The form of Biblical Hebrew that is presented in printed editions, with vocalization and accent signs, has its origin in medieval manuscripts of the Bible. The vocalization and accent signs are notation systems that were created in Tiberias in the early Islamic period by scholars known as the Tiberian Masoretes, but the oral tradition they represent has roots in antiquity. The grammatical textbooks and reference grammars of Biblical Hebrew in use today are heirs to centuries of tradition of grammatical works on Biblical Hebrew in Europe. The paradox is that this European tradition of Biblical Hebrew grammar did not have direct access to the way the Tiberian Masoretes were pronouncing Biblical Hebrew.

In the last few decades, research of manuscript sources from the medieval Middle East has made it possible to reconstruct with considerable accuracy the pronunciation of the Tiberian Masoretes, which has come to be known as the 'Tiberian pronunciation tradition'. This book presents the current state of knowledge of the Tiberian pronunciation tradition of Biblical Hebrew and a full edition of one of the key medieval sources, Hidāyat al-Qāriʾ 'The Guide for the Reader', by ʾAbū al-Faraj Hārūn. It is hoped that the book will help to break the mould of current grammatical descriptions of Biblical Hebrew and form a bridge between modern traditions of grammar and the school of the Masoretes of Tiberias.

Links and QR codes in the book allow readers to listen to an oral performance of samples of the reconstructed Tiberian pronunciation by Alex Foreman. This is the first time Biblical Hebrew has been recited with the Tiberian pronunciation for a millennium.

As with all Open Book publications, this entire book is available to read for free on the publisher's website. Printed and digital editions, together with supplementary digital material, can also be found at www.openbookpublishers.com


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THE TIBERIAN
PRONUNCIATION TRADITION
OF BIBLICAL HEBREW

VOLUME I
The Tiberian Pronunciation Tradition of Biblical Hebrew

Including a Critical Edition and English Translation of the Sections on Consonants and Vowels in the Masoretic Treatise

Hidāyat al-Qāri’ ‘Guide for the Reader’

Volume I

Geoffrey Khan
Volume I

Description of the Tiberian Pronunciation

Tradition
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PREFACE

The term ‘Biblical Hebrew’ is generally used to refer to the form of the language that appears in the printed editions of the Hebrew Bible and it is this form that it is presented to students in grammatical textbooks and reference grammars. The form of Biblical Hebrew that is presented in printed editions, with vocalization and accent signs, has its origin in medieval manuscripts of the Bible. The vocalization and accent signs are notation systems that were created in Tiberias in the early Islamic period by scholars known as the Tiberian Masoretes. The text of the Bible that appears in the medieval Tiberian manuscripts and has been reproduced in modern printed editions is known as the Tiberian Masoretic Text or simply the Masoretic Text.

The opening sections of modern textbooks and grammars describe the pronunciation of the consonants and the vocalization signs in a matter-of-fact way. The grammatical textbooks and reference grammars in use today are heirs to centuries of tradition of grammatical works on Biblical Hebrew in Europe, which can be traced back to the Middle Ages. The paradox is that this European tradition of Biblical Hebrew grammar, even in its earliest stages in eleventh-century Spain, did not have direct access to the way the Tiberian Masoretes were pronouncing Biblical Hebrew. The descriptions of the pronunciation that we find in textbooks and grammars, therefore, do not correspond to the pronunciation of the Tiberian Masoretes, neither their pronunciation of the consonants nor their pronunciation of the
vowels, which the vocalization sign system originally represented. Rather, they are descriptions of other traditions of pronouncing Hebrew, which originate in traditions existing in Jewish communities, academic traditions of Christian Hebraists, or a combination of the two.

In the last few decades, research of a variety of manuscript sources from the medieval Middle East, some of them only recently discovered, has made it possible to reconstruct with considerable accuracy the pronunciation of the Tiberian Masoretes, which has come to be known as the ‘Tiberian pronunciation tradition’ or the ‘Tiberian reading tradition’. It has emerged from this research that the pronunciation of the Tiberian Masoretes differed in numerous ways from the pronunciation of Biblical Hebrew that is described in modern textbooks and reference grammars.

In this book, my intention is to present the current state of knowledge of the Tiberian pronunciation tradition of Biblical Hebrew based on the extant medieval sources. It is hoped that this will help to break the mould of current grammatical descriptions of Biblical Hebrew and form a bridge between modern traditions of grammar and the school of the Masoretes of Tiberias. The main focus of the book is on the synchronic state of the Tiberian pronunciation when it was a living tradition in the early Islamic period. Some comparisons with other traditions of Hebrew from different periods are, nevertheless, made where this is thought to be appropriate.

The book is divided into two volumes. The introductory section of the first volume discusses the background of the Tiberian pronunciation tradition, with particular attention to its
historical depth, its prestigious status and its relationship with other medieval reading traditions. It also describes the various extant medieval sources that are used in the book to reconstruct the pronunciation. Chapter 1 describes the pronunciation of the consonants. Chapter 2 presents a description of the pronunciation of the vowels and shewa, as well as an analysis of the syllabification and metrical structure of words. Chapter 3 describes the function of the diacritical signs known as dagesh and rafe. Chapter 4 examines various hybrid types of pronunciation, which arose due to imperfect learning of the Tiberian pronunciation tradition in the Middle Ages. Chapter 5 presents a summary of the reconstructed pronunciation and sample transcriptions of some Biblical passages. It is recommended that readers who would like a quick overview of the Tiberian pronunciation should look at chapter 5 first. It contains links to oral performances of the sample transcriptions by Alex Foreman.

The second volume presents a critical edition and English translation of the sections on consonants and vowels in the Judaean-Arabic Masoretic treatise *Hidāyat al-Qāriʾ* (‘Guide for the Reader’) by the Karaite grammarian ʿAbū al-Faraj Hārūn (eleventh century C.E.). *Hidāyat al-Qāriʾ* is one of the key medieval sources for our knowledge of the Tiberian pronunciation tradition and constant reference is made to it in the various chapters of this book. Since no complete edition and English translation of the sections on the consonants and vowels so far exists, it was decided to prepare such an edition and translation as a complement to the descriptive and analytical chapters of volume one.

This book is a spinoff from a larger project on Biblical Hebrew to revise Gesenius’ *Hebrew Grammar*. I am working on this project in collaboration with various other scholars, including
Aaron Hornkohl, Shai Heijmans and Ben Kantor, who are co-authors. I cite some of their contributions to the Gesenius grammar project in this book with due acknowledgement. I am grateful to Aaron, Shai and Ben for their help with the preparation of the book in various ways. Shai created the attractive Arabic font with Hebrew vowels and accents, which I use for the Karaite transcriptions of Hebrew. Ben skilfully laid out my edition of *Hidāyat al-Qāriʾ* in the Classical Text Editor programme, which aligned text and translation, and carefully proofread the text and translation. Many thanks also to my graduate student Estara Arrant, who drew my attention to a variety of examples of Non-Standard Tiberian vocalization in Genizah manuscripts from the database she has created for her Ph.D. research project. I am very grateful to my graduate student Joseph Habib for his help with the proofreading of the book. I also greatly appreciate the comments and corrections sent to me by Aaron Rubin and Ben Outhwaite, who read an earlier version of the book. Finally, I am very grateful to Alex Foreman, who made an impressive oral performance of the sample transcriptions.

