usage, using it both as a descriptor of a letter (i.e., "moved letters") and also as the categorical name for vowels as opposed to consonants (i.e., the "seven types") (see Segal 1953, 7; see also, Kiraz 2012, I:69–74; Knudsen 2015, 91–92; Butts 2016, 89–90). There is some variation between *mettziʿɔnyɔtɔ* (sing. *mettziʿɔnitɔ*), seen here, and *mettziʿɔnwɔtɔ* (sing. *mettziʿɔnutɔ*), which Elias uses in the first chapter (Gottheil 1887, ٥, line 8), although the two forms seem mostly interchangeable. Conversely, he calques *sākin* using the feminine adjective *shlitɔ*, indicating 'motionless letters' (*ʾatwɔtɔ shalyɔtɔ*). In precisely the same way as Sībawayh's Arabic, this category encompasses all letters that are not marked with a vowel sign in fully pointed

Syriac writing (Gottheil 1887, ܠ, lines 19–21; see al-Nassir 1993, 109).

In his *Memrɔ Gramaṭiqɔyɔ* (*The Grammatical Essay*), Elias of Ṭirhan presents his own understanding of 'moved' and 'motionless' letters in a way that is similar, though not identical, to Elias of Nisibis. In the seventeenth chapter of this grammar, he explains:

> ܕܝܩܠ ܕܡ ܗܵܐ ܟܬ̈ܝܒ̈ ܚܕ ܚܕ ܡܫܟ̈ܚ̈ ܐ̈ܝܟ ܗܘ̈ ܚ̈ܪ̈ܝ̈ ܩ̈ܒ̈ܪ̈ ܫ̈ܝ̈ܪ̈ ܩ̈ܛ̈ܠ̈ ܕ̈ܒ̈ ܫ̈ܝ̈ܢ̈ ܪ̈ܝ̈ܫ̈ [ܐ] ܠ .. ܩ̈ܠ̈ ܚ̈ܫ̈ܠ̈ .. ܡ̈ܗ̈ܠ̈ܠ̈ ,ܡ̈ܗ̈ܠ̈ܠ̈ ,ܩ̈ܛ̈ܠ̈ .. ܫ̈ܪ̈ ܐ̈ ܚ̈ ܛ̈ ܥ̈ ܙ̈ ..
> ܥ̈ܫ̈ܚ̈ܥ̈
>
> Then [also know] that two [letters] being still is possible, for example: *ḥrure*, *qbure*, *priyye*,[37] *qṭulɔy(hy)*, *qṭulu(hy)*, etc. The *ḥet*, *rish*, *qof*, *bet*, *shin*, *rish*, [*qof*], and *ṭet* are motionless in these nouns. (Baethgen 1880, ـحـ–ـحـ)

Elias suggests that the first two consonants in words like *ḥrure* 'holes' are both motionless (*neshlyɔn*), 'unvocalised', although at first glance this appears impossible. As we have already seen with Bar Bahlul—for whom the first letter of *bʿɔqɔ* was 'made still' (*shalyɔ*)—the initial *ḥet* of *ḥrure* could feasibly be called 'still' in Syriac. On the other hand, the *rish* is most certainly 'moved', at least by all the definitions of vocalic movement that we have discussed thus far, since it immediately precedes a vowel. However, Elias does not seem to be describing phonetics in this instance, but rather he designates 'motion' and 'stillness' according to

[37] This word may be mistaken in Baethgen's edition, as Elias' explanation indicates it should begin with the letter *shin*.

graphical vocalisation.[38] In Classical Syriac, the vowels /i/ and /u/ are practically always represented by the *matres lectionis* letters *yod* and *waw*. In contrast to Arabic, when such words are vocalised in Syriac, the vowel sign is placed on the *mater lectionis*, rather than the preceding consonant. As a result, in the fully vocalised form of *ḥrure* (ܚܪܘܪܝ), neither the *ḥet* nor the *rish* has a vowel sign, so Elias can say that they are both 'still'. This explanation is interesting in the context of Sībawayh, who classified all of the Arabic *matres lectionis* as *sākin* due to their lack of vowel signs.

Like Elias of Nisibis, Elias of Ṭirhan also expands the idea of 'movement' while breaking with Arabic grammarians. As we have already seen from his discussion of sounding letters, "the vocalised ones are made known by production from these three sounding ones (ܗܠܝܢ ܡܬܬܝܕܥ̈ܝܢ ܡܢ ܗܠܝ ܬܠܬ ܐܘܬܝܘܢ ܕܡܫܬܡܥ̈ܝܢ ܗܠܝܢ ܕܡܬܬܝܕܥ̈ܝܢ)" (Baethgen 1880, لجـ, lines 14–15; see above, present chapter, §1.0). By 'vocalised ones'—*mettzi'ɔnwɔtɔ*, literally 'things that are moved'—he means each of the vowel phonemes, specifically as they are combined with consonants to create vocalised syllables. But Elias extends this category of 'moved things' beyond vocalic phonemes to include other non-consonantal modulations of the voice. In his introduction, he writes:

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[38] It seems that Elias' analysis must be based on the fully pointed forms of words, even if complete vocalisation in Syriac writing was uncommon. Full pointing was most common in bliblical texts, which was likely Elias' main concern when writing this grammar.

ܐܠ ܐܡܪ .. ܒܪܝܫܝܬ ܒܪܐ ܐܠܗܐ ܐܬ ̣ܫܡܝܐ ܘܝܬ ܐܪܥܐ .. ܐܢ ܠܐ
ܐܠ ,ܡܬܬܙܝܥ ܗܝ . ܒܪܫܝܬ ܒܪܐ ܐܠܗܐ ܐܬ ܫܡܝܐ ܘܐܬ ܐܪܥܐ ܠܐ
ܒܪܝܫܝܬ ܒܪܐ ܐܠܗܐ ܐܬ ̣ܫܡܝܐ ܘܝܬ ܐܪܥܐ ܡܫܬܡܥ ܗܟܢ

> If I say: "In the beginning, God created the heaven and the earth"—but without this, this *mettziʿɔnutɔ* that is the *taḥtɔyɔ*, and the *retmɔ* before it—then it would not be indicated that *God* created the heaven and the earth. (Baethgen 1880, ٣, lines 2–4)

Elias explains that the sentence *brɔshit brɔ ʾalɔhɔ yɔt shmayyɔ w-yɔt ʾarʿɔ* is ambiguous. Due to the verb (*brɔ* 'he/it created') coming before the subject (*ʾalɔhɔ* 'God'), the sentence can be interpreted either as God creating heaven and earth, or as another actor creating God. It is only by the addition of a *mettziʿɔnutɔ* that a speaker indicates that God is definitely the subject. The added 'moved ones' are accent dots—in this case the two accents *taḥtɔyɔ*[39] and *retmɔ*[40]—that change a speaker's inflection to clarify the subject and objects in the sentence. The term *mettziʿɔnutɔ* thus encompasses vowels and accents, including both categories that cause a speaker to modulate their voice between consonants. Segal (1953, 147, n. 9) notes that the later grammarian John Bar Zuʿbi (fl. c. 1200) also uses *mettziʿɔnutɔ* for accents in this way, despite it originally being a term only for vowels.

Returning to *Hidāya al-Qārī*, Abū al-Faraj (a contemporary of both Eliases) makes a similar conflation between accentual

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[39] The *taḥtɔyɔ* 'declining' is the oblique pair of dots beside the *ʾalaph* in ̣ܫܡܝܐ, indicating that the reader should pause here before introducing a separate clause. See Segal (1953, 109).

[40] The *retmɔ* 'utterance' is the dot above the *taw* in ܬܰ, indicating that the word should be emphasised. See Segal (1953, 84).

modulations and vowels in Hebrew. He first writes on the interactions between the types of *shewa* and the accents:

> לו אגתמע אלשוא מן אלקסמין אלמדכורין והמא אלסאכן ואלמתחרך פאגתמאעה מע אלסאכן לא יתם לאן אלסאכן מן חכמה אן יסכן אלחרף ולא יצטרב בתה כאלריש מן כרְמי ואלמאם מן זמְרי ואלבא מן עבְדי ואללחן ואלכאדם מן שאנהמא אן יחרכא אלחרף ויגעלא פיה נגמה ונגמאת ואלחרף אלסאכן לא יצח פיה נגמה בתה ואלנגמה הי אלחרכה פכיף יכון אלסאכן מתחרכא פי חאל ואחד פאליס הדא מנאקצה פקד אסתחאל דלך
>
> If one of the two aforementioned types of *shewa*—i.e., the *sākin* and the *mutaḥarrik*—came together [with an accent], then the combination [of the accent] with the *sākin* would not occur, because for the *sākin*, its rule is that it makes the letter still, not shaking at all, like the *resh* of *karmi*, the *mem* of *zimri*, and the *bet* of *ʿaḇdi*. But disjunctive and conjunctive accents, by their nature, cause the letter to move. They make a melody or melodies in it, but a *sākin* letter cannot properly have a melody at all, for melody [*naghama*] is *ḥaraka*. So how can the *sākin* be *mutaḥarrik* at the same time? Is this not mutually exclusive? Thus it is impossible. (Khan 2020, II:153, lines 952–59)

Abū al-Faraj's key point is that a single Hebrew letter cannot be read with both a silent (*sākin*) *shewa* and an accent. This explanation hinges on perceived equivalence of the two terms *naghama* 'melody, tone' and *ḥaraka*. The latter, of course, is a vowel, but the former—*naghama*—can mean either a phonemic vowel (as it does in the works of Saadia Gaon; see Skoss 1952) or the vocalic modulation of an accent (as it does here).[41] Abū al-Faraj derives

[41] Also compare Dawid bar Pawlos' use of *neʿmtɔ*, the Syriac cognate of *naghama*, in his explanation of how the voice generates 'melodies' and

this equivalence from the fact that any letter with a conjunctive or disjunctive accent must be the onset of a syllable, and therefore pronounced with a vowel. It seems that in this way, the ideas of 'melody' and 'vocalisation' became entangled in the Masoretic tradition.

Abū al-Faraj then differentiates the 'moving' effect of an accent from that of the mobile *shewa*, as he explains:

> ליס אלקול באן אללחן יחרך אלחרף יקתצי אן תכון חרכתה כחרכה אלשוא ודאך אן אלשוא יחרך אלחרף ויסרע בנטקה חתי לא ימכן אחד אן ילבת בדלך אלחרף כאלבא מן בראשית אדי לא יצח מסכה . . . וליס כדלך אללחן בל הו יחרך אלחרף ויגעל פיה נגמאת ואלחרף פי מוצעה יתחרך לא ירגע אלי כלף ולא אלי קדאם מהמא אלחרף ינגם אלי תרי כיף ינגם אלריש מן וַיְמַהֲרוּ ואלחרף מן מוצעה מא ברח וקד חרכה נגמה ותנתין ומא זאד . . . פצאר אלשוא יתחרך בסרעה אלי קדאם ואללחן יחרך פי אלמוצע בעינה פלו אג[תמ]ע לכאן דלך מתנאקצא פבאן מן דלך אן שוא ולחן לא יגתמעא פי חרף ואחד מעא
>
> The statement that the accent moves the letter does not require that its movement be like the movement of the *shewa*, and that is because the [mobile] *shewa* moves the letter and accelerates its pronunciation such that one cannot linger on that letter, like the *bā*ʾ of *bareshit*,[42] where

vowels (Gottheil 1893, cxii, line 9). Aharon ben Asher uses the equivalent Hebrew word, *naʿimɔ*, in *Diqduqe ha-Ṭeʿamim* to indicate the 'melody' of the accent *shofar* (Dotan 1967, 107, line 13), to classify the accents more broadly (108, line 23), and to explain the vocalic effect of a *gaʿya* (115, lines 2–3). *Naghama* is also an element in Arabic musical theory and occasionally indicates non-speech sounds, but it is not a term for 'vowel' in Arabic grammar (Morag 1979, 89–90; Talmon 1997, 132).

[42] The default pronunciation of mobile *shewa* in the Tiberian pronunciation tradition was /a/ (Khan 2020, I:305).

> holding it would not be proper.... This is not so for the accent, which instead moves the letter and induces melodies in it, and the letter moves in place without going backward or forward as long as it is intoned. Do you not see how [the accent] intones the *resh* of *wa-ymaharú*, yet the letter does not leave its place? [The accent] has moved it [with] a melody, or two, or more.... The *shewa* proceeds moving quickly forward, while the accent imparts movement at its source. If they were brought together, then that would be a contradiction, and from that it is clear that a *shewa* and an accent cannot come together in a single letter. (Khan 2020, II:153–55, lines 962–75)

Abū al-Faraj perceives an innate difference in the realisation of the 'movement' of vocalic *shewa* in comparison to that of an accent. The *shewa*'s *ḥaraka* is quick, always representing a short vowel, and it drives inevitably forward to connect one consonant to the next. By contrast, an accent induces 'melodies' or 'tones' (*naghamāt*) on a single consonant. The result of this effect is that a speaker may modulate the pronunciation of the vowel that follows that consonant, modifying its pitch and duration *without* moving to the next consonant.

