Points of Contact

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

NICK POSEGAY

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1. INTRODUCTION

But the Hebrews, Syrians, Persians, Kushites, Elamites, Medes, Phoenicians, Alans, and Arabs, as well as others unknown to us, do not have enough letters to express the sounds that they write in their languages, or to read them correctly, just as they are. Accordingly, they are forced to place dots on the letters, to distinguish the vowels and words from each other, and they are only able to read correctly by an act of divination, by tradition, or by means of much toil. (Elias of Nisibis [d. 1046], *The Correct Form of Syriac Speech* [Gottheil 1887, ه])

The Arab expansion out of the Hijaz threw people across the Middle East into a state of linguistic flux. From the seventh century onwards, Arabic-speaking Muslims increasingly came into contact with speakers of other languages, and new converts to Islam brought their own languages with them. This development jeopardised the proper pronunciation of Qurʾānic recitation, as new Muslims in disparate areas learned Arabic for the first time. Conversely, Aramaic-speaking Jews and Syriac Christians gradually began to adopt Arabic as a lingua franca within the growing Islamic empire. As Arabic spread and fewer people mastered Aramaic, those Jewish and Christian communities risked introducing mistakes into their liturgical traditions, both of which required accurate recitation of the biblical text in Hebrew or Syriac. Consequently, by the beginning of the eighth century, Christians, Muslims, and Jews alike needed to take steps to preserve their recitation traditions against the impacts of linguistic change. This situation coincided with an increasing importance in the culture of writing, including the writing of historically oral traditions,

between the seventh and ninth centuries (Schoeler 2006, 111–41, esp. 129, 140; Shah 2008; Khan 2017, 270; 2020, I:12; see also, Bloom 2010). However, the Syriac, Arabic, and Hebrew scripts lacked sufficient letters to record every phoneme in the Bible and the Qurʾān, so to transcribe them more accurately would have required wholesale changes to the orthography of sacred texts.

One story that highlights the resistance to changing the holy texts comes from ʿAbd Allah ibn Ṭāhir (d. 845 CE), a ninth-century Abbasid governor of Khurasan (Bosworth 1982). Famously a patron of culture and scholarship, Ibn Ṭāhir once saw a magnificent example of Arabic calligraphy, but rather than admire it—so the story goes—he lamented: "How beautiful this would be, if there were not so much coriander seed scattered over it!" (Hughes 1895, 686). The wayward coriander seeds were the diacritic points that are now essential to the Arabic script, but for Ibn Ṭāhir they were an undesirable innovation. Opinions such as this did not prevent scribes from adding further innovations to the Arabic writing system, but they did direct them to be as non-invasive as possible with respect to modifying the writing of the Qurʾān. Similar attitudes influenced Syriac and Hebrew scribes as they attempted to record the fine details of their recitation while also preserving traditional biblical orthography.

This opposition to change was especially problematic for the issue of vocalisation, as Arabic, Syriac, and Hebrew all lacked dedicated letters for vowels. Theological concerns notwithstanding, it was impossible for scribes to precisely record biblical or Qurʾānic vowel phonology with their abjad scripts alone. Instead,

the scribes and scholars of all three languages faced the same challenge: to determine how to record vocalisation without creating new letters or radically amending the text of their scripture. They accomplished this goal first with diacritic points, but between the seventh and eleventh centuries they invented and deployed many other graphical tools for recording vowels. These innovations also prompted medieval linguists to begin writing about vocalisation to explain the function of the new vowel signs. In doing so, they developed novel linguistic theories with technical terminology that merged their pedagogical traditions with the growing fields of Semitic grammar.

This book examines these ideas about Arabic, Syriac, and Hebrew vocalisation as they emerged in the early medieval Middle East. It traces their evolution during the period before 1100, following the story of each tradition as it matured from the first attempts at partial vocalisation to the complete vowel systems known in the modern day. J. B. Segal told a related story in his book, *The Diacritical Point and the Accents in Syriac* (1953), which examines the origin and development of pointing in Syriac. In its preface, he writes: "To have discussed possible points of contact with Hebrew manuscripts or with Arabic would have disrupted the continuity of the story" (Segal 1953, vii). This choice is understandable, given the scope of his project, but none of these linguistic traditions developed in a vacuum. Syriac grammarians and Hebrew Masoretes exchanged theories of vocalisation as early as the seventh or eighth century, and the first Qurʾānic vocalisers adapted their system from Syriac at the same time. From the ninth century onwards, both Syriac and Hebrew scholars also

adapted elements of Arabic phonological thought to explain their own languages. It is thus impossible to achieve a comprehensive understanding of any one Semitic vocalisation tradition without placing it in the proper context of its neighbours. The story, so to speak, has many characters, and if any are absent, then its clarity declines dramatically. As such, this book will compare the phonological theories that Syriac, Arabic, and Hebrew linguists used to describe vocalisation in order to demonstrate how their three traditions were linked in the period between 600 and 1100 CE.