Some aspects of the work that forms the basis of this book were funded by research grants. A British Academy small research grant supported my investigation of manuscripts of *Hidāyat al-Qāriʾ*. A grant from the Leverhulme Trust (2013–2016) supported the posts of Aaron Hornkohl and Shai Heijmans when they were gathering material for the revision of Gesenius’ *Hebrew Grammar*. I acknowledge here with gratitude the support of these institutions.
I.0. INTRODUCTION

I.0.1. PRONUNCIATION TRADITIONS OF BIBLICAL HEBREW

Hebrew is generally thought to have ceased to be a spoken vernacular around the beginning of the third century C.E., after the destruction of the final remaining Hebrew-speaking settlements in Judaea by the Romans following the Bar-Kochba revolt. This coincides with the end of the Tannaitic period in Rabbinic tradition. The surviving Hebrew texts that are datable to before this date would, therefore, have been written when Hebrew was still spoken. This includes the books of the Hebrew Bible, Qumran literature, Tannaitic Rabbinic literature, documents and epigraphy. There are references to the use of Hebrew as a vernacular in the second century C.E., for example the anecdote of the maidservant of Rabbi Yehudah ha-Nasi, who is said to have known the meanings of some Hebrew words with which the scholars of the time were not familiar (Babylonian Talmud, Megilla 18a, Palestinian Talmud, Megilla 2.2, 73a). The Bar Kochba documents in the first half of the second century C.E. contain a number of features that appear to reflect the spoken language (Mor 2013a; 2015).

Although Hebrew is thought to have ceased to be a vernacular language by the third century C.E., it remained alive in later

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periods in oral as well as written form. The oral recitation of the Hebrew Bible continued in a variety of traditions down to modern times. The Hebrew Rabbinic material of not only the Tannaitic period but also of the Amoraic period (220-500 C.E.) was composed orally. Furthermore, after Rabbinic literature was committed to writing, the oral dimension continued in reading traditions that have survived down to the present. There is a reference also to the use of Hebrew for ‘spoken discourse’ (לדיבור) in a saying attributed to Rabbi Yonatan of Bet-Guvrin (Palestine, third century C.E.):

Rabbi Yonatan from Bet-Guvrin said there are four languages that are pleasant for use: Greek for singing, Latin for combat, Syriac for lamentation, and Hebrew for spoken discourse.²

Even as late as the tenth century one finds in a Masoretic treatise attributed to ʿEli ben Yehudah ha-Nazir (ed. Allony 1973) a description of how the author undertook fieldwork in the streets of Tiberias to verify his analysis of the resh in the Tiberian biblical reading, on the grounds that the Hebrew resh could still be heard in the local speech of the (Jewish) inhabitants of Tiberias. These references are unlikely to refer to vernacular speech. Hebrew continued to be used as a form of learned discourse among scholars in the Rabbinic period after it had ceased to be a vernacular (Smelik 2013, 109–16). It was, moreover, promoted as a language of everyday speech by the

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² Palestinian Talmud, Megilla 1.11(8), 71b: אם׳ ר' יונתן דבית-גוברין ארבעה לשונות נאים שישמשו בהן העולמים ואילו הן לעז לעזמי enumerable
לעביール ערב
לעביール ערב
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לעביール ערב
לעבי Serif emblème
Karaite scholar Benjamin al-Nahāwendī (mid-ninth century C.E.) on ideological grounds (al-Qirqisānī 1939, VI 25.3; Khan 1992b, 157). Hebrew words and phrases, as well as Biblical Hebrew quotations, continued in the so-called ‘Hebrew component’ of the vernacular languages spoken by the Jews down to modern times, which, it seems, is what ʿEli ben Yehudah ha-Nazir was listening to on the streets of medieval Tiberias. A particularly large Hebrew component existed in Jewish secret languages, used mainly by merchants.\(^3\)

When Hebrew was a spoken vernacular language before the third century C.E., it existed in a diversity of dialects, which differed on various linguistic levels (Rendsburg 2013a). This dialectal diversity existed synchronically at particular periods and there was also diachronic change in the various spoken forms of the language. Both of the synchronic and the diachronic differences in the spoken language were disguised to a large extent by the written form of the language, which was considerably standardized in its orthography and linguistic form (Rendsburg 1990; 2013b). Several differences are, nevertheless, identifiable from the surviving written evidence, some of which relate to pronunciation. We know from epigraphic evidence from the biblical period that diphthongs tended to be contracted in the northern (Israeli) dialects whereas they tended to be preserved uncontracted in the southern (Judahite) form of Hebrew, which is the basis of the standardized Biblical Hebrew language. In the Samaria ostraca, for example, one finds the orthography יין ‘wine’,

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\(^3\) See the entries on the Hebrew component of secret languages in the *Encyclopedia of Hebrew Language and Linguistics* (vol. 3, 511-520).
reflecting the pronunciation yēn, whereas the Arad ostraca from the south have the orthography יֵּן corresponding to Masoretic Hebrew form יֵּן (Bruck 2013). The shibboleth incident described in Jud. 12.1-6 is clear evidence of differences in pronunciation between the dialects of Transjordan and Cisjordan (Rendsburg 2013c). In the Second Temple Period, there were differences in dialects of Hebrew regarding the pronunciation of the guttural consonants (laryngeals and pharyngeals). In many of the Dead Sea Scrolls from Qumran datable to this period, including those containing biblical texts, and Judaean inscriptions there is evidence of the weakening of the gutturals. This is shown by the fact that they are often either omitted or interchanged in the orthography. Such weakening was presumably due to Greek influence, which was spoken in Palestine during this period, especially in the educated or urban classes, since Greek did not contain pharyngeals in its sound inventory. The Bar Kochba documents, on the other hand, exhibit remarkably little weakening of the gutturals, despite the fact that they otherwise deviate quite radically from the standard language and orthography and appear to be close reflections of the spoken language. These documents are likely, therefore, to reflect a spoken dialect that had preserved the gutturals to a large extent.4 The biblical scrolls from Qumran which exhibit weakening of the gutturals, such as the Isaiah Scroll 1QIsa4, therefore, reflect a particular dialectal variety of pronunciation, which was not general throughout Palestine.