These Syriac and Hebrew scholars adapted the Arabic terminology of *ḥaraka* and *sākin* to describe the vowel phonology and syllable structure of their own languages as they differed from Arabic. This reanalysis included unique aspects of their pointing systems, accentuation, and the properties of the *shewa*. All of this terminology traces back to the earliest records of *ḥaraka* to mean 'vowel' in Arabic grammar, and it is likely that this usage has roots in the late antique ideas of *kinesis* in Greek grammar and philosophy. But there was another issue that these

Semitic grammarians all had in common, and that they could not solve with Greek grammar: explaining those *matres lectionis* letters that impart movement to speech. We move now to those letters which could act as both vowels and consonants, and examine how Arabic, Syriac, and Hebrew linguists all defined their distinctive properties.

3.0. Duality in the *Matres Lectionis*

Whereas the difference between *ḥaraka* and *sākin* established a separation between vowels and consonants, the two categories clash when applied to the *matres lectionis* letters. Due to the lack of dedicated vowel letters in the Semitic abjad scripts, Arabic, Syriac, and Hebrew scribes all utilised *matres lectionis* to represent some of the vowels in their languages (Morag 1961, 20). Depending on their phonological context, these 'mothers of reading'[43]—usually the consonants *ʾaleph, yod, waw,* and *heʾ*—took on an additional role in Semitic writing systems, occasionally standing as placeholders for vowel sounds. Medieval scholars explained the dual nature of these letters in a variety of ways, with some saying that the *matres* were inherently silent, sick, or soft in comparison to other consonants. This view was consistently part of the Arabic grammatical tradition, which held that the *matres lectionis* were the most ephemeral letters. This understanding contrasts the interpretation of 'sounding' letters that we have already seen,

[43] This is the English translation of *matres lectionis*, itself a Latin phrase translated from the Hebrew *ʾimmot qeriʾa* 'mothers of reading'. It is now the standard English term for consonants that stand for vowels in Semitic orthography.

mainly in the Syriac and Hebrew traditions, which maintained that the vowel letters were more dynamic. Despite these differences, members of all three traditions categorised their vowels by assigning each phoneme to one of the *matres lectionis*.

One of the earliest sources for the phonology of Arabic *matres lectionis* is the lexicon *Kitāb al-ʿAyn* (*The Book of the ʿAyn*), particularly its introduction, attributed to al-Khalīl ibn Aḥmad al-Farāhīdi (d. 786/791). Another early source is Sībawayh's grammar, known as *Kitāb Sībawayh*. Both of these grammarians considered the vowel letters 'weaker' than the consonants, an idea which continued into later works on Arabic phonology like Ibn Jinnī's (d. 1002) *Sirr Ṣināʿa al-Iʿrāb* (*The Secret of Making Proper Arabic*). Certain Jewish sources give similar explanations for the *matres*, including Saadia Gaon's (d. 942) *Commentary on Sefer Yeṣira*, the lexicographical works of Judah ben David Ḥayyūj (d. 1000), and at least one *muṣawwitāt* text. As for Syriac sources, the two most useful for explaining the *matres lectionis* are the grammars of Elias of Nisibis (d. 1046) and Elias of Ṭirhan (d. 1049), who adopt technical language similar to that of the Arabic grammarians while also deliberately challenging them.

Most of the aforementioned authors tended to group their vowels by assigning them to the *matres* letters. The same organisation also appears in al-Khwarizmi's (d. 997) encyclopaedia *Mafātīḥ al-ʿUlūm* (*The Keys to the Sciences*) and Ibn Sīnā's (d. 1037) *Risāla Asbāb Ḥudūth al-Ḥurūf* (*The Treatise on the Causes of the Occurrence of Letters*). This classification system may be related to a similar phenomenon in the Greek grammatical tradition.

3.1. Arabic Matres Lectionis: In Sickness and in Health

Kitāb al-ʿAyn is the first comprehensive Arabic lexicon, and its introduction is one of earliest Arabic sources for explaining the *matres lectionis*. Historically, it has been attributed to al-Khalīl ibn Aḥmad (d. 786/791), an early scholar of prosody and one of the teachers of Sībawayh (d. 793/796).[44] Most of the text was actually compiled after his death by another student, al-Layth ibn al-Muẓaffar (d. c. 803), but the organisation of the lexical portion of the book and parts of the introduction are probably original to al-Khalīl (Talmon 1997, 91–100; Schoeler 2006, 142–63; Sellheim 2012a; 2012b). In the introductory discussion of the letters of the alphabet, the text emphasises the distinction between the *matres lectionis* and the rest of the consonants:

> قال الليث: قال الخليل: في العربية تسعة وعشرون حرفاً: منها خمسة وعشرون حرفا صحاحا لها أحياناً ومدارج، وأربعة أحرف جوف، وهي الواو والياء والألف اللينة والهمزة وسُمِّيت جوفاً لأنها تخرج من الجوف فلا تقعُ في مدرجة من مدارج اللسان، ولا من مدارج الحلق، ولا من مدرج اللهاة، إنما هي هاوية في الهواء فلم يكن لها حيز تُنسب اليه إلا الجوفَ. وكان يقول كثيرا: الألف اللينة والواو والياء هوائية أي أنها في الهواء.
>
> Al-Layth said: Al-Khalīl said: "In Arabic there are twenty-nine letters. Among them are twenty-five healthy letters,

[44] Although they died less than a decade apart, Sībawayh was forty-two years younger than al-Khalīl. Sībawayh died—somewhat mysteriously—when he was just thirty-six. He acquired the nickname 'Sībawayh', which means 'odour of apples' in his native Persian, apparently because of the sweetness of his breath (K. Versteegh 1997, 29). As fruity-smelling breath is a symptom of diabetes, it is not implausible that this contributed to his early death.

> which have occasions and steps, and four hollow letters, which are the *wāw*, the *yāʾ*, and the flexible *ʾalif*, as well as the *hamza*. They are called 'hollow' because they exit from the hollow [of the mouth], so they do not occur at one of the steps of the tongue, or the steps of the throat, or the step of the palate. Instead, they are airy, in the air, for they do not have a space to attach to besides the hollow. He [al-Khalīl] frequently used to say: the soft *ʾalif*, the *wāw*, and the *yāʾ* are airy; that is, they are in the air." (Makhzumi 1985, I:57)

The 'healthy' or 'sound' letters (*ṣiḥāḥ*, sing. *saḥīḥ*) include all of the Arabic letters except for *hamza*, *wāw*, *yāʾ*, and 'soft *ʾalif*' (*ʾalif layyina*), which are instead 'hollow' (*jūf*). The two groups differ in that 'healthy' letters connect to specific articulation points within the mouth, while the 'hollow' letters exist only as streams of air that emanate from the glottis through the entirety of the vocal tract.[45] Al-Khalīl described this quality as being 'airy' (*hawāʾiya*, sing. *hāwī*) (see also, Makhzumi 1985, IV:95 and VIII:91).

Rafael Talmon has identified several passages in the lexical portions of *al-ʿAyn* that further illuminate eighth-century Arabic perceptions of the *matres lectionis* (Talmon 1997, 134–37). A particularly salient line reads: "The three hollow letters have no voice (*ṣawt*) and no sound (*jars*), and they are *wāw*, *yāʾ*, and soft

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[45] Talmon classifies this as 'extra-buccal' articulation (1997, 135). One comment in the lexical portion of *al-ʿAyn* notes that "al-Khalīl [said]: the three long ones depend on the hamza (الخليل: المدات الثلاث منوطات بالهمزة)" (Makhzumi 1985, VII: 456; Talmon 1997, 137). This statement corresponds to later Arabic grammarians who indicate that the long vowels begin from the articulation point of *hamza* (see below).

ʾalif; the rest of the letters are sounded (*majrūsa*) (والحروف الثلاثة الجوف لا صوت لها ولا جرس. وهي الواو والياء والالف اللينة. وسائر الحروف مجروسة)" (Makhzumi 1985, VI:51). Likewise, the lexicon provides a specific description for 'soft' (*layyin*) letters, saying: "The soft letter is weak (*khawwār*) and the most hollow (*ʾajwaf*) (الحرف اللين خوار اجوف)" (Makhzumi 1985, III:352; Talmon 1997, 135). Both of these comments reinforce the notion that the *matres* were somehow defective in comparison to the 'healthy' letters. There is also some gradience between the two groups, as the letter *yāʾ* is described as "the most similar of the letters to *hāʾ* (الياء اقرب الحروف شبهاً بالهاء)," and in terms of prosody, "the *yāʾ*, *wāw*, *ʾalif*, and *hāʾ* happen to conform in the recitation of poetry (ومن هنالك صار مجرى الياء والواو والالف والهاء في روي الشعر واحداً)" (Makhzumi 1985, III:348; Talmon 1997, 143). The text even goes so far as to say that "the *hāʾ* is the softest of the healthy letters (الهاء ألين الحروف الصحاح)" (Makhzumi 1985, III:355; Talmon 1997, 136), a fact which correlates in terms of both its phonetic similarity to the 'airy' sounds pronounced from the site of *hamza* and its orthographic usage as a de facto *mater lectionis* to represent the nominal feminine ending in Arabic (i.e., as *tāʾ marbūṭa*; see Sībawayh below).

This 'weakness' of the *matres lectionis* ultimately led to their classification as 'sick' in contrast to the healthier consonants. For example, regarding the formation of words with three root letters, the introduction of *al-ʿAyn* reads:

> وتفسير الثلاثي الصحيح أن يكون ثلاثة أحرف ولا يكون فيها واوٌ ولا ياءٌ ولا ألف[46] في أصل البناء، لأنّ هذه الحروف يُقالُ لها حروف العلل. فكلما سلمت كلمة على ثلاثة أحرف من هذه الحروف فهي ثلاثي صحيح مثل: ضَرَبَ، خَرَجَ، دَخَلَ، والثلاثي المعتلّ مثل: ضَرَا ضَرِيَ ضَرُوَ . . . لانه جاء مع الحرفين ألفٌ أو واوٌ أو ياءٌ فافهم.
>
> The explanation of the healthy triliteral word is that it is three letters, but it does not have *wāw*, *yāʾ*, or *ʾalif* in the basic structure, because these letters are called 'letters of sickness'. Whenever a word is sound, it is based on three letters from among these [other] letters, so a healthy triliteral word is like: *ḍaraba*, *kharaja*, *dakhala*. But a sick triliteral word is like: *ḍarā*, *ḍariya*, *ḍaruwa*... because along with the two letters comes an *ʾalif*, *wāw*, or *yāʾ*, so understand. (Makhzumi 1985, 59–60)

Like the phonetic difference between 'healthy' and 'airy' letters, in *Kitāb al-ʿAyn*'s morphological system, words based on triliteral roots can be separated into 'healthy' and 'sick' categories. A word becomes sickened (*muʿtall*) if it contains an *ʾalif*, *wāw*, or *yāʾ* that represents a vowel or a glide, and *Kitāb al-ʿAyn* classifies them as letters of *ʿilal* 'sicknesses' (sing. *ʿilla*). The Arabic *matres lectionis* are thus less 'substantial', so to speak, than the pure consonants. They are *layyin* 'soft, flexible' and *hāwī* 'airy', based in *ʿilla* 'sickness, weakness, deficiency', and they spread their infection to make entire words *muʿtall* 'sickened, defective'. Meanwhile, the

[46] Al-Azharī (d. 980) updated parts of *Kitāb al-ʿAyn* when he produced his own lexicon, *Tahdhīb al-Lugha* (*The Refinement of the Language*), in the 970s (Arzandeh and Umar 2011). He emends this section of the text to read *la ʾalif* [*al-layyina wa-la al-hamza*] ('not [soft] *ʾalif* [and not *hamza*]'). Makhzumi includes these emendations in brackets, and I have omitted them here.

rest of the consonants are decidedly *saḥīḥ* 'healthy, sound', and they convey that feature onto words which contain them (Talmon 1997, 131).

Sībawayh adopts and expands these principles when he explains the *matres lectionis* in the *Kitāb*. First, to describe *ʾalif*, *wāw*, and *yāʾ*, he states:

> وهذه الحروف غير مهموسات، وهي حروف لِينٍ ومدٍّ، ومخارجُها متّسعة لهواء الصوت؛ وليس شيء من الحروف أوسَعَ مخارِجها منها؛ ولا أمَدَّ للصوت؛ فإذا وقفتَ عندها لم تَضمَّها بشفة ولا لسان ولا حَلق كضمّ غيرها؛ فيهوِي الصوتُ إذا وجد متّسعاً حتى ينقطع آخرُه في موضع الهمزة. وإذا تَفَطَّنتَ وجدتَ مسَّ ذلك.
>
> These letters are not unvoiced, and they are letters of softness and lengthening. Their articulation points are widened for the air of the sound, and none of the letters are wider than them in terms of articulation point, nor longer for the sound. If you stop [their sound], then you will not press with the lip, tongue, or throat like you press for other [letters], for the sound blows like air when it occurs widened, until its end is cut off at the site of the *hamza*.[47] If you understand, then you will feel the touch of that. (Sībawayh 1986, IV:176)

Like *Kitāb al-ʿAyn*, Sībawayh perceives the vowel forms of the *matres lectionis* as 'softer' than the consonants, and thus they are letters of 'softness' (*līn*). He then gives them a second quality that indicates their 'vowel-ness', calling them letters of 'lengthening' (*madd*) (see also, Sībawayh 1986, IV:419). This feature is based on the idea that one can extend a vowel for any length of time,

[47] I.e., at the glottis. See also, Sībawayh (1986, III:544).

at least until the breath is depleted (al-Nassir 1993, 30). However, if one instead chooses to interrupt the flow of air, then the vowel sound is cut off at the articulation point of the *hamza*. Just as al-Khalīl said, these letters are "airy, in the air."