1.0. Organisation and Scope

In writing this introduction, I cannot help but think of the preface to Shelomo Morag's book, *The Vocalization Systems of Arabic, Hebrew, and Aramaic* (1961). He begins it by saying:

> This study is not a complete history of the vocalization systems of Arabic, Hebrew, and Aramaic, nor does it pretend to be one. The time for writing a full history of these vocalization systems has not yet come; much work remains to be done in the examination of mss. and printed texts before such a history can be written. (Morag 1961, 5)

Morag wrote this preface in 1959, and his caveat—"[t]he time… has not yet come"—is no longer true. While Morag already had access to some foundational books that remain relevant, including Nabia Abbott's *The Rise of the North Arabic Script* (1939), J. P. P. Martin's *Histoire de la ponctuation* (1875), Theodore Nöldeke's *Compendious Syriac Grammar* (1904), J. B. Segal's *The Diacritical Point and the Accents in Syriac* (1953), and S. Baer and H. L. Strack's *Dikduke ha-Ṭeʿamim des Ahron ben Moscheh ben Ascher*

(1879), these works were insufficient for establishing a clear history of vocalisation. *The Rise of the North Arabic Script*, for example, focused on the history of the Arabic script, to which the vowel signs were merely an accessory that Abbott did not systematically evaluate (Abbott 1939, 21, 39, 65; see Posegay 2021c). Similarly, Nöldeke's discussion of the vowels is almost entirely descriptive, and makes up just a fraction of his grammar (Nöldeke 1904, §§4–21, 40–54). Segal's analysis is more detailed and incorporates more medieval primary sources on vocalisation (Segal 1953, 7–47), but his heart really belonged to the accent signs. Moreover, *Dikduke ha-Ṭeꜥamim des Ahron ben Moscheh ben Ascher* has turned out to contain a number of texts that Aharon ben Asher did not actually write (see Dotan 1967). None of these books were comprehensive accounts of vocalisation and could only serve as starting points for Morag—hence the statement in his preface. The result is that his own book is mainly a description of the forms and functions of Arabic, Hebrew, and Aramaic vocalisation systems, not an analysis of their formative principles and connections. However, our understanding of vocalisation has advanced considerably in the last 60 years, with new studies of both manuscripts and medieval philological texts allowing for a more complete reconstruction of the history of vocalisation.

Regarding Arabic, Abbott herself supplemented her conclusions on vocalisation in *The Rise of the North Arabic Script* with *Studies in Arabic Literary Papyri* (1972, 5–11), and her work, plus studies like Geoffrey Khan's *Arabic Papyri* (1992a), have illuminated the origins of vocalisation signs in non-Qurʾānic manuscripts. Meanwhile, books like François Déroche's *Les Manuscrits*

du Coran (1983) and *The Abbasid Tradition* (1992),[1] along with Alain George's *The Rise of Islamic Calligraphy* (2010, esp. 74–80) have clarified the early landscape of vocalised Qurʾānic manuscripts. E. J. Revell (1975), Yasin Dutton (1999; 2000), and George (2015) have also explored the origins and development of the Arabic dot systems, while scholars like Kees Versteegh (1977; 1993), A. A. al-Nassir (1993), and Rafael Talmon (1997b; 2003) have surveyed the technical terminology that the first Arabic grammarians used for vocalisation. There are also now many more published editions of medieval Arabic linguistic texts than there were in Morag's day, including: *al-Muḥkam fī Naqṭ al-Maṣāḥif* (1960), *Risāla Asbāb Ḥudūth al-Ḥurūf* (1983), *Kitāb al-ʿAyn* (1985), *Kitāb Sībawayh* (1986), and *Sirr Ṣināʿa al-Iʿrāb* (1993). These sources reveal the theoretical principles behind Arabic vocalisation as well as links to Syriac and Greek.

For Syriac, since Morag, a number of authors have examined the use of vowel points in the manuscript tradition of medieval Syriac scribes, as well as the tradition of Syriac grammarians after the seventh century. In particular, George Kiraz's *Tūrrāṣ Mamllā: A Grammar of the Syriac Language* (2012) has widened the view of the Syriac manuscript tradition, and his book *The Syriac Dot* (2015) has reconstructed the history of the diacritic dot with somewhat more readability than that of Segal. Jonathan Loopstra (2009; 2014; 2015; 2019) has also done considerable work to bring the East Syrian *mashlmɔnutɔ* tradition to the fore.