4 See Mor (2013b; 2013a), Fassberg (2013), Morgenstern (2013, 505–6).
Some of the biblical scrolls from Qumran have an orthography close to that of the Tiberian Masoretic Text without omission or interchange of gutturals. This may be due to conservatisms of orthography, but it is necessary to assume that some traditions of Biblical Hebrew at this period did preserve the gutturals and were the source of later traditions that preserved them. In the Second Temple Period there is further evidence of variation in the pronunciation of the gutturals in the Greek transcriptions of Hebrew words in the Septuagint (late first millennium B.C.E.), which reflect the preservation of the Proto-Semitic velar fricatives *k and *g, e.g. Αχαζ ‘Ahaz’ (cf. Arabic ʾakhadha ‘he took’ = ʾāḥad), Γαζα ‘Gaza’ (cf. Arabic Ghazza, = ʿāẓa). The Hebrew orthography represents the merger of the original velar fricatives with the pharyngeal fricatives 𐤇 and 𐤈. This orthography, which was derived from Phoenician, may have concealed a distinction that was preserved in some Hebrew dialects, but it is clear that there must have been a merger in some dialects by the Second Temple Period. This is due to the fact that some sources from Qumran that are roughly contemporary with the Septuagint exhibit weakening of the pharyngeals irrespective of their historical origin.\(^5\)

There were a number of differences in morphology across the various dialects of Hebrew when it was a spoken language. Of particular significance for the later reading traditions of Biblical Hebrew are the differences in pronouns and pronominal suffixes. In the Second Temple Period there is evidence from the

\(^5\) For a discussion of the chronology of merger of velar fricatives with pharyngeals see Steiner (2005a).
Dead Sea Scrolls for variation between vocalic and consonantal endings of pronominal forms, e.g. in the second person forms:

2ms suffixes: ח/כ /-ת, ח/כ

2mpl forms: כ/ם, כ/ם, כ/ם, כ/ם

Another case of variation is found in the 3ms pronominal suffix on plural nouns, which has the forms ח/ו, ח/ו or ח/ו (Qimron 1986, 58–59; 2018, 269-78; Reymond 2014, 153–64).

I.0.2. THE BIBLE IN THE SECOND TEMPLE PERIOD

The text of the Hebrew Bible that is reflected by the Qumran manuscripts and other sources from the Second Temple Period was pluriform and dynamically growing (Ulrich 2015, 18). There were variant literary editions of many of the biblical books, these being particularly numerous in the Pentateuch (Tov 2016). A sizeable proportion of the Qumran biblical manuscripts, however, exhibit a text that is close to that of the medieval Masoretic Text. These have been termed by Emanuel Tov ‘proto-Masoretic’ or, in his more recent work (Tov 2012, 107–9) as ‘Masoretic-like’ texts. These show us that great efforts were made in some circles, apparently the Temple authorities, to preserve a stable text. In Talmudic literature, there are reports of three scrolls of the Pentateuch that were found in the Temple court. These differed from one another in small details. They were carefully collated and differences were corrected towards the majority reading.6 These activities were motivated, it seems, by a desire to preserve

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6 The sources are discussed in detail by Talmon (1962). See also Ofer (2019, 88).
and level variants in one particular type of text, but not necessarily to standardize and eliminate rival texts (Tov 2014; van der Kooij 2014). This is clearly shown by the fact that such Masoretic-like texts exist alongside other types of biblical texts in the Qumran corpus that exhibit a variety of substantial differences from the Masoretic Text. Furthermore, the Masoretic-like texts from Qumran themselves exhibit some degree of diversity, since minor textual differences are found from one manuscript to another. Some hold the view that the Masoretic-like texts did not represent a central authoritative type of a text but rather one of several forms of text that were of equal status. Doubts are cast on the existence of sufficient cohesion in Judaism in the late Second Temple Period or of a sufficiently acknowledged leadership to make it conceivable that a majority of Jews recognized a single authoritative text (Ulrich 2015, 19). Lim (2013, 126) draws attention to the fact that different types of text are sometimes cited side-by-side, which he presents as evidence that there was no preference for one particular type of text. A further issue is the selection of the text of the Masoretic-like manuscripts. It is now generally agreed that this text was selected largely by chance rather than due to the archaic nature of the text or its perceived accuracy.

Despite the pluriformity of the biblical text that is reflected by the Qumran manuscripts, after the destruction of the Temple in 70 C.E. the Masoretic type of text was the only text tradition that continued to be transmitted in Jewish communities. Fragments of biblical scrolls discovered in sites outside Qumran datable to the first two centuries C.E. contain a consonantal text
that is identical with that of the medieval Masoretic manuscripts, even in the smallest details of orthography and cancellation dots above letters. These include fragments found in Masada (first century C.E.) and the somewhat later sites of Wadi Sdeir (Naḥal David), Naḥal Ḥever, Wādī Murabbaʿāt and Naḥal Ṣeʾelim (early second century C.E.). The same applies to the recently published charred fragments of a scroll of Leviticus from En Gedi, which have been dated to roughly the same period (M. Segal et al. 2016). According to Tov (2008, 150), these texts from communities outside Qumran constitute an ‘inner circle’ of proto-Masoretic texts that derive directly from Temple circles and were copied from the master copy in the Temple court. The proto-Masoretic texts of Qumran, on the other hand, formed a second transmission circle copied from the inner circle, and so exhibits small differences.

The exclusive transmission of the proto-Masoretic tradition in Judaism is nowadays generally thought to be the consequence of historical events. Power and influence were gradually transferred from the priestly Sadducees to the Pharisees (Schiffman 1991, 112). The Pharisees, who as part of this process espoused the proto-Masoretic text from the priestly authorities, constituted the only organized Jewish group that survived the destruction of the Temple (Albrektson 1978; Tov 2012).

Several scholars have drawn attention to the interaction and interdependence of oral and written tradition in the formation and transmission of the Hebrew Bible through the first millennium B.C.E. down to the destruction of the Second Temple, for example Nyberg (1934), Niditch (1996), Person (1998; 2010)
and Carr (2005). Carr, in particular, stresses the fact that even after the textualization of Scripture in written form in the first millennium B.C.E., the written text remained combined with a tradition of oral reading. The oral tradition of reading was memorized and the texts were learnt as part of an educational process, which has parallels in other ancient Near Eastern cultures. Such a tradition of transmission relied not only on written texts but also on teachers to pass on the oral traditions to pupils. Such was the importance and self-sufficiency of the oral tradition of the text, claims Carr, that at times of crisis, such as the Babylonian exile, it may have been used to regenerate lost written forms of the text. Raymond Person argues that the oral mind-set of ancient Hebrew scribes influenced the way they copied texts, in that they did not feel obliged to replicate the texts word by word, but preserved the texts’ meaning as a dynamic tradition like performers of oral epics, with numerous small adaptations. This resulted in a pluriformity of texts, which were nevertheless understood as faithful representations of the tradition.