Later in his book, Sībawayh refines the usage of some of the vocabulary that he shares with *Kitāb al-ʿAyn*, writing:

> ومنها اليّنة وهي الواو والياء لأن مُخرَجهما يتّسع لهواء الصوت أشدّ من اتّساع غيرهما كقولك وأيٌ والواو وان شئت أجريت الصوت ومددت.
>
> ومنها الهاوي وهو حرفٌ اتّسع لهواء الصوتِ مُخرَجه أشدّ من اتّساع مُخرَج الياء والواو لأنك قد تضمّ شفتيك في الواو وترفع في الياء لسانك قِبَل الحَنَك وهي الألف.
>
> Among [the letters] are the soft ones, which are *wāw* and *yāʾ*, because their pronunciation is widened for the air of the sound, more than the widening of other [letters] besides them, as you say: "*wa ʾayyun*" and *al-wāw*,"[48] but if you want, you can make the sound occur with lengthening.
>
> [Also] among [the letters] is the airy one, which is a letter whose pronunciation is widened for the air of the sound even more than the widening of the pronunciation of *yāʾ* and *wāw*—because you press your lips together for *wāw*, and you raise your tongue in front of the palate for *yāʾ*—and it is *ʾalif*. (Sībawayh 1986, IV:435–36)

In contrast to *Kitāb al-ʿAyn*, Sībawayh limits the 'airy' (*hāwī*) category of letters to *ʾalif* alone, while he describes *yāʾ* and *wāw* as the letters which are specifically 'soft' or 'flexible' (*layyin*). Moreover, one can make *yāʾ* and *wāw* "occur with lengthening" (*madadta*). *Yāʾ* and *wāw* thus have the two features of vowel

[48] That is, words with semivowel glides. See al-Nassir (1993, 28).

sounds: *līn* 'softness', which accounts for the wideness of the vocal tract and lack of obstruction when articulating vowels; and *madd* 'lengthening', related to the relatively long amount of time that one can maintain a vowel sound. However, Sībawayh does distinguish between the different types of *yāʾ* and *wāw*. As *layyina* letters, they can represent consonants or semivowel glides, depending on their phonetic context, but if one does lengthen them with *madd*, then they represent the pure long vowels /ī/ and /ū/. There is no need to make these distinctions for *ʾalif*, since *ʾalif* alone cannot represent a consonant or a glide in Arabic. It also differs from *yāʾ* and *wāw* in that the tongue and lips are not required to articulate /a/—only the breath is needed—and as such, Sībawayh's *ʾalif* is his only full *hāwī* letter.

Sībawayh also solidifies the idea of the 'sick' letters, largely in line with *al-ʿAyn*'s interpretation, although with one key difference. He explains that a *muʿtall* 'sickened' word is one that contains a *ḥarf al-ʾiʿtilāl* 'letter of weakening, falling ill', and that such letters are so named because of *ʿilla* 'sickness, deficiency' (Sībawayh 1986, IV:47, 93). Furthermore, he says that a word which has none of these as root letters is 'stronger' (*ʾaqwā*) than a *muʿtall* word (Sībawayh 1986, IV:54). He calls these stronger words *saḥīḥ*, but unlike *Kitāb al-ʿAyn*, Sībawayh never refers to the twenty-five pure Arabic consonants themselves as *saḥīḥ* (al-Nassir 1993, 28). Instead, his primary conceptual distinction between vowels and consonants is that the former have *līn* 'softness', whereas the latter do not.

Sībawayh further elaborates on the idea of 'stillness' in the *matres lectionis*, adding another layer to *Kitāb al-ʿAyn*'s perception

of 'insubstantial' vowel letters. Within the *Kitāb*, every letter which precedes a vowel is described as *mutaḥarrik* 'moving, moved', while letters which do not precede a vowel are *sākin* 'still'. This division is normally straightforward, but Sībawayh notes the exception of "three letters: the *ʾalif*, the *yāʾ* for which the preceding letter has a *kasra* (/i/), and the *wāw* for which the preceding letter has a *ḍamma* (/u/) (ثلاثة أحرف: الألف والياء التي قبلها حرف مكسور والواو التي قبلها حرف مضموم)" (Sībawayh 1986, IV:156). In such cases, *ʾalif*, *yāʾ*, and *wāw* represent the long vowels /ā/, /ī/, and /ū/. These vowel letters cannot be followed by another vowel, so by definition, they cannot be *mutaḥarrik*. Instead, they are *sākin* 'still, unvocalised', despite representing the very thing which causes vocalisation in the first place. Sībawayh even goes so far as to call these motionless letters 'dead' (*mayyit*), stating "[the Arabs] dare to elide the *ʾalif* only because it is dead, not taking *jarr*, *rafʿ*, or *naṣb* (إنما جسروا على حذف الألف لأنها ميتة لا يدخلها جرّ ولا رفع ولا نصب)" (Sībawayh 1986, III:356; see also, 544). That is, a dead, motionless *ʾalif* cannot take case vowels. He describes *yāʾ* and *wāw* in similar terms in the following pages (al-Nassir 1993, 34; Sībawayh 1986, III:356, 360). This classification of *sākin* letters corresponds with Qurʾanic vocalisation and diacritic practices, which place a *sukūn* sign above each *mater lectionis*.

A motionless *mater lectionis* can become *mutaḥarrik*, but in doing so it loses the features which make it a vowel (al-Nassir 1993, 34). For example, if you vocalise a *yāʾ*, then "it is not a letter of softness (لم تكن حرفَ لِين)" (Sībawayh 1986, IV:197), which implies that it acts like a regular consonant. Likewise,

when *yāʾ* or *wāw* occurs before a vowel, the form becomes "as if not sickened (شبه غير معتلّ)" (al-Nassir 1993, 28). On the other hand, *ʾalif* can never be *mutaḥarrik*,[49] and if it is ever in a position where a radical would normally be vocalised,[50] then it loses its *hāwī* feature and becomes a *wāw* or *yāʾ* (al-Nassir 1993, 34; Sībawayh 1986, III:548; IV:156). That is, it becomes a different consonant, but cannot become fully strong and consonantal itself like *yāʾ* or *wāw* can. Based on this metric, Sībawayh explains that the 'sick' letters are 'stronger' (*ʾaqwā*) in positions where they can function like normal consonants, and 'weaker' (*ʾaḍʿaf*) in positions where they cannot (Sībawayh 1986, IV:381). Usually, this means that they are strong (i.e., vocalised consonants) near the beginning of words, and weak (i.e., *matres lectionis*) at the end of words. Once again, the exception is *ʾalif*, which is the weakest of all letters because it has no consonantal value (al-Nassir 1993, 34).[51]

One final characteristic that Sībawayh attributes to *ʾalif*, *yāʾ*, and *wāw* is the idea of 'subtlety' (*khafāʾ*),[52] which the *matres*

[49] If you see one, it is only the seat for a *hamza*.

[50] For example, in some inflections of hollow roots.

[51] The tenth-century lexicographer al-Azharī (d. 980) offers a similar explanation, which he claims is part of al-Khalīl's teachings that al-Layth did not transmit in *Kitāb al-ʿAyn*. This teaching also divides the letters into 'healthy' (*ṣaḥīḥ*) and 'sickened' (*muʿtall*), with the latter group containing *wāw*, *yāʾ*, *hamza*, and *ʾalif*, and further explains how the *ʾalif* differs from *wāw* and *yāʾ*. In effect, *ʾalif* is too weak to hold a vowel on its own, so it must become one of the 'stronger' weak letters in order to be vocalised (Talmon 1997, 260–61).

[52] 'Subtle' in the sense of 'not apparent' or 'subdued'.

lectionis possess more than any other letters. At the end of his divisions of the alphabet, immediately after the passage about *layyin* and *hāwī* letters, he writes: "These three are the subtlest of the letters due to the widening of their articulation point, and the subtlest and widest of them is *ʾalif*, then *yāʾ*, then *wāw* (وهذه الثلاثة أخفى الحروف لاتّساع مُخرَجها وأخفاهنَ وأوسعهنَ مُخرَجاً الألف ثم الياء ثم الواو)" (Sībawayh 1986, IV:436). 'Subtlety' (*khafāʾ*) is not necessarily unique to vowel letters, but rather it is a quality possessed by letters whose phonetic realisation changes or elides as a result of a relationship to nearby letters. The *matres lectionis* are 'most subtle' because, more than any other letter, they vary between multiple modes of articulation: sometimes vowels, sometimes consonants. Such letters may be called *khafiyya* 'subtle, unapparent', in contrast to others which are 'more clear' (*ʾabyan*) (Sībawayh 1986, IV:161, 164, 177, 181–84).

This subtlety also applies to rare cases in which *hāʾ* acts as a *mater lectionis*. Sībawayh devotes an entire chapter to explaining this (largely theoretical) use of *hāʾ* to represent vowel sounds at the end of words that are typically uninflected.[53] For example, he suggests that when one pronounces a noun with a plural ending (e.g., *muslimūna* 'Muslims') or uninflected particles (*ʾayna*, *ʾinna*, *thumma*), there is actually an imperceptible *hāʾ* that facilitates the final vowel (i.e., مسلمونَهْ, اينَه, انَّهْ, ثمَّهْ) (Sībawayh 1986,

[53] Excluding what we now refer to as *tāʾ marbūṭa*. Whenever a word has a *tāʾ marbūṭa*, Sībawayh refers to it as *hāʾ*, but he does not consider it a 'soft' letter like *ʾalif*, *yāʾ*, or *wāw*. The modern *tāʾ marbūṭa* grapheme with two dots was not in widespread use at the end of the eighth century.

IV:161–63). This interpretation correlates with the statements in *Kitāb al-ʿAyn* that claimed *hāʾ* is the 'softest' of all the consonants, and thus most similar to the typical *matres lectionis*.

Sībawayh extends his theoretical usage of *hāʾ* to certain Arabic dialects that pronounce the feminine demonstrative pronoun *hādhihi* as *hādhī*, saying:

> ونحو ما ذكرنا قول بنى تميم في الوقف: هذِهْ فإذا وصلوا قالوا: هذِي فلانةُ؛ لأن الياء خفيّة فإذا سَكَتّ عندها كان أَخْفَى. والكسرةُ مع الياء أخفى، فإذا خَفِيَتِ الكسرةُ ازدادَتِ الياءُ خفاءً كما ازدادَتِ الكسرةُ؛ فأبدلوا مكانها حرفاً من موضع أكثر الحروف به مشابَهة، وتكون الكسرةُ معه أبين.
>
> As we have mentioned, the speech of Banu Tamim in pause is *hādhih*, but when they join [the word in context], they say *hādhī fulāna*,[54] because the *yāʾ* is subtle. If you stop speaking at its place, then it becomes even more subtle, for then the [internal] *kasra* [also] elides, and the *yāʾ* gains additional subtlety amounting to what the *kasra* had added. So [Banu Tamim] exchange its place [in speech] with a letter from the place [in the mouth] of the letter that most resembles [*kasra*], and with which the *kasra* is clearer. (Sībawayh 1986, IV:182)

The subtle *yāʾ* in this case is an invisible *mater lectionis* that results from Banu Tamim's elision of the classical Arabic word *hādhihi* 'this' to a vernacular *hādhī*. They end the word on the original final *hāʾ*, but in context with a following word, that *hāʾ* becomes silent like a *mater lectionis* and the final syllable resembles a long *yāʾ*. Sībawayh interprets the silencing of the *hāʾ* as a lengthening of the internal /i/ vowel, which is then represented by an unvo-

[54] 'This is some woman'.

calised, subtle, *mater lectionis yāʾ* due to its proximity to the articulation point of /i/. In this way, he demonstrates that when *yāʾ*—and, by extension, *wāw* and *ʾalif*—function as *matres*, they actually undergo a sort of elision that changes their quality. The "widening of their articulation" in order to act as vowels causes this change, increasing their subtlety, and because they perform this vowel function so frequently, they are "the subtlest of the letters."