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[1] See also, Déroche (2014) and Déroche et al. (2015, 222–24), the latter of which is only a brief overview, but contains extensive references to early vocalised Arabic manuscripts.

Similarly, J. F. Coakley (2011) has shown that the 'Western' vowel signs were a fairly late innovation, greatly clarifying the history of the vowel signs, especially as they relate to Jacob of Edessa. Other Syriac scholars have placed great emphasis on Jacob of Edessa as the first and most important source of early medieval Syriac grammar (Revell 1972; Salvesen 2001; ter Haar Romeny 2008; Farina 2018), and rightly so, as Jacob's works remain central to understanding Syriac vocalisation. We also now have a more precise understanding of Classical Syriac morphophonology, thanks to studies like Ebbe Knudsen's *Classical Syriac Phonology* (2015) and Aaron Butts' *Language Change in the Wake of Empire* (2016). Scholars like Adam Becker (2003; 2006; 2010), Aaron Butts, and Simcha Gross (2020) have also investigated the degree of intellectual contact between Jews and Syriac Christians in the late antique and early Islamic periods, a situation which has direct bearing on the early history of vocalisation. Daniel King (2012) and Raphael Talmon (2000a; 2000b) have done similar work comparing Syriac and the early Arabic grammatical tradition. All of this material together means that not only are we in a better position than Morag to chart the history of Syriac vocalisation, but we can also more easily examine its relationships with Hebrew and Arabic.

Morag himself did some further work on Hebrew vocalisation history, particularly examining early Masoretic technical terminology (1973; 1974; 1979), and other scholars have made great strides to advance the understanding of Hebrew vocalisation since then. Aron Dotan has dominated this field, editing a more accurate version of Ben Asher's *Diqduqe ha-Ṭeʿamim* (1967),

investigating the origins of Masoretic activity (1974; 1981), and producing one of the most comprehensive summaries of Hebrew vocalisation in his *Encyclopedia Judaica* article, 'Masora' (2007). Israel Yeivin's *Introduction to the Tiberian Masora* (trans. Revell, 1983) condensed the notes of the Tiberian Masora into a digestible form for the first time, and he also wrote what remains the seminal work on Babylonian Masora and vocalisation (1985). As for the Tiberian tradition, Geoffrey Khan's work on Karaite transcriptions of Hebrew in Arabic script (1990; 1992b) and the recovery of additional medieval linguistic texts from the Cairo Genizah have proven essential for understanding its features since Morag's time. Most importantly, nearly the full text of *Hidāya al-Qārī* has emerged from the Firkovich Collection, which Khan utilised for his monumental work, *The Tiberian Pronunciation Tradition of Biblical Hebrew* (2020). Several other scholars have also published medieval Judaeo-Arabic sources, mostly from the Cairo Genizah, that are critical to the history of Hebrew vocalisation, notably Nehemiah Allony (1964; 1965; 1983), Allony and Yeivin (1985), and Ilan Eldar (1981). All of this work allows us to reconstruct much of the history of the Tiberian Masoretes and compare their vocalisation tradition to those of Syriac and Arabic grammarians (e.g., see Talmon 1997a; 2000a).

So while for Morag the time for writing a full history of Arabic, Hebrew, and Aramaic[2] vocalisation had "not yet come," such a history can feasibly be written today. Still, it is not my intention to write that history, at least not in its entirety. This book does not, for example, survey the use of vocalisation signs

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[2] By which he mainly means Syriac; see Morag (1961, 46–59).

in any manuscript corpora, nor does it exhaustively account for all the signs that saw use during the medieval period. Mostly for reasons of time and space, it also does not take up any sources related to Samaritan vocalisation system, which surely has some bearing on other systems, and it mentions the Babylonian and Palestinian Hebrew systems only occasionally.[3] Instead, it focuses on the phonological concepts that medieval scholars developed to describe the new technology of 'vocalisation signs' in the Arabic, Syriac, and Tiberian Hebrew writing systems. These concepts changed over time, and the history of that evolution is also a record of interchange between scholars of different languages and faiths.

1.1. Summary of Sections

Broadly speaking, medieval Semitic linguists exchanged ideas over the course of three phases in the history of vocalisation. The phases overlap and their duration differs somewhat between languages, but Arabic, Syriac, and Hebrew all follow this same trajectory. First, a 'relative' phase, near the infancy of the graphical vocalisation systems, when people explained vowels by describing their phonetic features in contrast to other vowels. This phase spans the period from the first Syriac diacritic dots to roughly the end of the eighth century. Second, an 'absolute' phase, when the graphical vocalisation systems solidified in their final forms, and grammarians began assigning names to their vowels on an absolute, one-to-one basis. This phase begins with the introduction of

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[3] For details on these systems, see Morag (1961, 30–41); Dotan (2007, §§5.1–2, 6).

the Arabic red-dot vocalisation system and the eighth-century Arabic scholars who first applied absolute vowel-naming conventions. It continues through the tenth century. Third, a 'consolidation' phase, mainly in the tenth and eleventh centuries, when scholars sought to tie together the disparate theoretical threads that their predecessors created to explain vocalisation. This period is marked by the growing dominance of Arabic in the Middle East and an increase in its influence on the phonological ideas of Syriac and Hebrew.