I.0.3. THE BIBLE IN THE MIDDLE AGES

After the destruction of the Second Temple, the Hebrew Bible continued to be transmitted in a process similar to that attributed by Carr to the earlier period, i.e. there was an intertwining of written text and oral reading tradition. The written text was copied by scribes and the memory of the oral reading tradition was passed on from generation to generation by teachers. The fact that the Hebrew Bible lost its pluriformity in its surviving written consonantal text after the Second Temple Period does not
mean it lost pluriformity also in its oral transmission. The aforementioned fragments of biblical scrolls from the period after the destruction of the Temple must have been recited with an oral reading tradition. Just as the consonantal text (*ketiv*) of the medieval Masoretic manuscripts corresponded to the written consonantal text of these early scrolls, it is likely that the medieval oral reading of the Middle Ages, which is represented by the Masoretic vocalization signs, also had a close correspondence to what was being recited orally at the beginning of the first millennium C.E. There is, indeed, evidence that the medieval reading tradition had its roots in the Second Temple Period (§I.0.8.).

The reading traditions of Biblical Hebrew that were transmitted after Hebrew ceased to be a spoken vernacular language exhibit diversity in phonology and morphology, some of which is likely to have had its roots in the dialectal diversity of spoken Hebrew at earlier periods.

We can distinguish broadly three stages of attestation of the later reading traditions:

(i) The pre-Masoretic Greek and Latin transcriptions datable to the first half of the first millennium C.E. The most important sources from this period are the Greek transcriptions found in the second column of the Hexapla of Origen (c. 185–254 C.E.) and the Latin transcriptions in the Vulgate and writings of Jerome (346–420 C.E.). In addition to these, transcriptions are sporadically found in late Greek translations, such as Aquila, Symmachus and Theodotion, and in the writings of the Church fathers.
(ii) The medieval traditions reflected by vocalized manuscripts and other sources. In addition to the Tiberian vocalization system, medieval manuscripts are extant that contain other vocalization sign systems, which reflect different reading traditions.

(iii) The reading traditions that have survived in Jewish communities in modern times.

The reading traditions of the Bible in Palestine reflected by the Greek transcriptions of Origen and the Latin works of Jerome exhibit a number of features that can be correlated with some of the dialectal features mention in §I.0.1. They appear to have preserved the gutturals, although they are not directly represented by the Greek and Latin script, and so have their roots in dialectal pronunciations in which these consonants were not weakened. The 2ms pronominal suffixes are generally transcribed without a following vowel and so correspond to the variants ending in consonants reflected by the orthographies ג- and כ- in Qumran sources, e.g., σεδκαχ (Tiberian: יֶ֑דָּקָ֑ה) ‘your righteousness’ (Origen, Psa. 35.28), פארסח (Tiberian: פָּרַ֣סְח) ‘you have breached’ (Origen, Psa. 89.41); phalach vs. פַּלְחָֹֽה, ‘your work’ (Jerome, Hab. 3.2), calloth (Tiberian: קַיְּלָּֽה) ‘you are vile’ (Jerome, Nah. 1.14).7

The reading traditions of the Hebrew Bible that are reflected by the medieval systems of vocalization signs were transmitted orally for many generations during the first millennium C.E. Their commitment to written form by means of

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vocalization sign systems was a textualization of oral traditions. This was no doubt stimulated by the general increasing shift from oral to written transmission of knowledge in the early Islamic period.\textsuperscript{8} This is a phenomenon that affected the whole of society in the Middle East at this period. It is likely to have been brought about, in part at least, by the archival documentary culture of the Abbasid bureaucracy, which developed in the eighth century C.E., and the spread in the production of paper at that period.\textsuperscript{9}

The systems of vocalization signs that were developed in the Middle Ages reflect three major traditions of pronunciation, which are normally referred to as the Tiberian, Babylonian and Palestinian traditions. The Palestinian pronunciation is reflected also by some manuscripts vocalized with Tiberian vowel signs. This latter type of vocalization will be referred to as Non-Standard Tiberian vocalization (§I.0.13.6.). Although the sign systems were a creation of the Middle Ages, the pronunciation traditions that they reflect had their roots in an earlier period and had been transmitted orally for many generations. There is some

\textsuperscript{8} For a detailed discussion see Schoeler (2006) and Bloom (2010).
\textsuperscript{9} For the documentary culture of the Abbasid administration see Sijpsteijn (2007), van Berkel (2014), Khan (2007, 13–65) and for the spread of paper at this period see Bloom (2001). An analogy can be identified in the increase of written culture in the kingdom of the Judean king Hezekiah in the eighth century B.C.E. According to Schniedewind (2004; 2013) this was stimulated by the increase in administrative bureaucracy and urbanization. The role of bureaucracy and documentary culture appears to have been a catalyst to written culture also in medieval Europe; cf. Clanchy (2013).
evidence that they originated in the Second Temple Period (§I.0.8.). They share more features among themselves than they do with the Samaritan pronunciation tradition, which was transmitted orally by the Samaritan community through the Middle Ages down to modern times. This suggests that they were more closely related, due to a common origin and/or due to convergence through communal contact. They nevertheless diverged from one another in a number of ways in phonology and morphology. The distinctness of the Samaritan tradition of reading reflects the fact that it split from the Jewish traditions with the separation of the Samaritan community from Judaism at an early period.

The various Jewish reading traditions had distinctive vowel systems. The Tiberian pronunciation tradition distinguished the vowel qualities [a] (*pataḥ*), [ɔ] (*qameṣ*), [e] (*šere*) and [ɛ] (*segol*). The Babylonian vocalization system lacked a sign for *segol* and generally used a *pataḥ* sign where Tiberian had *segol*, suggesting that Babylonian pronunciation did not distinguish between the qualities [a] and [ɛ], but only had the quality [a].10 The Palestinian pronunciation tradition did not distinguish between *pataḥ* and *qameṣ*, on the one hand, and between *šere* and *segol*, on the

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10 The Babylonian tradition has been exhaustively described by Yeivin (1985), which is the most authoritative scholarly source. Important earlier studies of manuscripts with Babylonian vocalization were made by Kahle (1902; 1913; 1928). For an overview of the distinctive features of Babylonian vocalization and the reading traditions it reflects see Khan (2013f) and Heijmans (2016).
other, but rather had only one ‘a’ vowel and one ‘e’ vowel.\textsuperscript{11} There was, however, internal diversity within these traditions of pronunciation. This applied in particular to the Babylonian and the Palestinian traditions, which exhibit a considerable amount of variation both in the sign systems and the pronunciation these systems reflect in the medieval manuscripts. The Tiberian vocalization system and the pronunciation it reflects are more uniform and standardized than the other traditions, but, nevertheless, there is some internal diversity (§I.0.10).