Sībawayh's interpretations of the *matres lectionis* persisted after his death, and they appear in the first dedicated phonetic study of Arabic: Ibn Jinnī's (d. 1002) *Sirr Ṣināʿa al-Iʿrāb* (*The Secret of Making Proper Arabic*). Ibn Jinnī explains that the sounds of speech occur when a stream of air is cut off at one of the articulation points (*makhraj* or *maqṭaʿ*) in the vocal tract. However, like Sībawayh, he adds that there are some letters for which a speaker can widen (*ʾittisāʿ*) their articulation point and not disrupt the airstream until it is fully depleted (Ibn Jinnī 1993, 7). He differentiates them thus:

> والحروف التي اتسعت مخارجها ثلاثة: الألف ثم الياء ثم الواو، وأوسعها وألينها الألف، إلا أن الصوت الذي يجري في الألف مخالف للصوت الذي يجري في الياء والواو، والصوت الذي يجري في الياء مخالف للصوت الذي يجري في الألف والواو. والعلة في ذلك أنك تجد الفم والحلق في ثلاث الأحوال مختلف الأشكال

> The letters whose articulation points are widened are three: *ʾalif*, then *yāʾ*, then *wāw*; and the widest and softest of them is *ʾalif*. But the sound which occurs with *ʾalif* is different from that which occurs with *yāʾ* and *wāw*, and the sound which occurs with *yāʾ* is different from that of *ʾalif*

> and *wāw*. The reason[55] for that is the mouth and throat are in three states with different shapes. (Ibn Jinnī 1993, 8)

Ibn Jinnī arranges the *matres* in order, following their articulation points from back to front. Later, he also links the articulation points of *ʾalif*, *yāʾ*, and *wāw* to the articulation points of the vowels: /a/ is farthest back, in the throat; /i/ is in the middle, inside the mouth; and /u/ occurs last, at the lips (Ibn Jinnī 1993, 8, 53–54; see also, Kinberg 1987, 17–18; compare Sībawayh 1986, IV:101). Furthermore, like al-Khalīl and Sībawayh, Ibn Jinnī recognises *ʾalif* as the least consonantal of the *matres lectionis*, and it is thus the 'widest' (*ʾawsaʿ*) and 'softest' (*ʾalyan*) of them.

He also adopts the idea of the *matres lectionis* as 'sick' letters in opposition to the 'healthy' consonants, writing:

> وللحروف قسمة أخرى الى الصحّة والاعتلال. فجميع الحروف صحيح إلا الألف والياء والواو اللواتي هن حروف المدّ والاستطالة، وقد ذكرناها قبل، إلا أن الألف أشدّ امتداداً وأوسع مخرجاً وهو الحرف الهاوي
>
> The letters have another division, into healthiness and sickness. All letters are *ṣaḥīḥ* except *ʾalif*, *yāʾ*, and *wāw*, which are letters of length and extension. We have mentioned them before, but *ʾalif* is the greatest in terms of lengthening, and widest in terms of articulation, and it is the airy one. (Ibn Jinnī 1993, 62; see also, 5)

Once again, this division defines *yāʾ* and *wāw* as partially deficient, while *ʾalif* in particular is entirely non-consonantal and *hāwī* 'airy'. Ibn Jinnī also expands on this idea, delineating the exact relationship between *ʾalif* and *hamza*. Elsewhere, he argues

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[55] This is a pun on *ʿilla*, which means 'reason' but is also the 'sickness' inherent to these letters.

that the *ʾalif* at the beginning of the alphabet is actually a representation of *hamza*, because when one says its name (*ʾalif*), it begins with a glottal stop (Ibn Jinnī 1993, 41–42). This *hamza* occurs because one cannot begin an utterance with "an *ʾalif* that is long and motionless, since it is not possible to begin with the motionless (بالألف التي هي مدّة ساكنة، لأن الساكن لا يمكن الابتداء به)" (Ibn Jinnī 1993, 43–44). That is to say, it is impossible to begin an utterance with an unvocalised consonant *or* a long vowel, notably contrasting the Greek and Syriac idea of the 'sounding' vowels, which could be pronounced alone (see above, present chapter, §1.0). In this way, *hamza* acts as the consonantal counterpart of the pure vowel of *ʾalif*. However, unlike *yāʾ* and *wāw*, whose vowel and consonant forms are produced from the same articulation points, Ibn Jinnī says that the articulation point of *hamza* is deep in the chest, while that of *ʾalif* (and thus /a/) is higher, in the throat (Ibn Jinnī 1993, 43).

Kitāb Sībawayh and *Kitāb al-ʿAyn* show that at the end of the eighth century, Arabic grammarians perceived the *matres lectionis* vowel letters as much more ephemeral than typical consonants. They were 'soft' (*layyin*) and 'airy' (*hāwī*); 'sickened' (*muʿtall*) letters that were 'weaker' (*ʾaḍʿaf*) than consonants, which in turn were 'healthy' (*saḥīḥ*) and 'stronger' (*ʾaqwā*) in almost every context. The *matres* were also more prone to elision than all other letters, making them the most 'subtle' and imperceptible (*khafiyya*); and they were 'dead' (*mayyit*) or 'still' (*sākin*) specifically when they represented vowel sounds. Additionally, as the above passages demonstrate, at the end of the tenth century, Ibn Jinnī was well aware of the features that Sībawayh and

al-Khalīl attributed to the *matres lectionis*, including: 'widening' (*ʾittisāʿ*), 'softness' (*līn*), 'length' (*madd*), and 'sickness' (*ʾiʿtilāl*); as well as the unique status of *ʾalif* as 'airy' (*hāwī*).

These descriptions contrast starkly with those of eighth-century Syriac grammarians, like Jacob of Edessa (d. 708) and Dawid bar Pawlos (fl. c. 770–800), who espoused a notion of 'sounding letters' (*ʾatwɔtɔ qɔlɔnɔyɔtɔ*). These *ʾatwɔtɔ qɔlɔnɔyɔtɔ* were more sonorous and complete than any of the consonants, which were all inherently 'soundless' (*ʾatwɔtɔ dlɔ qɔlɔ*). To some extent, Syriac grammarians maintained this distinction through at least the eleventh century, but they also adopted a number of Arabic features to describe their *matres lectionis*. Like those Syriac sources, some medieval Jewish authors also adapted Arabic ideas of the *matres* to better describe the phonology of Hebrew.

3.2. *Matres Lectionis* in Syriac and Hebrew

Early Arabic grammarians like Sībawayh and the contributors to *Kitāb al-ʿAyn* set the stage for later analyses of Semitic *matres lectionis*, but Syriac and Hebrew scholars did not always adopt the Arabic explanations in their entirety. Some authors, particularly Elias of Ṭirhan (d. 1049), rejected the idea that the *matres* were 'sick' at all, instead maintaining the strength derived from their 'soundingness' (see above, present chapter, §1.0). Despite this, it was also common for both Christian and Jewish grammarians to adapt the Arabic ideas of stillness (*sukūn*) and subtlety/concealment (*khafāʾ*) in the behaviour of the *matres lectionis* to better explain the orthography of the more diverse vowel inventories in Syriac and Hebrew. Most notable among these are Elias of Nisibis

(d. 1046) and Judah ben David Ḥayyūj (d. c. 1000), although they were by no means alone.

Elias of Ṭirhan, the East Syrian bishop who wrote the *Memrɔ Gramaṭiqɔyɔ* (*The Grammatical Essay*), generally reflects a view of the *matres lectionis* that is similar to Sībawayh and Ibn Jinnī. However, he is also explicit about differences between Syriac and Arabic. Most starkly, Elias challenges the Arabic idea that the *matres lectionis* are somehow 'sick'. At the end of his main chapter on vowels, he writes:

> ܣܘܪܝܝܐ ܐܪܐ ܛܒܬ ܫܪܝܪܝܢ ܡܢ ܐܘܪܗܝܐ ܘܐܦ ܛܝܝܐ ܢܡܘܣܝܢ ܘܢܩܦܝܢ ܠܫܪܪܐ
> ܒܠܫܢܗܘܢ. ܙܒ̈ܢ ܠܐܠܦ ܡܥܒܪܝܢ ܒܘܢ ܗܟܘܬ.. ܘ.. ܝ.. ܘܦܠܓܘܬ.. ܐ.. ܘ.. ܝ..
> ܩܪܝܢ ܠܗܘܢ ܠܡܬܬܙܝܥܢܘ̈ܬܐ ܕܥܠ ܐܬܘ̈ܬܐ ܣܝ̈ܡܢ ܛܝܝܐ ܩܪܐ ܠܐܬܘ̈ܬܐ
> ܩܠܢ̈ܝܬܐ.. ܐ.. ܘ̄ ܝ̱.. ܐܬܘ̈ܬܐ ܟܪ̈ܝܗܬܐ ܘܕܟܘܪܗܢܐ ܒܐܡܬ ܕܠܐ ܡܫ̈ܢܝܢ ܐܝܕܐ
> ܕܢܬܬܙܝܥܘܢ ܫܡ̈ܗܐ ܘܡ̈ܠܐ ܟܕ ܗܘ̈ܝܢ ܒܗܘܢ ܐܝܟ ܫܪܟܐ ܕܐܬܘ̈ܬܐ

> Syrians, indeed, the most faithful among the Edessans, and also rule-abiding Arabs who adhere to the truth in their language, are such that they sometimes remove *ʾalaph* like *waw* and *yod*, and they call half-*ʾalaph*, *waw*, and *yod* 'vocalisations' which are put upon the letters; while an Arab calls the sounding letters—*ʾalaph*, *waw*, and *yod*—'sick letters' and '[letters] of sickness' on account of the fact that they [the *matres*] do not cause nouns or verbs to move when they are in them, just like the rest of the [letters]. (Baethgen 1880, ܡܚ., lines 3–8)

From this passage, it is clear that Elias considers the 'vowels' or 'vocalisations'—literally, 'those made to move' (*mettziʿɔnwɔtɔ*)—to be aural effects which persist on Syriac consonants, even if no *mater lectionis* is written. Moreover, he is familiar with the Arabic grammatical tradition that refers to *ʾalif*, *wāw*, and *yāʾ* as *muʿtall* 'sickened' and *ḥurūf ʿilla* 'letters of sickness', which he translates

as *krihɔtɔ* ‘sick’ (sing. *krihɔ*) and *d-kurhɔnɔ* ‘of sickness’ (see also, Kiraz 2012, I:61). He takes issue with this designation:

> ܙܕܩ ܗܘܐ ܠܗܘܢ ܐܝܟ ܕܠܝ ܡܬܚܙܝܐ ܕܐܬܘ̈ܬܐ ܟܠܗܘܢ ܟܪ̈ܝܗܬܐ ܣܛܪ ܡܢ ܐ..
> ܘ.. ܝ.. ܡܛܠ ܕܩܠܐ ܠܗܘܢ ܡܫܡܥ ܘܗܘܝܢ ܠܐ ܡܫܬܡܥܢ. ܐܠܐ ܒܡܨܥܘܬ
> ܙܘܥܐ ܕܡܢ ܡܩܠܝ̈ܢܝܬܐ ܐܪܐ ܚܠܝܡܢ
>
> [But] it is right for them, as is clear to me, that all letters are sick *except* for *ʾalaph*, *waw*, and *yod*, because despite a voice sounding them out, [the other letters] cannot be heard except via the movement which is from the sounding ones, which therefore are healthy. (Baethgen 1880, ܟܒ, lines 8–10)

Elias keeps with the old Syriac—and ultimately, Greek—maxim that only sounding letters can be articulated by themselves, while consonants require the help of the sounding ones in order to form syllables. Based on this belief, he concludes that the Arabic classification of ‘sick’ letters is untenable, and so refers to his own sounding letters as *ḥlimɔn*[56] ‘healthy, firm, sound’. This word is a calque of the Arabic *saḥīḥ*, which described regular consonants and words with strong roots in Arabic grammar. Elias of Ṭirhan thus reverses the Arabic opposition of ‘healthy’ and ‘sick’ letters, making the consonants the ones that are deficient.

Elias of Nisibis (d. 1046) also adapted a number of Arabic ideas into his understanding of the *matres lectionis*. In the second chapter of the *Turrɔṣ Mamllɔ Suryɔyɔ* (*The Correct Form of Syriac Speech*), he lays out the changes that occur to letters under the influence of each Syriac vowel. He says that East Syriac vowels

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[56] There is no *seyame* on this word, which is irregular for a plural feminine adjective.

are divided into: "the compressed ones and the opened ones; those which stand before the broadened ones and the narrowed ones; and those which stand before the raised ones and the pressed-together ones (ܐܝܬܝܗܘܢ ܕܦܬܝܚܐ ܘܕܡܣܝܡܐ ܕܩܕܡ ܪܘܚܒܐ ܘܕܩܕܡ ܙܥܘܪܐ ܘܕܩܕܡ ܡܪܝܡܐ ܘܕܩܕܡ ܟܢܝܫܐ ܕܩܕܡ ܫܘܐ)" (Gottheil 1887, ܒ, lines 26–28).

In these examples, the "compressed ones and opened ones" are letters with the vowels /e/ and /a/, which are normally represented by vowel points in Syriac orthography. By contrast, the phrase "those which stand before the broadened ones" refers to the vocalised letter which precedes a *mater lectionis waw*. That is, the 'broadened one' (*rwiḥtɔ*) is the *waw* itself, and the "one which stands before" is a consonant before the vowel /o/. This wording contrasts the normal construction in Arabic grammars, which would refer to the consonant *before* a vowel as 'opened' (*maftūḥ*) or 'pressed together' (*maḍmūm*). The practical difference is minimal—in both languages the *matres lectionis* simply represent the vocalic sound that follows a consonant—but when that vowel sound changes, it is the Syriac *mater* which undergoes modification,[57] whereas in Arabic it is the preceding consonant that is (perceived as) modified.