While the following discussion traces each language through these phases, its main goal is to detect and explore points of contact between different linguistic traditions. The chief method for finding these connections is the identification of technical terms that appear in primary sources across multiple traditions. This study thus includes a wide survey of the technical terminology that Arabic, Syriac, and Hebrew scholars used to explain vowels, aiming to define them as accurately as possible in their native contexts. It then examines the usage of the shared terminology to determine how and when certain terms may have crossed between traditions. Sometimes these terms are direct loan words, but more often they are calques, usually from Syriac, Arabic, or Greek, that were adapted to fit a new purpose in another tradition. From these shared terms it is then possible to analyse the chronology and direction of intellectual exchange among medieval Semitic linguists.

This book addresses the intellectual history of vocalisation in three sections. The first, chapter 2, surveys the different ways

that medieval linguists described vowels as a phonological category that was distinct from consonants. It includes three subsections, each addressing a fundamental principle that links Arabic, Syriac, and Hebrew scholars in the field of vowel phonology: the idea of 'sounding' letters (§2.1); the perception of vowels as 'movements' (§2.2); and the dual nature of the *matres lectionis* (§2.3). These principles provide the foundation for further lines of inquiry related to vocalisation.

Chapter 3 examines the phenomenon of 'relative' vocalisation, drawing on some of the earliest sources that address Semitic vowel phonology in the eighth century. Its first subsection describes the similarities between Syriac grammarians and Hebrew Masoretes in the first attempts to distinguish homographs in their versions of the Bible (§3.1). Specifically, it highlights the apparent exchange of a phonological concept of 'height' as it relates to vowel articulation and the placement of vocalisation points. The second subsection then applies the same relative principle to early Arabic vowel phonology, linking it to the names of the Arabic inflectional cases and to the Sībawayhan description of allophones of the letter *ʾalif* (§3.2).

Chapter 4 follows the transition from relative vocalisation to the first 'absolute' vowel naming systems in each language, comparing all three histories to show where they intertwine. It first addresses the chronological development of vowel names in Arabic grammar, putting it in context with the Syriac grammatical tradition during the eighth and ninth centuries (§4.1). Next, it traces Syriac vowel names from their earliest occurrence in the late eighth century to the grammars of the eleventh century

(§4.2). It then surveys the various conventions by which Hebrew scholars named their vowels in comparison with both Arabic and Syriac (§4.3). Each of these subsections extends to the attempts of relatively later authors to consolidate earlier ideas about vocalisation, examining conceptual and terminological developments in the late tenth and eleventh centuries.

Altogether, these discussions show that medieval Arabic, Syriac, and Hebrew linguists had many points of contact with each other as they dealt with the problem of vocalisation in their respective languages. The links between them reveal an interconnected, interfaith intellectual landscape between the seventh and eleventh centuries, one that continues to have implications for the modern reading of these three languages.

1.2. Defining Terms

As will soon become apparent, this book is intensely interested in technical terms, and many of its questions would be much easier to resolve if modern vocalisation studies did not maintain a long tradition of vague and confusing terminology. I define my own terms here.

‘Vocalisation’ refers both to the process of physically adding vowel signs to a text and to the intellectual domain that explains the creation, function, and application of those signs. This application process may also be called ‘pointing.’ A ‘vocalisation system’ is a set of signs that represent the vowel inventory of a particular pronunciation tradition. These include the Syriac dot

system, the Syriac miniature letter-form system,[4] the Arabic red-dot system, the modern Arabic system, the Tiberian Hebrew system, the Palestinian Hebrew system, and the Babylonian Hebrew system. A 'vocalisation sign' or 'vowel sign' is a point, dot, or other small grapheme that stands for a vowel phoneme, for example: an Arabic red dot, the Syriac *zqɔpɔ* dots, or the Tiberian *qɔmeṣ* symbol. A 'vowel name' is an individual term that refers to a single vowel, although, depending on its context and author, it may refer to either a phoneme or a grapheme. For example, Arabic *fatḥa* 'opening', Syriac *ptɔḥɔ* 'opening', and Hebrew *pataḥ* 'opening' all indicate the phoneme /a/, but may also refer to different graphemes that represent /a/.