I.0.4. **The Tiberian Masoretic Tradition**

The textualization of the orally transmitted Tiberian reading tradition was carried out by a circle of scholars in Tiberias known as Masoretes. The Masoretes (known in Hebrew as 베ל מсорה) were scholars who devoted themselves to preserving the traditions of writing and reading the Bible. Their name derives from the Hebrew term *masora* or *masoret*, the meaning of which is generally thought to be ‘transmission of traditions’.\textsuperscript{12} The

\textsuperscript{11} The most important scholarly studies of the Palestinian vocalization include Kahle (1930), Dietrich (1968), Revell (1970a; 1970b; 1977), Chiesa (1978) and Yahalom (1997). For overviews of the system see Heijmans (2013b) and Yahalom (2016).

\textsuperscript{12} There is no complete consensus concerning the original meaning or etymology of the term. It seems to be connected with the Rabbinic Hebrew verb מָסַר ‘to hand over’, though this may be a denominal form. The noun מָסֹר occurs in Ezek. 20.37, which is generally understood today as ‘bond’ (אסר). One of its ancient interpretations, however, was ‘number’ (cf. Septuagint ἀριθμός). As we shall see, counting letters
Tiberian Masoretes were active over a period of several centuries in the second half of the first millennium C.E. The medieval sources refer to several generations of Masoretes, some of them belonging to the same family. The most famous of these families is that of Aharon ben Asher (tenth century), whose forebears were engaged in Masoretic activities over five generations. The Masoretes continued the work of the soferim (‘scribes’) of the Talmudic and Second Temple periods, who were also occupied with the correct transmission of the biblical text.

and words to ensure the correct preservation of the text was one of the activities of the Masoretes. The word occurs also in Mishnah Avot 3.14 in a statement attributed to Rabbi Aqiva (c. 50-135 C.E.) ‘The masoret is a fence for the Torah’, where it may have been originally used with the same sense (i.e. ‘counting’ of letters/words). Ben-Ḥayyim (1957b) has suggested that the verb מסר in Hebrew actually had the meaning of ‘to count’, as did its cognate in Samaritan Aramaic. The form מָסֹרָה is a variant feminine pattern of the noun. The form מַסֹרָה or מַסֹרָה, which is reflected in the English spelling ‘Massorah’, has no textual basis but is a modern reconstruction on the analogy of the pattern found in nouns such as כפור בֵּשָׁר ‘mercy seat’ and בַצַּר בֵּשָׁר ‘dearth’.


According to the Babylonian Talmud (Qiddushin 30a) the soferim acquired their name from the fact that they counted (Hebrew ספר) all the letters of the Pentateuch. As we have seen above the term מָסֹרָה was probably originally understood in the sense of ‘counting’. This connection with the Talmudic interpretation of the term soferim may be more than coincidental, in that מָסֹרָה may have been intended originally
The Tiberian Masoretes developed what can be termed the Tiberian Masoretic tradition. This was a body of tradition that gradually took shape over two or three centuries and continued to grow until it was finally fixed, and the activities of the Masoretes ceased, at the beginning of the second millennium. During the same period, circles of Masoretes are known to have existed also in Iraq. It is the tradition of the Tiberian Masoretes, however, that had become virtually the exclusive Masoretic tradition in Judaism by the late Middle Ages and has been followed by all printed editions of the Hebrew Bible.

The Tiberian Masoretic tradition is recorded in numerous medieval manuscripts. The majority of these were written after 1100 C.E. and are copies of older manuscripts that were made in various Jewish communities. The early printed editions are based on these late medieval manuscripts. The most authoritative of these early editions was the so-called second Rabbinic Bible (i.e. the Bible text combined with commentaries and translations, known as Miqraʾot Gedolot) edited by Jacob ben Ḥayyim ben Adoniyyahu and printed at the press of Daniel Bomberg in Venice between 1524 and 1525. These early Rabbinic Bibles appear to have been based on more than one manuscript (Penkower 1983). This came to be regarded as a textus receptus and was used as the basis for many subsequent editions of the Hebrew Bible.

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to refer to the activity of the soferim. In the Middle Ages the term sofer acquired the narrower sense of ‘copyist’. According to a medieval list of Masoretes published by Mann (1935, 2:44) the chain of Masoretes began with Ezra the scribe.
A small number of surviving manuscripts are first-hand records of the Tiberian Masoretic tradition. These were written in the Middle East before 1100 C.E., when the Masoretes were still active in the tenth century or in the period immediately after the cessation of their activities in the eleventh century. They are, therefore, the most reliable witnesses of the Tiberian Masoretic tradition. They all come from the end, or near the end, of the Masoretic period, when the Masoretic tradition had become fixed in most of its details. After 1100 C.E. the fixed tradition was transmitted by generations of scribes. Some of the modern editions of the Bible are based on these early manuscripts, e.g. the *Biblia Hebraica* from the third edition (1929–1937) onwards (the latest edition of which is the *Biblia Hebraica Quinta*, 2004–), *The Hebrew University Bible* (1975–), the editions by Aron Dotan (1973; revised 2001) and Mordechai Breuer (1977–1982) and the modern edition of the Rabbinic Bible by Menachem Cohen (known as *Ha-Keter*, Ramat-Gan, 1992–).

The Tiberian Masoretic tradition can be divided into the following components:

1. The consonantal text of the Hebrew Bible.
2. The layout of the text and codicological form of the manuscripts.
3. The indications of divisions of paragraphs (known in Hebrew as *pisqa’ot* or *parashiyot*).
4. The accent signs, which indicated the musical cantillation of the text and also the position of the main stress in a word.
5. The vocalization, which indicated the pronunciation of the vowels and some details of the pronunciation of the consonants in the reading of the text.

6. Notes on the text, written in the margins of the manuscript.

7. Masoretic treatises. Some manuscripts have appendices at the end of the biblical text containing various treatises on aspects of the teachings of the Masoretes.

8. Orally transmitted reading tradition.

The first seven of these components are written, whereas the eighth existed only orally. The orally transmitted Tiberian reading tradition was passed on from one generation to the next. The reading tradition is only partially represented in graphic form by the vocalization and accent signs. These written components were created during the Masoretic period in the last third of the first millennium C.E. The most famous Masorete, Aharon ben Asher, who lived in the tenth century, represented the last generation. At the close of the Masoretic period at the beginning of the second millennium, the written components of the Tiberian Masoretic tradition had become fixed and were transmitted in this fixed form by later scribes. By contrast, the oral component, i.e. the Tiberian reading tradition, was soon forgotten and appears not to have been transmitted much beyond the twelfth century. As a result, the Tiberian vocalization signs came to be read according to the various local traditions of Hebrew pronunciation, most of them influenced by the vernacular languages of the communities concerned. The vocalization and accents were no longer direct representations of the way in which
the biblical text was recited and they became fossilized written components of the text. Since the Tiberian oral tradition of reading did not survive down to modern times, the letters, vocalization and accent signs are symbols that require interpretation. This interpretation is little more than speculation unless we examine extant sources that were written by medieval scholars and scribes who had direct access to the Tiberian pronunciation when it was still a living oral tradition. The description of the Tiberian pronunciation that is presented in this book is based on such medieval sources. Our main concern will be with the pronunciation of the vowels and consonants.