At the same time, Elias of Nisibis does explain that the *matres lectionis waw* and *yod* are motionless (*shlitɔ*), just like in Arabic. Paralleling Sībawayh's *mutaḥarrik* and *sākin*, he justifies this description by classifying all letters as either *mettzi'ɔnitɔ* 'moved'

[57] Compare Elias of Ṭirhan's statements in Baethgen (1880, ـــ, line 19–21).

or *shlitɔ* ‘motionless’, depending on whether or not a vowel immediately follows it (Gottheil 1887, ܝܕ). As a result, Elias says, “every broadened or narrowed *waw*, and every raised-up or pressed-together *yod* (ܘܟܠ ܘ̄ܘ ܪܘܝܚܬܐ ܘܐܠܝܨܬܐ. ܘܟܠ ܝܘ̄ܕ ܡܬܪܘܡܡܬܐ ܘܡܚܒܨܬܐ)” is *shlitɔ* (Gottheil 1887, ܠܛ–ܢ). That is to say, every *waw* or *yod* which represents a vowel is motionless and unvocalised. Notably, in contrast to Elias of Ṭirhan, Elias of Nisibis does not refer to any letter as *qɔlɔnɔytɔ* ‘sounding’.

Elias of Nisibis also discusses an idea similar to Sībawayh and Ibn Jinnī’s explanations of the ‘subtlety’ in the *matres lectionis*, highlighting the way that these letters may be elided and ‘suppressed’ (*metgneb*). He begins the seventh chapter of his *Turrɔs Mamllɔ Suryɔyɔ*, saying:

> ܐܬܘ̈ܬܐ ܗܟܝܠ ܕܡܬܓ̈ܢܒܢ ܐܝܬܝܗܝܢ ܬܠܬ. ܐ ܘ ܝ. ܘܟܠ ܚܕܐ ܡܢܗܝܢ ܒܬܠܬܐ ܙܢ̈ܝܐ ܡܬܓܢܒܐ | ܐܘ ܓܢܝܒ ܡܢ ܟܬܒܐ ܘܩܪ̈ܝܢܐ ܡܬܓܢܒܐ. ܐܘ . ܡܬܓܢܒܐ ܡܢ ܟܬܒܐ. ܘܡܬܩܪܝܢܐ ܒܩܪ̈ܝܢܐ. ܐܘ ܡܬܪܫܡܢܐ ܒܟܬܒܐ ܘܡܬܓܢܒܐ ܒܩܪ̈ܝܢܐ
>
> The letters which are suppressed are three: *ʾalaph, waw,* and *yod*. Each one of them has three modes of suppression, either suppressed in both writing and recitation; suppressed in writing but pronounced in recitation; or inscribed in writing but suppressed in recitation (Gottheil 1887, ܢܒ, lines 2–6; compare Baethgen 1880, ܠ, lines 6–12, and ܠܐ, lines 17–21).

He proceeds by listing words which exemplify each of the three types of ‘suppressing’. First, the *ʾalaph* in the verb *bnɔ* ‘he built’ (ܒܢܐ) is *metganbɔ* ‘suppressed’ in both writing and recitation when inflected for the third-person plural, resulting in *bnaw* ‘they built’ (ܒܢܘ). That is, the written *ʾalaph* is removed and replaced by *waw*

in writing, and the pronunciation of the *ʾalaph* is 'suppressed', changing from /ɔ/ to /aw/. This type of 'suppression' is also quite similar to the description of verbs with III-weak roots in *Kitāb al-ʿAyn* (see above), in which the final letter changes between *ʾalif*, *yāʾ*, and *wāw*, depending on the inflected form. It is likely that this Syriac explanation of a letter being *metganbɔ* was derived from this kind of Arabic verbal analysis and the concept of *khafāʾ* 'concealment', possibly translated from a related Arabic term for elision, *ʾidghām* 'suppression, assimilation' (see al-Nassir 1993, 56).

Elias of Nisibis' third type of 'suppression' includes words like *(ʾ)nɔshɔ* 'person' (ܐܢܫܐ), *qṭal*(*u*) 'they killed' (ܩܛܠܘ), and *karm*(*i*) 'my vineyard' (ܟܪܡܝ). These words have an *ʾalaph*, *waw*, or *yod* that is always written, even though it is not pronounced (i.e., 'supressed') in speech. An equivalent phenomenon in Arabic is the otiose *ʾalif* that occurs at the end of verbs with the third masculine plural ending (e.g., فعلوا *faʿalū* 'they did, made'). I have not examined any medieval sources to determine whether Syriac and Arabic authors shared terminology related to this type of orthography. Elias himself is of little help here, as he concludes the passage by saying: "The reason for each one of these is known to keen interpreters, without us extending the discussion" (Gottheil 1887, ܚܕ, lines 16–17).

Elias' second type of 'suppression' is more interesting. It includes words like *israyel* 'Israel' (ܐܣܪܝܝܠ) and *idɔʿ* 'he knew' (ܝܕܥ). He suggests that both words begin with an invisible *alaph* that is 'suppressed' in writing, even though they necessarily begin with a glottal stop in speech. This kind of 'suppression' has no clear

Arabic equivalent, as Arabic orthography would include the letter *hamza* on the seat of an *ʾalif* to represent that glottal stop. Also in this type are the words *kul* 'all' (ܟܠ) and *meṭul* 'because' (ܡܛܠ), which both contain invisible 'suppressed' *waw*s that are never written, but which are pronounced as the vowel /u/ (or /o/ in Eastern Syriac). The most striking parallel to this description of *matres lectionis* letters "suppressed in writing but pronounced in recitation" is actually found in the lexicographical work of the Andalusī Jewish scholar Judah ben David Ḥayyūj.

Ḥayyūj (d. c. 1000) was a tenth-century lexicographer who wrote a dictionary explaining the morphology of Hebrew verbs with "weak" roots, titled *Kitāb al-Afʿāl Dhuwāt Ḥurūf al-Līn* (*The Book of Verbs which Contain Soft Letters*). He was a native Arabic speaker, so he wrote this book in Judaeo-Arabic[58] and adopted fundamental concepts and terminology from the Arabic grammatical tradition (Basal 1999, 227). In large part, these terms retained their original Arabic meanings (Basal 1999, 227, n. 3), and they included a number of items related to *matres lectionis*. As Ḥayyūj explains in the introduction to *Kitāb al-Afʿāl*:

> عرضي في هذا الكتاب الإبانة عن حروف اللين والمدّ العبرانية والتنبيه على أنحائها وتصاريفها فقد خَفِيَ امرُها عن كثير من الناس للينها واعتلالها ودقّة معانيها
>
> My goal in this book is the clarification of the Hebrew letters of softness and lengthening and the instruction of both their forms and their inflections, for their status has been concealed from many people due to their softness, their

[58] Ḥayyūj wrote in Judaeo-Arabic, but Jastrow (1897) transcribed his edition of *Kitāb al-Afʿal* in Arabic characters. My quotations of this work follow Jastrow's orthography.

> sickness, and the fineness of their qualities. (Jastrow 1897, 1, lines 7–9)

Like the Arabic grammarians, Ḥayyūj classifies the Hebrew *matres lectionis* letters—*ʾaleph*, *waw*, *yod*, and *heʾ* (Jastrow 1897, 3)[59]—as 'letters of softness and lengthening' (*ḥurūf al-līn wa-al-madd*). He highlights that these letters complicate Hebrew morphology as a result of their 'softness' (*līn*) and 'sickness' (*ʾiʿtilāl*), the same defects that al-Khalīl and Ibn Jinnī identified in the Arabic *matres*. He even says that the status of these letters 'has been concealed' (*khafiya*) from people, punning on the Sībawayhan concept of *khafāʾ* in the elision of the *matres*. Furthermore, like Sībawayh did for Arabic, Ḥayyūj regularly refers to the *matres* as *sākin* when they serve to represent vowels (Jastrow 1897, 2, lines 6–7). He applies all of this Arabic terminology to classify the functions of the Hebrew *matres*, distinguishing two types: *sukūn ẓāhir* 'clear stillness', when a *mater* acts like a normal consonant, and *sukūn khafī* 'subtle stillness', when a *mater* is written as a placeholder for a vowel. He emphasises that this second type of *sukūn* is why the *matres* are called 'letters of softness', as they 'soften' (*talīn*) until they 'become subtle' (*takhfā*) and lose their 'clarity' (*ẓuhūr*) in speech (Jastrow 1897, 8, lines 1–16).[60] This explanation is similar to that of Elias of Nisibis, who was born in the last few decades of Ḥayyūj's life.

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[59] He includes *heʾ*, since it is one of the Hebrew *matres*, but Arabic grammarians generally did not recognise their *hāʾ* as a *mater*.

[60] Note also that Abū al-Faraj uses the word *ẓuhūr* as an alternative name for *mappiq* marking consonantal *heʾ* in *Hidāya al-Qārī* (Khan 2020, II:27–28, 161).

Ḥayyūj also adapted Arabic grammatical terminology in order to better describe phenomena which exist in Hebrew but do not appear frequently in Arabic. Most notably, he created the concept of the *sākin layyin* 'soft silent' or 'latent quiescent' for vowels that are pronounced, but not necessarily written with *matres lectionis* (Jastrow 1897, 3, line 6; Basal 1999, 227, 229; 2013). As Nasir Basal explains, the *sākin layyin* is a phonological entity that extends from a consonant, "but is neither a vowel itself nor precedes one." Instead, "a *sākin layyin* exists in fact or potentially as a *mater lectionis*, whose presence or absence makes no difference to the pronunciation" (Basal 2013). For example, the word *shofɔr* 'horn' (שׁוֹפָר) may be written with *wāw sākin*—that is, a *mater lectionis waw*—representing /o/, but it may optionally be written without that *waw*. However, even when the *waw* is absent, it still exists, at least theoretically, as a *sākin layyin*. Ḥayyūj thus writes: "Know that the Hebrews permit the dropping of the soft silent from writing for the sake of convenience (اعلم أن العبرانيين اجازوا اساقط السواكن اللينة من الخط استخفافا)" (Jastrow 1897, 9, lines 12–13). He maintains that the sound of a soft silent remains even if the *mater* itself is removed, just like Elias of Nisibis said for Syriac words in which a *mater* is 'suppressed' (*metgneb*) in writing (e.g., *kul* and *meṭul*).

These ideas of *matres lectionis* being 'clear' or 'concealed' when acting as consonants or vowels, respectively, extended beyond Ḥayyūj and Elias, as it also appears in the writings of Saadia Gaon (d. 942) and some Masoretes. Saadia presents another example of 'concealment' in the *matres* when he describes the nature of Hebrew vowels in his commentary on *Sefer Yeṣira* (*The*

Book of Creation). In the second chapter, he writes, "As for the seven melodies, they are like the air which is uttered between the letters; they become subtle in their concealment and their covering (واما אלז نغمات فانها كالهواء فيما بين الحروف الملفوظ بها تختفى في كنّها وسترها)" (Lambert 1891, 42). For Saadia, the seven vowels 'become subtle' (*takhtafā*), less substantial than the consonants which they surround. This verb again shares a root with Sībawayh's *khafāʾ* 'subtlety' and parallels his view that the *matres lectionis* were the 'subtlest' (*ʾakhfā*) of all the letters. Saadia does not apply the idea of 'concealment' directly to *ʾaleph*, *waw*, and *yod* here, but his use of this concept indicates a categorical difference between his perceptions of vowel and consonant phonology.

One of the Masoretic *muṣawwitāt* treatises (T-S Ar.31.28) demonstrates an even more explicit understanding of this dual nature of the *matres lectionis*. The text is extant only from a Genizah fragment, probably written in the tenth or eleventh century, and the author is unknown, but it contains a clear division of the Hebrew letters into three groups. It reads:

> אעלם באן אלאחרוף אואכרהא עלי ג אקסאם אלאול הם אליח חרף בעד אויה כלהא גזם אעני שְׁוָא ליס יכרג מנהא שי אלי אלז מלוך
>
> Know that for endings [of words], the letters are according to three groups. The first is those eighteen besides *ʾaleph*, *waw*, *yod*, and *heʾ*. All of them are *jazm*; I mean, *shewa*.[61] Nothing is pronounced from them towards any of the seven *mulūk*. (Allony and Yeivin 1985, 101–2, lines 53–58)

[61] The text which Allony calls *Kitāb al-Muṣawwitāt* also equates *shewa* with *jazm*; see Allony (1965, 138–40).

The author explains that most Hebrew consonants are *jaʒm* ('cutting off'; also the Arabic grammatical term for vowelless 'jussive' endings) when they occur at the ends of words, so if a *shewa* occurs on one of the consonants in this position, it is silent. They "cut off" all potential vowels (*mulūk*). The only letters which do not cause *shewa* to be silent in this position are the four *matres lectionis*: *ʾaleph*, *waw*, *yod*, and *heʾ*, and so the author continues:

> ואלקסם אלב הוא אלאלף מפרד פאנה לא יטהר פי אלפם אדא כאן פי אכר אלכלמה ולא יכון גזם ולא במלך כקולאךְ בָרָא קָרָא מָצָא ומא שא דלך ולדלך לא יוגד אלף עלי אלף פי אכר אלכלמה אלא . . . פי לשון אֲרָמית וקד יכון גזם פי וסת אלכלמה כקולך וְנֶאֱ מַן בֵּיתךְ ואנמא פרקתהא חתי תתבין אלשוא
>
> The second division is the *ʾalif* alone, for it is not apparent in the mouth when it is at the end of the word, and it is not *jaʒm*, nor is it with [another] vowel, as you say: *bɔrɔ*, *qɔrɔ*, *mɔṣɔ*, and what is like that. Therefore, *ʾaleph* does not follow *ʾaleph* at the end of a word, except... in the Aramaic language. It may occur as *jaʒm* in the middle of a word, as you say: *w-neʾ man betkɔ* [2 Sam. 7.16a], and I have only spaced it [*neʾ*] [*man*] so that the *shewa* may be distinguished (Allony and Yeivin 1985, 102–3, lines 70–82).