By contrast, 'diacritic mark', 'diacritic dot', or 'diacritic sign' refers to a grapheme that is added to a word to clarify the pronunciation of it or one of its letters in some way. These include the Arabic consonantal *ʾiʿjām* dots, the Syriac dots on *rish* and *dalat*, and the Hebrew *dagesh*, as well as signs like *shadda*, *sukūn*, *seyame*, *qushshɔyɔ*, *rafe*, and *mappiq*. This category does not include any graphemes that regularly represent vowels.

'Accents points', 'cantillation signs', and 'reading dots' (Loopstra 2019, 160–61; Kiraz 2015, 114–19) refer to the systems of dots and signs that indicate intonation and cadence in Hebrew

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[4] Traditionally known as the 'Western' Syriac system (though not limited to Western Syriac), my designation is based on terms that Nabia Abbott ("small-letter vowels" or "letter signs"; Abbott 1972, 9–11) and E. J. Revell ("letter-form signs"; Revell 1975, 180) coined to describe Arabic diacritics and vocalisation.

and Syriac texts of the Bible. They are generally tangential to the discussions below.

'Punctuation' is a troublesome word and I avoid it whenever possible. Nineteenth- and twentieth-century scholars of vocalisation used it ambiguously to refer either to all dots in manuscripts (regardless of their function), or to refer to the process of adding dots (the process which I call 'vocalisation' and 'pointing').[5] These meanings are now slightly archaic, and they have become conflated with the idea of 'punctuation' as the set of signs that separate clauses in English syntax (comma, semicolon, full stop, etc.).

'Relative vocalisation' is a term for a method of vocalisation that identifies vowels relative to other vowels in the same position, often by comparing homographs that have the same consonants but different vowels. It extends to the comparative terminology which some medieval linguists used to differentiate vowels. These systems include the Syriac diacritic dot system, the early Masoretic *milleʿel-milleraʿ* system, and the early Arabic system for describing allophones of *ʾalif*.

'Absolute vocalisation' is my term for vocalisation systems which can mark and name their phonemic vowels on a one-to-one basis. These are the systems that readers of Semitic languages are most familiar with, including the modern Arabic system, the Syriac miniature letter-form system, and the Tiberian pointing system.

A glossary of vocalisation terminology used in primary sources appears at the end of this book.

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[5] For example, see Nutt (1870).

2.0. Primary Sources

While I am indebted to the many contemporary scholars who have taken up these topics before me, the core of this book relies on readings of primary texts written by medieval linguists. The following is a chronological overview of the sources that make up the bulk of my corpus. This study is limited to authors who were active before the end of the eleventh century, as after that time the main Semitic vocalisation systems were fully developed. These sources do not exhaustively represent the grammatical traditions of their respective languages, but I have chosen them in order to best show the relationships between Arabic, Syriac, and Hebrew within a manageable corpus. Additional minor sources will be introduced as needed throughout. Unless otherwise noted, translations of Semitic sources are my own.

2.1. Sources for Arabic

Our earliest substantial source for Arabic phonological thought is also the oldest extant Arabic lexicon, *Kitāb al-ʿAyn* (*The Book of the ʿAyn*), compiled mainly by al-Layth ibn al-Muẓaffar (d. c. 803) around the year 800 (Makhzumi 1985; Sellheim 2012a; 2012b; Schoeler 2006, 142–63). It contains a sizable introduction by al-Layth's teacher, al-Khalīl ibn Aḥmad al-Farāhīdī (d. 786 or 791), in which al-Khalīl describes the phonetic features of the Arabic alphabet. This introduction is our primary focus, but the definitions of some terms in the lexical portion of the book are also relevant to the discussion, as they contain important early grammatical teachings (Talmon 1997b).

Sībawayh (d. 793 or 796), the most famous of al-Khalīl's students, needs little introduction. He is the most influential Arabic grammarian, and his *Kitāb Sībawayh* (*Sībawayh's Book*), also known simply as the *Kitāb*, was the foundation for the Basran school of Arabic grammar (Sībawayh 1986). No other grammar has matched its comprehensive coverage of the Arabic language, and it contains several sections devoted to Arabic phonology (al-Nassir 1993). The vocalisation terms in these sections persist in Arabic to this day, and they also appear in medieval texts that describe Syriac and Hebrew.

An important source for understanding the theories behind Arabic technical terminology is *al-Īḍāḥ fī ʿIllal al-Naḥw* (*Clarification of the Reasons of Grammar*) by Abū al-Qāsim al-Zajjājī (d. 948/949). Al-Zajjājī was a student of the more famous grammarian Abū Isḥāq al-Sarī al-Zajjāj (d. 922/928), and his *Īḍāḥ* explains the reasons behind the naming of the Arabic inflectional system that relates to vocalisation (al-Zajjājī 1959).