The Tiberian Masoretic manuscripts are codices, i.e. books consisting of collections of double-leaves that were stitched together. A Bible codex was referred to in medieval Hebrew sources as a מַחְזֹר maḥzor, as opposed to a scroll, which was referred to as a ספר sefer. The term maḥzor later came to designate specifically a codex containing a prayer-book for festivals. Another term that was used for a Bible codex in the Middle Ages was מִשָּׁחַף miṣḥaf, which is an Arabic loanword (ʿẢrābic muṣḥaf). The Hebrew Bible began to be produced in codex form during the Islamic period. The earliest surviving codices with explicitly dated colophons were written in the tenth century C.E. All of these originate from the Jewish communities in the Middle East. There is indirect evidence from some Rabbinic sources that

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15 The Arabic word muṣḥaf is itself a loanword from Ethiopic maṣḥaf, which means ‘book’, or specifically ‘Scripture’, see Leslau (1987, s.v. ṣaḥafa).
the codex had been adopted for Hebrew Bibles already in the eighth century C.E.\textsuperscript{16}

Previously, the Hebrew Bible was always written in a scroll. After the introduction of the codex, scrolls continued to be used for writing the Hebrew Bible. Each type of manuscript, however, had a different function. The scrolls were used for public liturgical reading in the synagogues, whereas the codices were used for study purposes and non-liturgical reading. The scroll was the ancient form of manuscript that was hallowed by liturgical tradition and it was regarded as unacceptable by the Masoretes to change the custom of writing the scroll by adding the various written components of the Masoretic tradition that they developed, such as vocalization, accents and marginal notes. The codex had no such tradition behind it in Judaism and so the Masoretes felt free to introduce into this type of manuscripts the newly developed written Masoretic components.\textsuperscript{17} The desire to commit to writing in the Middle Ages many components of the Masoretic tradition that had been previously transmitted orally was, no doubt, one of the main motivations for the adoption of the codex at this period. It had been available as a format of book production since the Roman period. It started to be used for the writing of Christian Bibles as early as the second century C.E. The earliest extant datable codices of the Qurʾān pre-date the dated codices of the Hebrew Bible by about two centuries. The fact that

\begin{itemize}
\item[\textsuperscript{17}] For the association of the scribal innovations with changes in the physical form of manuscripts see Khan (1990b).
\end{itemize}
one of the medieval Hebrew terms for Bible codex, mishaf, is a loanword from Arabic (muṣḥaf) suggests, indeed, that the Jews borrowed the format from the Muslims. We may say that the liturgical scroll remained the core of the biblical tradition, whereas the Masoretic codex was conceived as auxiliary to this. This distinction of function between liturgical scrolls with no vocalization, accents or Masoretic notes, on the one hand, and Masoretic codices, on the other, has continued in Jewish communities down to the present day. Occasionally in the Middle Ages, Masoretic additions were made to scrolls if they had, for some reason, become unfit for liturgical use. The fact that the leaves of a codex were written on both sides, unlike biblical scrolls, and its overall practical format meant that the entire twenty-four books of the Bible could be bound together in a single volume. The less practical scroll format meant that the books of the Bible had to be divided up into a series of separate scrolls. In many cases, however, codices consisted of only sections of the Bible, such as the major divisions of Pentateuch (Torah), Prophets (Nevi‘im) and Writings (Ketuvim), or smaller units.

The scrolls generally differed from Masoretic codices not only in the lack of vocalization, accents and Masoretic notes, but also in the addition of ornamental strokes called tagin (‘crowns’) to the Hebrew letters shin, ‘ayin, tet, nun, zayin, gimel and šade.

In the Masoretic period, the task of writing codices was generally divided between two specialist scribes. The copying of the consonantal text was entrusted to a scribe known as a sofer, who also wrote scrolls. The vocalization, accents and Masoretic
notes, on the other hand, were generally added by a scribe known as a *naqdan* (‘pointer’, i.e. vocalizer) or by a Masorete. This reflects the fact that the tradition of transmitting the consonantal text and the tradition of transmitting the Masoretic components were not completely integrated. According to the colophon of the Aleppo Codex, for example, the text was copied by the scribe Shlomo ben Buyāʾā and its vocalization and Masora were supplied by Aharon ben Asher. For the scribe who wrote the consonantal text the base of authority was constituted by an existing authoritative exemplar manuscript. For the *naqdan* the base of authority was a master teacher of the oral reading tradition. In the case of the Aleppo Codex, the *naqdan* and the master teacher were one and the same person. By contrast, the Codex Leninogradensis, which was produced in the early eleventh century after the close of Masoretic period and the death of the last authorities of the Tiberian oral tradition, was written and vocalized by the same scribe, Samuel ben Jacob.

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18 The original inscriptions are now lost and survive only in copies (Kahle 1930, 7–12; Ofer 1989). The scribe Shlomo ben Buyāʾā also wrote the manuscript I Firkovitch II.17 (L according to the abbreviation of Yeivin 1980, 22-23), but the *naqdan* was different from that of A and so the vocalization and accentuation.

19 In one extant Judaeo-Arabic document from the Genizah the Persian loanword *namūdhaj* ‘model, exemplar’ is used to refer to such a model manuscript (Outhwaite 2018, 331).

20 There is evidence from colophons that other Masoretic codices, also apparently from the post-Masoretic period, were produced entirely by a single scribe (Outhwaite 2018, 329).
Introduction

So far we have made a distinction between manuscripts of the Hebrew Bible written in scrolls and those written in Masoretic codices and also between the early Tiberian codices datable to before 1100 and later ones. In the early period, coinciding with or close to the time when the Masoretes were active, we can distinguish between various types of Hebrew Bible codices. The type of codex that has been referred to in the preceding discussion is what can be termed a ‘model’ codex, which was carefully written and accurately preserved the written components of the Tiberian Masoretic tradition. Such manuscripts were generally in the possession of a community, as is shown by their colophons, and were kept in a public place of study and worship for consultation and copying (to produce both codices and scrolls). References to various model codices and their readings are found in the Masoretic notes, e.g. Codex Muggah, Codex Hilleli, Codex Zambuqi and Codex Yerushalmi (Ginsburg 1897, 429–33). Sometimes accurately written manuscripts also contain the text of an Aramaic Targum.