For this author, *ʾaleph* is unique among the Hebrew letters in that, when it occurs at the end of a word, it always represents a vowel. This status contrasts the eighteen *jaʒm* letters which never represent vowels and is similar to the fully-vowel status of the Arabic *ʾalif* (see above, present chapter, §3.1). Moreover, according to this author, an *ʾaleph* can sometimes occur as *jaʒm*, but only with a silent *shewa* in the middle of a word. As such, most of the time *ʾaleph* 'is not apparent' (*la yaẓhur*) in the mouth, and it thus lacks

a 'clear' or 'apparent' consonantal state in final position. Three letters yet remain:

> ואלקסם ג הם[62] ג חרוף הוי פאן להא כרוגין אלואחד כפי ואלאכר טאהר פאמא אלכפי כקולך פי אלהֵי אשהֹ דֶשָׁהֹ חושָׁהֹ קשהֹ ואשבאההם פהולי רָפַיִם ואלקסם אלב הם אלטאהרין יוסמון מַפְּקין כמא תקול אִוָּהּ בְּזֹהּ... ואמא אלו קולך פי אלכַּפי עלוּ ופי אלטאהר עָלָיו... ואמא אליוד תקול פי אלכפי קְדשִׁי ופי אלטאהר קָדָשַׁי
>
> The third group are three letters, *he*ʾ, *waw*, and *yod*, and they have two pronunciations: one is subtle, and the other is clear. As for the subtle, it is as you say, with *he*ʾ: *ishshɔ(h)*, *dɔshɔ(h)*, *ḥushɔ(h)*, *qɔshɛ(h)*, and what is like them; they are *rɔfayim*. The second type are the clear ones, which they call *mappqin*, as you say: *ʾiwwɔh*, *biżżɔh*... As for the *waw*, it is as you say, for the subtle: *ʿalu*, and for the clear: *ʿɔlɔw*... And as for the *yod*, you say for the subtle: *qɔdshi*, and for the clear: *qɔdɔshay* (Allony and Yeivin 1985, 103–4, lines 83–104).

The author assigns two contrastive qualities to each of the *matres lectionis*, with 'subtle' (*khafī*) and 'clear' (*ẓāhir*) indicating their vowel and consonant states, respectively. These terms again correspond to Sībawayh's notion of the *matres lectionis* being the most subtle (*ʾakhfā*, *khafiyya*) letters. This passage also equates the words *ẓāhir* and *khafī* with the Aramaic Masoretic terms

[62] This word is written with what may be the Babylonian vocalisation sign for /u/ (a miniature *waw*) above the *he*ʾ and *mem*. The use of this sign could indicate an Iraqi origin for the manuscript. See Khan (2013); Dotan (2007, 630–31).

mappiq[63] ‘sending out, pronounced’ and *rafe* ‘relaxed, softened’. In the later Masoretic tradition, *mappiq* is typically reserved for the consonantal form of the letter *heʾ* alone, but in this case the author applies it to the consonantal form of all three of these dual-function letters. They also apply the idea of *rafe*, which eventually came to be used for the fricative forms of the Hebrew *bgdkpt* consonants, to the ‘softened’ vowel forms of the *matres*.

The text continues with a discussion of the *matres lectionis* in relation to the *bgdkpt* consonants, which further explains the difference between clarity and subtlety, and reveals more of the author’s knowledge of Arabic phonetic terminology. They propose that the reason the vowels of the four Hebrew *matres lectionis* cause the six *bgdkpt* letters to become *rafe* ‘relaxed’ is as follows:

> לתכון כרסם סאיר אלמקרא באן אדא כאנו מֻנדמגין[64] (ב) מתצלין והם
> גיר טאהרין כאנו מלתזקין בחרוף אלמרפייה אד הוי אלג חרוף ליס הם
> אצל מן אלכלמה רָפַיִן ואלאלף פי אכר אלכלמה ישבה אלהֵי אלרפי אלדי

[63] This word only appears here in its plural form, and it is possible that the author read the singular as *mappaq*. It is an Aramaic *ʾaphʿel* participle of the root *npq*, meaning ‘to bring out’ or ‘pronounce’. Syriac grammarians use the same verb to mean ‘be pronounced’. Both Aramaic versions are likely related to the Arabic verb *kharaja* ‘to go out, be pronounced’ in Arabic grammar, which has the same phonetic application (see Wright 1871, ﺭ, fol. 1a, col. 1, lines 12–13; ﺩ, fol. 2a, col. 1, line 7 and lines 30–31; ﺩ, fol. 2b, col. 1, line 4 and lines 15–16; ﻡ, fol. 38b, line 8; Baethgen 1880, ﻝ, line 10, and ﻡ, line 16; Sībawayh 1986, IV:432–36; Ibn Jinnī 1993, 7–8, 43, 62) The equivalent Hebrew calque *yṣṣ* appears in *Diqduqe ha-Ṭeʿamim* (Dotan 1967, 145, line 3).

[64] This is a mistaken spelling of מנדגמין (Allony and Yeivin 1985, 104, n. 95).

> פי אכר אלכלמה וכאנו אלו להא כרוגין דגש ואל רפי פכרג אלכַּפִּי מע אלכפי לאן אלאצול הי אל [ח]רו[ף] אלטאהרה...
>
> [Because] they are like the principle of the rest of the scripture, in that if they are assimilated to what is connected, and when they are not clear, then they compel the letters to be *rafe*. Thus *heʾ*, *waw*, and *yod* are the three letters which are not *rafe* in the basic form of a word. *ʾAleph* at the end of a word resembles *heʾ rafe* at the end of a word. The six [*bgdkpt*] letters [also] have two pronunciations, *dagesh* and *al-rafe*. The subtle is pronounced with the subtle because the originals [of the *matres*] are the clear letters. (Allony and Yeivin 1985, 104–5, lines 112–22)

This passage shows the same clear/subtle (*ẓāhir/khafī*) contrast that we have seen for the *matres lectionis*, though in this case *rafe* functions as a synonym for *khafī*. When the *matres* are not *ẓāhir* (i.e., when they stand for vowels), they are 'assimilated' to the following consonant, compelling it to become *rafe* like them. This word for 'assimilated'—*mundagham*—is derived from the Arabic phonetic term *ʾidghām* 'assimilation, merging, coalescence', which refers to a type of elision in which one letter combines with the next in pronunciation. In this case, the consonantal realisation of the *mater lectionis* is wholly absorbed by the following consonant. *ʾIdghām* is related to *ʾikhfāʾ* 'concealment',[65] the 'elision' that

[65] *ʾIkhfāʾ* refers to a reduction in the realization of a letter (e.g., *wāw* changing from /w/ to /u/), while *ʾidghām* usually indicates the total assimilation (in speech) of one letter into another, resulting in gemination of the second letter (e.g., the loss of the /n/ of *tanwīn* before a word beginning with a liquid consonant); see al-Nassir (1993, 56, 119). Note that the precise meanings of these terms can vary between scholars of

Sībawayh indicated was an inherent feature of the *matres lectionis* when they lose their consonantal function. The use of this term suggests that the author of the *muṣawwitāt* text was familiar with these Arabic concepts. This idea then informs the relationship between the vowels and the *bgdkpt* letters: when the *matres* are *khafī* 'subtle, concealed'—that is, representing vowels—their subtle quality assimilates to a following *bgdkpt* letter, causing it to become *khafī* (i.e., *rafe*) as well.

In this context, the author singles out *heʾ*, *waw*, and *yod* as the only letters which are not naturally pronounced in their 'relaxed' forms. That is, the author believes that all of the *bgdkpt* letters are fricatives (*rafe*) in their most basic forms, and it is only by the addition of a *dagesh* dot that they become plosives. By contrast, *heʾ*, *waw*, and *yod* occur in a vacuum as their 'clear' (*ẓāhir*) consonantal forms, but if their phonetic context causes them to function as vowels, then they relax and become 'subtle' (*khafī*). This arrangement results in an interesting conflation of the terms that indicate the dualities of the *matres lectionis* and *bgdkpt* consonants, with the same idea of 'subtlety' and 'relaxation' applying to both vowel and fricative phonemes that are articulated with continuous airflow. A similar conflation occurs in Saadia's commentary on *Sefer Yeṣira*, where he refers to the plosive *bgdkpt* forms as *khashin* 'rough, coarse', in contrast to the *layyin* 'soft, flexible' fricatives (Lambert 1891, 29). In that case, Saadia uses *layyin*—the Arabic term for the 'soft' *matres lectionis* letters—in much the same way as the author of T-S Ar.31.28 uses

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different languages, and the one used in T-S Ar.31.28 seems to differ from that of *Kitāb Sībawayh*.

khafī. Abū al-Faraj makes a similar statement in *Hidāya al-Qārī*, where he specifically cites Judah ben David Ḥayyūj as an authority on why the 'letters of softness and lengthening' (*ḥurūf al-līn wa-al-madd*) also 'soften' (*tulayyin*) adjacent *bgdkpt* letters (Khan 2020, II:93, lines 521–25).

One cannot help but notice a similarity here between these terms, the terms used to describe *bgdkpt* consonants in Syriac, and the *aphōna* letters in Greek. In Syriac, the obvious parallels are *rukkɔkɔ* 'softening' and *qushshɔyɔ* 'hardening', which indicate the fricative and plosive *bgdkpt* pronunciations, respectively. These two phonetic terms are already attested in the late eighth century in the writings of Dawid bar Pawlos (Dolabani 1953, 48, lines 4–7; Rahmani 1904, ܗ, lines 19–21).[66] Perhaps coincidentally, but almost certainly not, these terms are cognates with the descriptions of the *bgdkpt* letters given in *Sefer Yeṣira*, where the anonymous Hebrew writer calls them *raḵ* 'soft' and *qɔshɛ* 'hard' (Hayman 2004, 51, lines 37a–37b).[67] Much earlier, but still relevant, is the *Technē Grammatikē*'s classification of the *aphōna* consonants (i.e., the Classical Greek stops). Dionysius Thrax calls three of them 'smooth' (*fila*; /k/, /p/, /t/) and three 'rough' (*dasɛia*; /k^{h}/, /p^{h}/, /t^{h}/) (Davidson 1874, 6), apparently describing aspiration. There is also evidence that Jacob of Edessa (d. 708)

[66] See MS Jerusalem, St. Mark's Monastery (SMMJ) 356, ff. 164v–166r; MS Mardin, Dayr al-Zaʿfarān (ZFRN) 192, ff. 199r–200. On the introduction of the *rukkɔkɔ* and *qushshɔyɔ* diacritic dots, see Segal (1989).

[67] There are two versions of this section in the recoverable text of *Sefer Yeṣira*, and one of them reads *raq* instead of *raḵ*.

adapted this Greek classification system to divide the Syriac consonants (i.e., *naqdɔtɔ* 'smooth', *meṣʿɔyɔtɔ* 'intermediate', *ʿbyɔtɔ* 'heavy/thick'), although it is not clear that he followed the same *bgdkpt* dichotomy of fricatives versus plosives (Talmon 2008, 167–69).[68]

The extent to which any of these concepts may have influenced later medieval descriptions of the *matres lectionis* remains uncertain. All that can be said for sure is that scholars of Semitic languages regularly adapted concepts from other linguistic traditions to explain the dual nature of their vowel letters. These relationships are most evident in Syriac and Hebrew linguists' borrowings of Arabic terminology to describe their own languages, but in each instance, they modified that terminology to better suit their phonological needs.

3.3. Grouping Vowels with *Matres Lectionis*

One of the most pervasive features of the *matres lectionis* in the medieval period was their perceived role as the source of every vowel phoneme. As such, many Arabic, Syriac, and Hebrew linguists assigned each of their vowels to either *ʾalif*, *wāw*, or *yāʾ*. Explicit evidence of this type of division appears early in the Arabic grammatical tradition, including in Sībawayh's *Kitāb*. In a

[68] Merx (1889, 53) argues that Jacob's system of division was based on phonetic voicing and triads of consonants that share articulation points, whereas Revell (1972, 367–68) argues that the division was based on fricativisation of the *bgdkpt* consonants in addition to voicing. Talmon suggests that Merx's approach is more tenable.

section on verbs that contain velar/pharyngeal consonants (i.e., *hāʾ*, *ʿayn*, *ḥāʾ*, *ghayn*, and *khāʾ*), he writes:

> وإنّما فتحوا هذه الحروفَ لأنها سَفلتْ في الحلق، وكرهوا أن يتناولوا حركة ما قبلها بحركة ما ارتفع من الحروف، فجعلوا حركتها من الحرف الذي في حيِّزها وهو الألف، وانما الحركاتُ من الألف والياء والواو.
>
> They [the Arabs] only put *fatḥa* on these letters because they occur low in the throat, and they avoid making the vowel that precedes [the velar/pharyngeal letters] into a vowel of that which is raised above those letters. Thus, they make the vowel from the letter in the same space, namely *ʾalif*. Indeed, the vowels are from *ʾalif*, *yāʾ*, and *wāw*. (Sībawayh 1986, IV:101)

Sībawayh states that the three Arabic short vowels (*ḥarakāt*)—*fatḥa* /a/, *kasra* /i/, and *ḍamma* /u/—are derived from *ʾalif*, *yāʾ*, and *wāw*. He argues the vowel /a/ tends to occur before pharyngeal consonants because /a/ is part of *ʾalif*, and since *ʾalif* is articulated from the same 'space' (*ḥayyiz*) as the pharyngeals, /a/ is the easiest vowel to pronounce with them. Similarly, Arabic *avoids* the vowels /i/ and /u/ before pharyngeal consonants, because they come from the articulation points of *yāʾ* and *wāw*, which are 'raised above' (*ʾirtafaʿa*; i.e., more fronted) relative to the throat. The consequence of this linking of /a/, /i/, and /u/ to the respective articulation points of the *matres* is that Sībawayh creates a scale by which /a/ is regarded as the lowest, most-backed vowel, /u/ is the highest, most-fronted vowel, and /i/ is between them on the tongue. This arrangement runs directly counter to several other perceptions of phonetic 'height', as we will see later (chapter 3).