Abū al-Fatḥ ʿUthmān ibn Jinnī (d. 1002) was a direct intellectual successor to Sībawayh, and his *Sirr Ṣināʿa al-Iʿrāb* (*The Secret of Making Proper Arabic*) is critical to understanding the development of Arabic vocalisation (Ibn Jinnī 1993). It is the first comprehensive study of Arabic phonology (Alfozan 1989, 2), and in it, Ibn Jinnī clarifies and expands the principles of vocalisation laid out in *Kitāb Sībawayh*. This book is particularly important for showing the refinement of Arabic vocalisation terminology in the tenth century.

A less grammatical source is the encyclopaedia *Mafātīḥ al-ʿUlūm* (*The Keys to the Sciences*), written by Muḥammad ibn

Aḥmad al-Khwārizmī (d. 997) around 977. It is one of the earliest Arabic encyclopaedias (Bosworth 1963, 19; see Fischer 1985; Talmon 1997b, 263–64), and in it al-Khwārizmī—a Persian scholar who was not a grammarian—gathers vowel names from multiple different traditions (al-Khwārizmī 1968). He claims to draw on the work of al-Khalīl, as well as Greek sources, and lists several terms that refer to non-cardinal vowels.

Another source by a non-grammarian is *Risāla Asbāb Ḥudūth al-Ḥurūf* (*The Treatise on the Causes of the Occurrence of Letters*), an essay by Abū ʿAlī ibn Sīnā (d. 1037) (al-Tayyan and Mir Alam 1983). Ibn Sīnā was a polymath, but he made his career as a physician and philosopher, and he analyses Arabic vocalisation through the lens of biomechanics. The first half of the essay is an acoustic study of Arabic, while the second half classifies the Arabic letters, revealing connections to Greek and Syriac phonetic concepts.

Al-Muḥkam fī Naqt al-Maṣāḥif (*The Rules for Pointing the Codices*), by the *tajwīd* scholar Abū ʿAmr al-Dānī (d. 1053), details the history and proper usage of the Arabic vowel points, emphasising the appearance of the dots in manuscripts (al-Dānī 1960). It provides evidence for the evolution of Arabic vocalisation terminology in the eleventh century and explains the relationships between phonetic features and dots.

2.2. Sources for Syriac

The most important sources that explain early Syriac vocalisation are three works by Jacob of Edessa (d. 708), a renowned West Syriac bishop and grammarian (ter Haar Romeny 2008; esp.

Salvesen 2008; Kruisheer 2008).[6] His *Letter on Orthography* explains the significance of the diacritical point to Syriac writing, while the tractate *On Persons and Tenses* (Phillips 1869) links vowel phonology directly to diacritic dots. After these two short works, Jacob also wrote the first true Syriac grammar, the *Turrɔṣ Mamllɔ Nahrɔyɔ* (*The Correct Form of Mesopotamian Speech*). Although it survives only in fragments (Wright 1871),[7] the introduction to this book presents vowel letters in a way that allows us to connect Greek phonology to the Syriac, Arabic, and Hebrew vocalisation traditions.

Other early Syriac sources include the works of Dawid bar Pawlos (fl. c. 770–800), an abbot from northern Mesopotamia who lived during the late eighth and early ninth centuries (Brock 2011; Posegay 2021b, 152–55). He wrote a few fragmentary works on Syriac grammar, including sections on the nature of speech and vocalisation (Gottheil 1893), as well as several letters on philological topics (Barsoum 1987, 325–29; Moosa 2003, 372–76). Dawid's grammatical writings provide important clarifications related to the descriptions of vowels in Jacob of Edessa's work, and they show the importance of poetry in the history of Syriac vocalisation. Also of note is a grammatical *scholion* which

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[6] See also, Baumstark (1922, 248–56); Barsoum (1987, 291–306); Brock (1997, 57–60); Moosa (2003, 334–50).

[7] On the status of Jacob's extant grammatical works, see Farina (2018). Gorgias Press is about to republish Jacob's grammar with accompanying English translation in a forthcoming reprint of Merx's *De Artis Grammatica*.

he wrote on the *bgdkt* letters, which contains some of the earliest attested Syriac vowel names.[8]

Another early source for absolute vowel names in Syriac is the version of *Ktɔbɔ d-Shmɔhe Dɔmyɔye* (*The Book of Similar Words*) by Ḥunayn ibn Isḥāq (d. 873) (Hoffmann 1880, 2–49). Ḥunayn was a key figure in the Syriac-Arabic translation movement, and he expanded this text from an earlier work by ʿEnanishoʿ, a seventh-century monk (Childers 2011). Besides *Ktɔbɔ d-Shmɔhe Dɔmyɔye,* Ḥunayn also wrote one of the first Syriac-Arabic lexica. While no longer extant, this lexicon was foundational to further Syriac lexicographic activity during the tenth century.