In addition to these model Masoretic codices, there existed numerous so-called ‘popular’ Bible codices, which were generally in the possession of private individuals. These were not written with such precision as the model codices and usually did not include all the written components of the Tiberian Masoretic tradition. Often they contain no accents or Masoretic notes but only vocalization, and this may deviate from the standard Tiberian system of vocalization in a number of details. Some
popular Bible manuscripts were accompanied by an Aramaic Targum or an Arabic translation and commentary.\footnote{For this type of medieval manuscript see Goshen-Gottstein (1962, 36–44), Díez Macho (1971, 22), Sirat (2002, 42–50), Stern (2017, 88–90), Arrant (2020) and Outhwaite (2020). These scholars use different terms to refer to such Bible manuscripts. Sirat, for example, refers to them as ‘common Bibles’, a term that is adopted by Outhwaite (2020).}

All popular manuscripts were not necessarily written carelessly. The crucial feature of their production was that the scribes felt less bound by tradition than in the copying of the model manuscripts. Many of them are distinguished from the model manuscripts also in their smaller dimensions and their different page-layout (Arrant 2020).

There were, therefore, three classes of Hebrew Bible manuscript in the early Middle Ages: (i) scrolls used for public reading in the liturgy; (ii) model Masoretic codices, the purpose of which was to preserve the full biblical tradition, both the written tradition and the reading tradition; (iii) popular manuscripts that aided individuals in the reading of the text.

We describe here briefly some of the surviving model Tiberian Masoretic codices that have come to be regarded as among the most important and are referred to in various places in this book. All of these manuscripts originate from the Middle East, as do the vast majority of the early codices. The early eastern manuscripts began to come to the attention of scholars in the nineteenth century, mainly due to the collection of eastern manuscripts assembled by Abraham Firkovitch (1787–1874), the majority of which were donated to what is now the National
Library of Russia in St. Petersburg. An important breakthrough was also the discovery of the Cairo Genizah in the late nineteenth century, which contained many fragments of early eastern Bible manuscripts, the majority of which are now in the possession of Cambridge University Library. The earliest surviving codices that were written in Europe are datable to the twelfth century (Beit-Arié et al. 1997). The early medieval model codices with standard Tiberian vocalization all reflect a basically uniform Masoretic tradition, though no two manuscripts are completely identical. The differences are sometimes the result of scribal errors and other times due to a slightly different reading tradition or system of marking vocalization and accents that is followed by the naqdan.

1. The Aleppo Codex (referred to henceforth as A)

In the colophon of this manuscript, it is stated that it was written by Shlomo ben Buyāʾā and the Masorete Aharon ben Asher (tenth century C.E.) added the vocalization, accents and Masoretic notes. This is confirmed by comparison with the statements concerning the traditions of Ben Asher and Ben Naftali in the Masoretic treatise known as ‘The Book of Differences’ (Kitāb al-Khilaf) of Mishaʾel ben ‘Uzziʾel (§I.0.13.1.). The Aleppo Codex agrees with Ben Asher against Ben Naftali in 94% of the cases of differences between the two Masoretes recorded in this work. It is indeed thought to be the manuscript that Maimonides examined when he pronounced that Ben Asher’s tradition was superior to that of other Masoretes. It should be regarded, therefore, as the authorized edition in Jewish tradition after the
time of Maimonides (Penkower 1981). When Maimonides saw the manuscript, it was kept in Egypt, possibly in the Ben-Ezra synagogue in Fusṭāṭ, which later became famous for its ‘Genizah’. From the later Middle Ages, however, it was kept in Aleppo. In 1948 the synagogue in which it was kept in Aleppo was set on fire and only about three-quarters of the original manuscript were preserved. The surviving portions are now kept in Jerusalem in the library of the Ben-Zvi Institute (Shamosh 1987; Friedman 2012; Goshen-Gottstein 1960; Yeivin 1968). It has been published in a facsimile edition by Moshe Goshen-Gottstein (1976) and images are available online. This manuscript forms the basis of a number of Israeli editions of the Hebrew Bible, including the Hebrew University Bible (Goshen-Gottstein 1975), the edition of Mordechai Breuer (Jerusalem 1977–1982, re-edited in 1996–1998 with inclusion of new information on the parasha divisions) and the modern Rabbinic Bible (ha-Keter) edited by Menachem Cohen (1992–).

2. Codex Leningradensis, St. Petersburg (Leningrad), National Library of Russia, I Firkovitch Evr. I B 19a (referred to henceforth as L).

This codex is still widely known as Codex Leningradensis. One of the colophons of the manuscript states that it was written in Fusṭāṭ, Egypt, and subsequently checked and corrected ‘according to the most exact texts of Ben Asher’. Its date is given in the colophon according to five different systems of reckoning,

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23 לפי הספרים המדויקים של בן אשרא.
which do not completely coincide, but a date in the region of 1008-1009 C.E. seems to be intended. It was, therefore, written after the close of the Masoretic period and was not the original work of a Masoretic authority, unlike the Aleppo Codex, which was vocalized by the Masorete Aharon ben Asher. It is, nevertheless, very similar to A and agrees with Ben Asher against Ben Naftali in 90% of the cases of differences between them that are recorded in the ‘The Book of Differences’. The commissioner and first owner of the manuscript was a wealthy Karaite merchant known as Joseph ibn Yazdād. The Codex Leningradensis differs slightly from the Aleppo Codex in a few minor details. There is a lesser degree of marking of ḥaṭef signs on non-guttural consonants than in A (§I.2.5.3.) and a slightly greater degree of marking of gaʿya on open syllables. Some of the original vocalization and accentuation has clearly been changed during the correction process referred to in the colophon and the corrections, in general, correspond to what is found in A. These consist of erasures, mainly of gaʿya signs, and additions, mainly of ḥaṭef signs under non-guttural consonants. The manuscript has been preserved in its entirety and it contains the complete text of the Bible. Paul Kahle made this the basis of the third edition of Biblia Hebraica (Stuttgart 1929–1937) and it has been used for all subsequent editions. For practical reasons, unless otherwise indicated, manuscript L is cited according to the edition in the fourth edition of Biblia Hebraica (Biblia Hebraica Stuttgartensia, abbreviated as

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24 For the background of the manuscript and the interpretation of its colophon see Outhwaite (2018).
BHS). In places where there are problems with the reading reflected by BHS (see, e.g. §I.3.1.14.) the manuscript is cited directly. Manuscript L is also the basis of the edition of the Hebrew Bible by Aron Dotan (Tel-Aviv 1973, revised 2001).  