Sībawayh also indicates the relationship between vowels and *matres* on the authority of his teacher, al-Khalīl ibn Aḥmad:

> وزعم الخليل أنّ... فالفتحةُ من الألف والكسرة من الياء والضمّة من الواو. فكل واحدة شيءٌ مما ذكرت لك.
>
> Al-Khalīl claimed that... *fatḥa* is from *ʾalif*, *kasra* is from *yāʾ*, and *ḍamma* is from *wāw*, and each one is something which we have already mentioned to you. (Sībawayh 1986, IV:241–42)

Like Sībawayh, al-Khalīl apparently states that the vowels are 'from' *ʾalif*, *yāʾ*, and *wāw*, but neither master nor student explains precisely what that means. ʿAbd al-Salam Harun (the modern editor of *Kitāb Sībawayh*) points out that a later grammarian, Abū Saʿid Ḥasan al-Sīrāfī (d. 979), comments on this passage. He provides a more complete understanding of the relationship between *matres* and vowels than al-Khalīl does. In his book, *Sharḥ Kitāb Sībawayh* (*The Explanation of Sībawayh's Book*), al-Sīrāfī writes:

> واستدلّ على ذلك بشيئين أحدهما أنّا نرى أن الضمّة متى أشبعناها صارت واوا في مثل قولنا زيدو والرجلو... والاستدلال الثاني ما قاله سيبويه حين ذكر الألف والواو والياء فقال: لأن الكلام لا يخلو منهنّ أو بعضهنّ.
>
> He [Sībawayh] concluded this by two things: one is that we observe the *ḍamma*, when we make it full, becomes a *wāw*, as we say: *zaydū* and *al-rajlū*... and the second is what Sībawayh said when he mentioned *ʾalif*, *wāw*, and *yāʾ*, for he said: "because speech is not devoid of them, or [at least] a portion of them." (Sībawayh 1986, IV:242, n. 1)[69]

[69] This reference is for the al-Sīrāfī quote, which Harun transcribes in his edition of the *Kitāb*. I have not come across this supposed quote from Sībawayh in the *Kitāb* itself, but it is a very long book.

Al-Sīrāfī clarifies that the *ḍamma* differs from a *mater lectionis wāw* only in terms of phonetic quantity, and the 'portion' (*baʿḍ*) can be 'made full' (*ʾishbāʿ*) so that it becomes an entire long vowel. In this way, he argues, al-Khalīl meant that the short vowels are 'from' the *matres lectionis* because they make up a small part of their longer phonemes. Al-Sīrāfī also believes that Sībawayh said speech cannot exist "devoid of them"; that is, speech cannot happen without the letters *ʾalif*, *wāw*, or *yāʾ*, or at least not without a fraction of them. This notion conforms with the statements of early Syriac grammarians—particularly Dawid bar Pawlos—who argued that the consonants could not be pronounced without the aid of the vowels.

The idea that the vowels were related to the *matres lectionis* according to degrees of 'fullness' seems to have been widespread in the Arabic tradition after Sībawayh. In *Sirr Ṣināʿa al-Iʿrāb*, Ibn Jinnī (d. 1002) explains their relative quantities, writing:

> اعلم أن الحركات أبعاض حروف المدّ واللين، وهي الألف والياء والواو، فكما أن هذه الحروف ثلاثة، فكذلك الحركات ثلاثة، وهي الفتحة والكسرة والضمّة، والفتحة بعض الألف، والكسرة بعض الياء، والضمّة بعض الواو.
>
> Know that the vowels are portions of the letters of lengthening and softness: *ʾalif*, *yāʾ*, and *wāw*, and just as these letters are three, so too are the vowels three: *fatḥa*, *kasra*, and *ḍamma*. *Fatḥa* is a portion of *ʾalif*, *kasra* is a portion of *yāʾ*, and *ḍamma* is a portion of *wāw*. (Ibn Jinnī 1993, 17)[70]

[70] See also, Semaan's (1968, 58–59) translation and discussion of this passage.

Ibn Jinnī recognises a clear equivalency in the quality of the long vowel forms of the *matres lectionis* and the unwritten short vowels,[71] and so argues that the latter are derived from the former. He justifies this connection with a simple explanation, saying: "Your evidence that the vowels are portions of these letters is that when you make one of them full, then after it, the letter of which it is a portion occurs (ويدلّك على أن الحركات أبعاض لهذه الحروف، أنك متى أشبعتَ واحدة منهن حدث بعدها الحرف الذي هي بعضها)" (Ibn Jinnī 1993, 18, 23). That is, when one makes a short vowel full (*ʾishbāʿ*), then a long vowel occurs. Because of this relationship, Ibn Jinnī identifies the short vowels as *ḥurūf ṣighār* 'small letters', and explains that some "earlier grammarians" would call *fatḥa*, *kasra*, and *ḍamma* "small (*saghīr*) *ʾalif*, small *yāʾ*, and small *wāw*" (Ibn Jinnī 1993, 18). He does not specify whom he is referring to as 'earlier'. His main source, Sībawayh (d. 793/796), does not use *saghīr* for vowel length. Meanwhile, Ibn Sīnā (d. 1037), who is certainly not 'earlier' than Ibn Jinnī, does refer to "large and small *ʾalif*" (al-Tayyan and Mir Alam 1983, 126; see also, Fischer 1985, 94–97).

This analysis of the short vowels as small letter 'parts' of the long vowel letters and Ibn Jinnī's allusion to earlier sources may reveal yet another connection between the Arabic linguistic tradition and earlier Greek grammatical terminology. C. H. M. Versteegh (1977, 21–22) notes Muḥammad ibn Aḥmad al-Khwārizmī (d. 997)—a contemporary of Ibn Jinnī—as a potential

[71] Alfozan notes that some modern linguists argue the long and short vowels differed in both quantity *and* quality (1989, 32–33), but medieval grammarians did not recognise such a difference.

source for a 'Greek' system of vocalic analysis that was known in tenth-century Arabic circles. Al-Khwārizmī was a Samanid scribe who wrote one of the earliest extant Arabic encyclopaedias sometime after the year 977 (Bosworth 1963, 100). In this encyclopaedia, known as *Mafātīh al-ʿUlūm* (*The Keys to the Sciences*), he compiles a general overview of many different topics that would be useful for an Islamic *kātib* 'secretary, scribe' to know, including several sections on Arabic grammar (Fischer 1985). One of these sections is titled *Wujūh al-Iʿrāb ʿalā Madhhab Falāsifa al-Yūnāniyyīn* (*The Ways of Inflection According to the School*[72] *of the Philosophy of the Greeks*), which reads:

> الرفع عند أصحاب المَنطِق من اليونانيّين واو ناقصة وكذلك الضمّ واخواته المذكورة والكسر واخواته عندهم ياء ناقصة والفتح واخواته عندهم ألف ناقصة وإن شئت قلتَ الواو الممدودة اللينة ضمّة مُشبَعة والياء الممدودة اللينة كسرة مُشبَعة والألف الممدودة فتحة مُشبَعة
>
> *Al-rafʿ*, according to the masters of logic among the Greeks, is deficient *wāw*, and likewise is *ḍamma* and its aforementioned sisters. *Al-kasra* and its sisters are, according to them, deficient *yāʾ*, while *al-fatḥ* and its sisters are deficient *ʾalif*. If you wish, you may say the soft, lengthened *wāw* is a full *ḍamma*, the soft, lengthened *yāʾ* is a full *kasra*, and the lengthened *ʾalif* is a full *fatḥa*. (al-Khwārizmī 1968, 46, lines 4–8)

The key phonological feature which al-Khwārizmī attributes to the Greeks is the division of the vowels of each *mater lectionis* into 'deficient' (*nāqiṣ*) and 'full' (*mushbaʿ*) qualities according to their length. *Wāw mushbaʿa*, for example, is typically written with the

[72] Or 'methodology'. *Madhhab* here does not imply a physical school.

letter *wāw* and represents long /ū/. Meanwhile, *wāw nāqiṣa* indicates a short /u/ typically written without *wāw*. These words—*nāqiṣ* and *mushbaʿ*—also appear in Ibn Jinnī's *Sirr Ṣināʿa* when he describes the differences between short *ḥarakāt* and long vowels (Ibn Jinnī 1993, 23, 26).[73]

Versteegh (1977, 21) notes that this perceived 'Greek' idea of a short vowel being a fraction of a longer vowel stands in contrast to the mainstream Arabic analysis of long vowels as a short vowel plus a 'silent' *mater lectionis*. He theorises that the Arabic explanations of the *ḥarakāt* as 'small' or 'deficient' versions of the *matres* are thus translations of Greek letter names, calqued by translators like Ḥunayn ibn Isḥāq (d. 873) who were familiar with spoken Greek. By this logic, the Greek letters *omega* (/ō/) and *omikron* (/o/) were indeed 'big O' and 'small O' (Fischer 1985, 96), and *mikron* (small) was the source of the *saghīr* descriptor for the short vowels. Then *epsilon* (/e/) and *upsilon* (/u/) are 'simple E' and 'simple U', distinguishing their pure vowels from related diphthongs (i.e., αι /ay/ and οι /oy/), and *psilon* 'bare, simple' was the source of *nāqiṣ* (Versteegh 1977, 23). I am sceptical of this connection on the basis of such tenuous calques, but it is not implausible.

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[73] Abū ʿAmr al-Dānī (d. 1053) uses similar language, for example discussing the *mushbaʿāt* in his *al-Muḥkam fī Naqṭ al-Maṣāḥif* (al-Dānī 1960, 20b). The word *ʾishbāʿ* is also often used to describe metrical extensions to lengthen the end of a line of poetry (see Versteegh 1977, 20; K. Versteegh 2011).

What does seem clear is the fact that there was some notion of a Greek 'school' or 'methodology' (*madhhab*) of Arabic grammar during the tenth century (Fischer 1985, 95), and the Syriac Christian physician Ḥunayn ibn Isḥāq is the most likely source for al-Khwārizmī's knowledge of this school. Recalling the heading from al-Khwārizmī's section on inflection, the title *Wujūh al-Iʿrāb ʿalā Madhhab Falāsifa al-Yūnāniyyīn* (*The Ways of Inflection According to the School of the Philosophy of the Greeks*) is quite similar to that of Ḥunayn's book on Arabic grammar, *Kitāb Aḥkām al-Iʿrāb ʿalā Madhhab al-Yūnāniyyīn* (*The Rules of Inflection According to the School of the Greeks*) (Merx 1889, 105–6; Vidro 2020a, 32). This work was long thought to be lost, but Nadia Vidro recently recovered several pages of the text from Judaeo-Arabic fragments in the Cairo Genizah (Vidro 2020a; 2020b, 296–300).[74] In them, Ḥunayn does in fact lay out a system for classifying the parts of Arabic speech using terminology translated from the Greek grammatical tradition (Vidro 2020a, 27–29). In the introductory section, he also announces his intention to explain the proper pronunciation of Arabic utterances—including the vowels *fatḥa*, *kasra*, and *ḍamma*—at a later point in the book (Vidro 2020a, 14, 29), but unfortunately this section of the text remains missing. In contrast to Ibn Sīnā and other tenth-century Arabic scholars of Greek logic (see Fischer 1985, 95–97), Ḥunayn (d. 873) does predate Ibn Jinnī (d. 1002) by a wide margin. The recovery of additional folios from this text would shed

[74] For additional confirmation of the identity of this text, see Posegay (2021b, 159–60).

more light on the possibility of Arabic authors calquing the names of Greek letters.[75]

Syriac and Hebrew scholars also conceived of the *matres lectionis* as the source of their vowels, even though they did not distinguish between long and short vowel phonemes in the same way that Arab grammarians did. Like Ibn Jinnī and al-Khwārizmī, Elias of Ṭirhan (d. 1049) is definitive in attributing vowels to each of the *matres lectionis*, but his system is more complex due to the larger vowel inventory in Syriac in comparison to Arabic. He lays out the different types of vowels in his *Memrɔ Gramaṭiqɔyɔ*. For clarity, I have added approximate phonetic values to each of Elias' vowel names:

> ܙܕܩ ܕܝܢ ܠܡܕܥ ܕܐܬܘ̈ܬܐ ܩ̈ܠܢܝܬܐ. ܬܠܬ ܐܢܝܢ.. ܗ̄.. ܐ.. ܘ.. ܝ,.. ܘܫܪ̈ܟܐ ܕܐܬܘ̈ܬܐ
> ܐܚܪ̈ܢܝܬܐ ܠܗܠܝܢ ܢܩܦܝܢ.. ܗܠܝܢ ܐܬܘ̈ܬܐ ܠܙܘܥܐ ܕܫܡ̈ܗܐ ܐܘ ܡ̈ܠܐ
> ܡܬܩܪ̈ܝܢܐ ܥܠ ܗܘܦܟܐ ܡܬܬܙܝܥܢܘ̈ܬܐ ܐܬܦܪܫܘ ܠܡܠܠܘ ܡܢ ܗܠܝܢ ܬܠܬ
> ܡܠܬܢ̈ܬܐ.. ܡܢ .ܐ. ܢܓ̇ ܘܩܫ̈ܐ... ܘܦܬܚܐ... ܘܥܨܝܨܐ ܐܘܚܕܢܬ ܙܩ̈ܦܐ... ܡܢ. ܘ̄.
> ܕܝܢ. ܒ. ܡܬܬܙܝܥܢܘ̈ܬܐ.. ܘ.. ܚܒܝܨܐ ܘܐܣܝܪܬܐ.. ܘ.. ܕܡܬܩܪܝܐ ܡܩܡܨܐ
> ܘܪܘܚܬܐ.... ܡܢ.. ܝ,.. ܬܘܒ ܚܕܐ ܕܡܬܬܙܝܥܢܘܬܐ ܕܐܝܬܝܗ̇,[76]
>
> It is necessary to know that the sounding letters are three, being *ʾalaph*, *wāw*, *yod*, and the rest of the other letters [are pronounced][77] with them. They are the letters for the con-

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[75] In fact, this book has considerable potential as a possible 'missing link' between the Greek, Arabic, and Syriac linguistic traditions in the early medieval period. The extant portions now require significant further analysis to build on Vidro's foundation and bring Ḥunayn's ideas into context with current scholarship on Syriac and Arabic grammar.

[76] These Syriac vowel names will be discussed in chapter 4, §2.3.

[77] Baethgen's edition reads ܢܩܦܝܢ 'they cling to', but this is probably an error for ܢܦܩܝܢ 'they are pronounced'.

> struction of nouns or verbs (which indicate action), the vocalisations made known by production from these three sounding ones. From *ʾalaph* is what is *ʒqɔpɔ* /ɔ/... *ptɔḥɔ* /a/... and *sheshlɔ*, that is, *rbɔṣɔ* /e/.... Then from *waw* are two vocalisations: [one] is *ḥbɔṣɔ* /u/... and the other is called *massaqɔ* and *rwaḥtɔ* /o/.... Then from *yod* is one vocalisation, which is /i/. (Baethgen 1880, ܠ, lines 11–18)

This type of vowel classification likely came naturally to Syriac grammarians, as standard Syriac orthography nearly always represented /u/, /o/, and /i/ with the letters *waw* and *yod*. Conversely, Elias assigns each of the vowels which are *not* typically marked by *matres lectionis*—/ɔ/, /a/, and /e/—to *ʾalaph*, the least-consonantal of his three 'sounding' letters. Elsewhere, he also refers to all three of these qualities as 'half-*ʾalaph*' (*pelgut ʾalaph*) (Baethgen 1880, ܚ, lines 1–2). While this description is reminiscent of Ibn Jinnī's explanation of vowel 'portions' and the 'small' letters, we have already seen that the idea of a 'half-sounding' is most likely derived from *hēmiphōna*, the Greek term for fricative consonants (see above, present chapter, §1.0). In any case, Elias has a clear understanding of the three sounding letters as the sources of all six discrete East Syriac vowel qualities.

As for the Masoretic tradition, the classification of vowels according to the *matres lectionis* appears explicitly in a short text known as *Reshimat Munnaḥim* (*List of Terms*). Richard Steiner draws attention to this passage:

> סֶדֶר הַסִּימָנִים. זֶה סֶדֶר הַסִּימָנִים:
> שִׁשָּׁה נָעִים הֵם שָׁלוֹשׁ אוֹתִיּוֹת.
> לְאָלֶף שְׁנֵי פָּנִים אֶחָד קָמֵץ וְאֶחד פָּתַח...
> כמות: אָ קָמֵץ אַ פָּתַח.
> לו לָוו שְׁנֵי פָּנִים: אוֹ אוּ.

לְיוֹד שְׁנֵי פָּנִים: אִי אֵי.
אֵילּוּ הֵן שָׁלוֹשׁ אוֹתִיּוֹת שֶׁבְּהֶן נַעֲשׂוּ.

> The Arrangement of the Signs. This is the arrangement of the signs:
> Six movers are three letters.
> *ʾAleph* has two forms, one closing and one opening.
> That is: כʾ is closing, *ʾa* is opening.
> *Waw* has two forms: *ʾo ʾu*.
> *Yod* has two forms: *ʾi ʾe*.
> These are the three letters by which they are made. (Steiner 2005, 379, n. 51; see also, Allony 1986, 123)

This text assigns two 'forms' (*panim*) to each of the *matres*, distributing six discrete vowel qualities among them. It seems that this Masorete's recitation tradition (quite likely Palestinian or Babylonian) did not distinguish between /e/ and /ɛ/, and thus had one fewer vowel than the standard Tiberian tradition (see Fassberg 1990, 28–31, 53; Dotan 2007, 625–27, 630–32; Khan 2013; 2020, I:244). Nevertheless, they show a clear conceptual distinction between three types of vowels according to their respective *matres*. This relationship also occurs implicitly in the orthography of a number of early notes and Masoretic treatises, where it was common to transcribe vowel sounds with *ʾaleph* plus an additional *mater* (e.g., אא או אי), with a preference for *yod* and *waw* to indicate /e/ and /o/ (e.g., Steiner 2005, 378; Dotan 2007, 634).[78]

[78] See also, T-S Ar.31.28 and T-S Ar.53.1 in Allony and Yeivin (1985); Allony (1964); Eldar (1981).

This division of vowels with *matres lectionis* was known to many medieval linguists, but it was not universal. A clear contrast to this trend is Jacob of Edessa's (d. 708) *Turrɔṣ Mamllɔ Nahrɔyɔ*, in which Jacob invents new letters to represent the Syriac vowels, and abandons the usage of *waw* and *yod* as *matres lectionis*. He does retain *ʾalaph* to represent the vowel /ɔ/, a fact which may result from the idea that *ʾalaph* was the least consonantal of all the letters. Still, Jacob is an exception to the rule.

The practice of vowel classification with the *matres* appears in the Arabic, Syriac, and Hebrew phonological traditions at the same time, and it shows a shared understanding of the Semitic phenomenon of dual-functioning letters that can represent both vowel and consonant phonemes. As we have seen, similar notions crossed religious and linguistic boundaries with regard to the sickness and health of these letters, their clarity and subtlety, and their length, softness, and sonority. These ideas changed according to the needs of three language traditions with different vowel inventories, but it remains possible to detect their common features.

4.0. Summary

The preceding sections have surveyed the three primary frameworks that medieval Semitic linguists used to differentiate the phonetic characteristics of vowels and consonants. In general, it seems that they considered vowels both more energetic and more ephemeral than consonants. Members of all three traditions discussed here repeatedly emphasise that speech can only occur due to the movement and sonority of the vowels, without which the

consonants cannot be articulated. One way that they expressed this idea was via the 'sounding' letters which can be pronounced alone. Ultimately derived from earlier Greek tradition, this concept was especially influential for Syriac and Hebrew grammarians, who learned it either through direct contact with Greek sources or via Arabic translations produced after the eighth century. By contrast, the soundingness of vowels was not particularly well-known among Arabic grammarians, who overwhelmingly refer to vocalisation with terms related to 'movement' and 'stillness'. This idea may also have Greek roots in the term *kinesis*, although the evidence is not entirely clear. At any rate, Syriac and Hebrew grammarians also adopted it as a result of their contact with Arabic scholarship. Along with these two main principles, Syriac, Arabic, and Hebrew scholars all contended with the dual nature of the *matres lectionis* that existed in their writing systems, and they developed various ways of explaining their behaviour in speech and writing. The most well-known of these ways is the Arabic concept of 'sick' letters, which sometimes act as vowels, but other times may function like 'healthy' consonants. Some Syriac and Hebrew writers challenged or modified this idea, but in general they developed similar explanations, expressing a marked contrast between the 'clear' and 'concealed' forms of their vowel letters. Taken together, these similarities reveal numerous points of contact among scholars of different Semitic languages, as well as potential pathways by which medieval Jewish, Christian, and Muslim scholars could have exchanged other ideas about their holy languages.

Before moving on to the more specific histories of vocalisation in these three traditions, it is worth remarking on the various other identifications for the category of 'vowels' that we have not covered. We tangentially approached one of these ideas, namely, the description of vowels as 'melodies' or 'tones'. This identification is fairly common among medieval Judaeo-Arabic authors (e.g., see Skoss 1952; Allony 1971, 11-15; Eldar 1981; Khan 2020, II:116;),[79] who refer to the vowels as *naghamāt* 'melodies, tones' in addition to 'movements' and 'sounding' ones. It may also be known in Syriac, as Dawid bar Pawlos refers to the Syriac cognate *neʿmtɔ* 'melody' in the context of the production of speech (Gottheil 1893, cxii, line 9). The idea of vowels as 'melodies' most likely evolved out of the Hebrew and Syriac traditions of biblical recitation, associating vowels with both musical intonation and with the number of syllables in a metre (see Werner 1959, 374). Other terms for 'vowel' are explicitly linked to prosody, most notably the Syriac word *nqɔshtɔ* 'beat' (Gottheil 1893, cxvii, lines 5–12; Segal 1953, 7, 54, 171; Kiraz 2012, I:59), which represents a single syllable in poetic metre. Jewish grammarians also have a unique term for vowels—'kings' (either *mulūk* or *melaḵim*)—that was likely derived by analogy with the hierarchy of the Hebrew accents (see Khan 2020, II:267). Furthermore, Masoretes sometimes called the vowels 'signs' (*simanim*), using the same word that they used for the 'mnemonic devices' that helped them recall the fine details of Masoretic recitation (Steiner 2005, 379; Dotan 2007, 619; Khan 2020, I:117).

[79] See also, MS Cambridge, T-S NS 301.69.

Perhaps the most regrettable omission here is a thorough discussion of the Arabic concept of *ʾiʿrāb*, a term for 'declension' that literally means 'making Arabic' and may be a calque of the Greek grammatical term *hellenismos* 'declension, making Greek' (Versteegh 1977, 62–64; 1993, 23–26, 127–28).[80] As we saw with the history of *ḥarakāt*, the line between 'declension' and 'vocalisation' became blurred at the ends of words where the Arabic case vowels occurred. In contrast to Arabic, most grammarians did not recognise distinct grammatical cases in Hebrew, and consequently some Judaeo-Arabic authors adopted the word *ʾiʿrāb* to simply mean 'vocalisation' (e.g., Skoss 1952, 290, lines 15–16; Khan 2020, II:116). This usage of *ʾiʿrāb* may have also been a feature of the eighth-century 'Old Iraqi' school of Arabic grammar (Talmon 2003, 239–40 and 240, n. 1).[81] The closest analogue in Syriac may be the word *puḥḥɔme* 'comparisons, relationships', which refers to the systems of vocalisation and reading dots that indicate syntactic relationships within a Syriac text (Hoffmann 1880, VII–VIV; Segal 1953, 48, n. 3, 59, 172; Posegay 2021b, 156–60),[82] and is sometimes used to translate *ʾiʿrāb* (Duval 1901, 1502–3; Gottheil 1928, II:246, lines 6–9; see also, Merx 1889,

[80] For the early Arabic grammatical usage of the term *ʾiʿrāb*, see Talmon (1997, 198).

[81] For example, in the introduction to *Kitāb al-ʿAyn*, either al-Khalīl or al-Layth classifies *ḍamma*, *kasra*, and *tanwīn* as *ʾiʿrāb* (Makhzumi 1985, I:50–51).

[82] See especially, Baethgen (1880, ܡ, lines 15–18) and Gottheil (1893, cxviii, lines 10–12).

143–44). Similar to *ʾiʿrāb*, the word *naḥw* broadly means 'grammar' in Arabic, but is also used to indicate an inflected form of an Arabic word, often emphasising the vowel at the end of that form (e.g., Ibn Jinnī 1993, 53–54). It seems that some Hebrew linguists generalised this word to mean all vowels, including with the plural form *ʾanḥāʾ* 'inflections, vowels' (Eldar 1981, esp. 108; Khan 2020, II:267).

While not the primary methods for conceptualising vowels as distinct from consonants, all of these ideas constitute potential avenues for further studies into the shared history of vocalisation in Syriac, Arabic, and Hebrew. For now, however, we turn to the earliest attempts by Semitic linguists to differentiate the actual qualities of the vowels, beginning with the foundational principle that each vowel can be described according to its relationship with the others.