The first known lexicographer to make use of Ḥunayn's translation work was ʿĪsā ibn ʿAlī (d. c. 900), and his Syriac-Arabic lexicon saw several revisions over the course of the tenth century (Hoffmann 1874; Gottheil 1908; 1928; see Butts 2009). It includes a considerable number of technical terms related to vocalisation, and it offers a terminological link between the work of Ḥunayn and that of the eleventh-century Syriac grammarians.

The second major extant Syriac-Arabic lexicon is that of Ishoʿ bar Bahlul (fl. 942–968) (Duval 1901). This book straddles the line between dictionary and encyclopaedia, and Bar Bahlul frequently cites other lexicographers from the ninth century. It saw several expansions in the centuries after his death, but remains an important source for examining the practical usage of vocalisation terms to describe vowel phonemes and morphology.

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[8] MS Jerusalem, St. Mark's Monastery (SMMJ) 356, fols 164v–166r and MS Mardin, Dayr al-Zaʿfarān (ZFRN) 192, fols 199r–200r. An edition and French translation of this text will appear in Farina (2021).

It also contains several definitions that connect Syriac phonology to other linguistic traditions.

Another relevant source for vowel naming is MS London, British Library Additional 12138, the well-known codex of East Syriac *mashlmɔnutɔ* completed in 899 (Wright 1870, I:101; Loopstra 2014; 2015, II:XIII, XXXVIII–XXXIX). This text is also sometimes referred to as the East Syriac 'Masora', based on some similarities with the Hebrew Masoretic tradition (Merx 1889, 29–30). It contains several dozen marginal notes, mostly added after the ninth century, that are useful evidence for the detection of early vowel names.

Elias bar Shinɔyɔ of Nisibis (d. 1046), also known as Elias of Ṣoba, was an East Syriac bishop who wrote extensively in both Arabic and Syriac throughout the first half of the eleventh century (Merx 1889, 109; Teule 2011b). His most significant work for the history of Syriac vocalisation is the *Turrɔṣ Mamllɔ Suryɔyɔ* (*The Correct Form of Syriac Speech*) (Gottheil 1887).[9] This grammar draws on the earlier work of scholars like Jacob of Edessa and Ḥunayn ibn Isḥāq while also incorporating concepts from the Arabic grammatical tradition. It is notable for including a set of absolute names for every Syriac vowel.

Another Eastern bishop, Elias of Ṭirhan (d. 1049), was a contemporary of Elias of Nisibis, and he wrote a Syriac grammar known as the *Memrɔ Gramaṭiqɔyɔ* (*The Grammatical Essay*) (Merx 1889, 137, 154–57; Teule 2011a). Elias wrote this book prior to

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[9] Gottheil's edition includes an English translation. Bertaina (2011, 199–200) summarises the contents of the entire book, which Elias apparently wrote for a deacon who was also a scribe.

his promotion to Catolicos in 1028, adapting substantial elements from the Arabic grammatical tradition to fit Syriac for the benefit of an Arabic-speaking audience. This work is also known as *Turrɔṣ Mamllɔ Suryɔyɔ* (*The Correct Form of Syriac Speech*), based on the title which appears in the main manuscript of Baethgen's edition (1880). However, due to his perception of Elias's work as somewhat ad-hoc in its organisation, Merx argues that the identification given by ʿAbdishɔ is more appropriate (1889, 157); that is, *Memrɔ Gramaṭiqɔyɔ* (*The Grammatical Essay*). Merx seems particularly keen to minimise the importance of Elias of Ṭirhan, due to his status as one of the 'Arabising' grammarians, in contrast to Syriac writers like Elias of Nisibis, who did not adopt as many Arabic grammatical ideas (1889, 112–24, 138, 157). In an effort to reduce the already substantial confusion between Elias of Nisibis and Elias of Ṭirhan, I will refer to the latter's grammatical book as *Memrɔ Gramaṭiqɔyɔ*, but my use of this title is not intended to reinforce Merx's unfair reductionism. This work includes several important sections on vocalisation and uses absolute vowel names that differ from those of Elias of Nisibis.

2.3. Sources for Hebrew

One of the most important sources for Hebrew vocalisation is the corpus of Hebrew and Aramaic word lists from the Tiberian Masora. These include lists that compare homographs that differ in their vowels (Dotan 1974),[10] as well as lists of vowel names and their signs (Steiner 2005). These lists are nearly all anonymous,

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[10] Several of the lists relevant to this book are published in Ginsburg (1880); see §3.1.2.

but they illuminate the early development of Masoretic vocalisation practices and show remarkable similarities with the work of Syriac grammarians.

Diqduqe ha-Ṭeʿamim (*The Fine Details of the Accents*) by Aharon ben Asher (d. c. 960) is probably the most famous Masoretic treatise (Dotan 1967). It examines difficult sections of the Tiberian recitation tradition with respect to accents, but it also utilises early Hebrew terminology related to vowel names. Ben Asher lived in the tenth century, during a period when most Masoretic treatises were written in Arabic, but *Diqduqe ha-Ṭeʿamim* is in Hebrew, suggesting that some of its material may predate the tenth century (Khan 2020, I:116–17).

Kutub al-Lugha (*The Books of the Language*), the Judaeo-Arabic grammar of Hebrew by Saadia Gaon (d. 942), is one of the earliest true Hebrew 'grammatical' works (Dotan 1997; see Brody 2016; Malter 1921). Its fifth chapter, *al-Qawl fi al-Nagham* (*The Discourse on Melody*), deals directly with Hebrew vocalisation (Skoss 1952). It includes the most complete description of the Hebrew 'vowel scale', a key concept that helps link the Masoretes to Syriac grammarians. Saadia also adopts plenty of Arabic grammatical terminology and additional concepts from Arabic phonology. In 931, sometime after *Kutub al-Lugha*, Saadia wrote his *Commentary on Sefer Yeṣira* (*Commentary on the Book of Creation*), which contains several passages that are also relevant to vocalisation and vowel naming (Lambert 1891, 45, 52 [Arabic]; 76 n. 1 [French]).

Some of the most overlooked sources on Hebrew vocalisation are a subgenre of Masoretic texts which I refer to as *muṣawwitāt* 'vowels' works (see Eldar 1986). These are Judaeo-Arabic treatises on Hebrew vocalisation and accents that preserve terminology that does not appear in the Tiberian Masora, *Diqduqe ha-Ṭeʿamim,* or *Kutub al-Lugha.* They are known mainly from anonymous fragmentary manuscripts in Cairo Genizah collections, most likely written in the tenth or eleventh centuries. This study analyses five such works published by Allony and Yeivin (Allony 1965; 1983; Allony and Yeivin 1985), and occasionally refers to unpublished texts from other manuscripts in the Genizah. They are critical for reconstructing the internal development of Hebrew vocalisation as well as for demonstrating links with the Arabic grammatical tradition.

A similar text from the Genizah that does have a title is *Kitāb Naḥw al-ʿIbrānī* (*The Book of Hebrew Inflection*), probably from the eleventh century (Eldar 1981). Only one fragment is extant, but it contains another version of the Hebrew vowel scale arranged according to the Arabic case system, providing additional data for the development of the scale and Hebrew vowel names. Its version of the scale appears to be an Arabic translation of a Hebrew Masoretic text, known as *Nequdot Omeṣ ha-Miqrɔ* (*The Dots of the Greatness of the Scripture*), found in Baer and Strack's *Dikduke ha-Teʿamim* (1879, 34–36, §36).

Two further tenth-century Arabic sources are *Kitāb al-Tanqīṭ* (*The Book of Pointing*) and *Kitāb al-Afʿal Dhuwāt Ḥurūf al-Līn* (*The Book of Verbs with Soft Letters*) by Judah ben David Ḥayyūj (d. c. 1000), an Andalusī scholar who adopted Arabic

grammatical terminology and actively compared Hebrew with Arabic (Nutt 1870; Jastrow 1897; Basal 1999, 227). The former work is a short text that shows the evolution of some early Hebrew vowel-naming conventions, while the latter is a lexicographical account of weak roots in Hebrew, including considerable morphophonological analysis based on concepts from Arabic grammar.

Finally, the most comprehensive medieval source on the Tiberian recitation tradition is *Hidāya al-Qārī* (*The Guide for the Reader*), a Judaeo-Arabic book by Abū al-Faraj Hārūn (d. c. 1050) (Khan 2020, I:119–20; II). He wrote two versions of this work—one long and one short—but this book relies on the long version as a more comprehensive source. It consists of three sections, one each on consonants, vowels, and accents, but naturally the section on vowels is our main interest. It consolidates vowel names from multiple traditions, makes frequent use of Arabic technical terms, and includes another version of the vowel scale divided accorded to Arabic grammatical principles. It is thus an appropriate capstone for the history of vocalisation at the end of the Masoretic period.

Now, with all of that said, we can get to the points.