3. British Library, London, Or. 4445 (referred to henceforth as B)  
This manuscript contains leaves from different periods. The ones of greatest interest for the study of the Tiberian Masoretic tradition are the oldest leaves, which constitute most of the Pentateuch. These are generally thought to have been written at the same period as A in the first half of the tenth century, or possibly slightly earlier. This older section agrees with Ben Asher against Ben Naftali in 80% of the recorded cases of differences. It marks hatef signs on non-guttural consonants slightly more frequently than in the corresponding portions of L, in accordance the principles found in A. The marking of gaʿya in open syllables is, however, less frequent than in A. The rafe sign, furthermore, is used on non-כגדכפת consonants less often than in A (§I.3.2.). It appears, therefore, to represent a slightly less developed tradition than A.  

25 A facsimile edition of the manuscript was published by Loewinger (1970).  
4. The Cairo Codex of the Prophets (referred to henceforth as C)

This manuscript, which contains all of the books of the Prophets, was preserved down to modern times in the Karaite synagogue in Cairo. It has a colophon attributing it to the Masorete Moshe ben Asher, the father of Aharon ben Asher, with the date 895 C.E. There is now a consensus that the manuscript was written later, most likely in the eleventh century, and this is a later copy of an earlier colophon.\(^{27}\) The manuscript reflects a tradition that is closer to that of Ben Naftali than to that of Ben Asher. In places where a difference is recorded between Ben Asher and Ben Naftali, it agrees with Ben Asher in 33% of cases and with Ben Naftali in 64% of cases. C also reflects some features of vocalization that are attributed to Ben Naftali in the Masoretic sources. These include forms such as לִיש רָאֵל instead of לְוֶיֶש רָאֵל, the latter being the tradition of Ben Asher, which is found in A and L (§I.2.5.1.). Another case is the marking of dagesh in the qof of the verb בִּיָּע קֹפּ 'he supplants' (Jer. 9.3) (§I.3.1.11.2.). It does not, however, correspond to the tradition attributed to Ben Naftali in all features. In general, it exhibits a more developed tradition than A and L. It marks, for example, gaʿya in open syllables (§I.2.8.2.1) and dagesh in consonantal ʿalef (§I.1.1.) more frequently than is the case in A and L.\(^{28}\) A facsimile of C was published by Loewinger (1971). A Spanish team directed by Pérez Castro (1979–

\(^{27}\) For the arguments regarding its dating, see Menachem Cohen (1982b), Glatzer (1989, 250–59), Lipschütz (1964, 6–7).

\(^{28}\) Yeivin (1968, 360–61).
1992) produced an edition of the manuscript together with its Masora.

5. Jerusalem National and University Library, Heb. 24, 5702 (formerly MS Sassoon 507) (henceforth referred to as S)

This is likely to have been written in the tenth century. The surviving sections contain most of the Pentateuch. It does not exhibit a predominant correspondence to either Ben Asher or Ben Naftali, in that it agrees with Ben Asher against Ben Naftali in 52% of the recorded cases of differences. The vocalization exhibits some features that are attributed to Ben Naftali, e.g. רָאֵלבִיש (§I.2.5.1.). In some features it is more developed than A and L, such as the greater marking of rafe and the greater marking of gaʿya in open syllables. Unlike A and L, however, it does not mark ḫatef signs on non-guttural consonants.²⁹

Towards the end of the Masoretic period in the second half of the tenth century and the eleventh century, many Karaite scholars became involved with the Tiberian Masoretic tradition. Some studies have shown that the Masoretic notes in some Tiberian Bible codices, including the Aleppo Codex, contain some elements that appear to reflect Karaite rather than Rabbanite theology.³⁰ Does this mean that the whole circle of Tiberian Masoretes were Karaites? There are several problems with such a simple assessment. The medieval sources refer to several

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³⁰ For example, the gradual revelation of mishvot to generations before Moses; cf. Zer (2003).
generations of Masoretes, some of them belonging to the same family. They indicate that the family of the famous Masorete Aharon Ben Asher had been involved in Masoretic activities over five generations. Aharon Ben Asher lived in the tenth century, and so Asher ‘the elder’, who is stated to be the great-great-grandfather of Aharon, is likely to have lived in the second half of the eighth century C.E., before the emergence of Karaism on the historical scene. There is no evidence of a Karaite community in Tiberias during the Masoretic period. The immigration of Karaites to Palestine evidently began in the second half of the ninth century and was directed towards Jerusalem (Gil 1992, 182). Some of the Masoretes, furthermore, were closely associated with the Rabbanite Jewish authorities, e.g. Pinḥas Rosh ha-Yeshiva (‘head of the Academy’), who lived in the ninth century. The ‘Academy’ (Yeshiva) was the central body of Rabbanite Jewish communal authority in Palestine. Some close parallels to the format and phraseology of the Masoretic notes can, in fact, be found in Midrashic literature composed before the Islamic period (Martín Contreras 1999; 2002; 2003). It is likely that these Midrashim were redacted by Jewish sages in Tiberias, which was a thriving centre of Rabbinic scholarship in the Byzantine period (Rozenfeld 2010, 120–26). All this suggests that Karaite scholars joined forces with an existing stream of tradition of ‘Bible scholarship’ in Rabbanite Judaism, enhancing it and developing it.

The Karaites contributed to the Tiberian Masoretic tradition in various ways. They sponsored the safekeeping of the model Masoretic codices produced by the Masoretes. This is
shown by the fact that colophons of many of the surviving codices indicate that they had come into the possession of Karaite public institutions, such as study houses and synagogues. The Karaites also become involved in the production of accurate copies of Masoretic biblical codices, particularly in the eleventh century, after the cessation of the activities of the Tiberian Masoretes. In the late tenth and early eleventh century, they produced several Masoretic treatises (§I.0.13.1.) and developed the para-Masoretic philological activity of grammar (§I.0.13.4.).

Several of the colophons of the model Tiberian also indicate that the codices were used for liturgical reading by the Karaite communities on Sabbaths and festivals, e.g.

The Aleppo Codex (A):

‘in order that they bring it [the codex] out to the settlements and communities in the holy city on the three pilgrimage festivals, the festival of Passover, the festival of Weeks and the festival Tabernacles to read in it’. 31

The Cairo Codex of the Prophets (C):

‘This is the codex, the Eight Prophets, which Ya’beṣ ben Shlomo consecrated in Jerusalem … for the Karaites who celebrate the feasts at seeing the moon, for them all to read on Sabbath days, at new moons and at the feasts’. 32

31 Kahle (1930, 3): כדי שיוציאוהו אל המושבות והקהלות שבעיר הקודש будיו הקודש بشלווה. דנילו והמותה והשבעות והحسابות לקרות בו.

II Firkovitch Evr. II B 34:

‘This Bible should be taken to one of the settlements in which there are Karaite communities on Sabbaths and festivals in the city of Cairo so that the congregation can read it each Sabbath and blessed festival’.  

The use of Masoretic codices for liturgical reading distinguished the Karaites from the Rabbanites, who continued to use scrolls for this purpose (Allony 1979).

I.0.5. QERE AND KETIV

The medieval Tiberian Bible codices record the reading tradition not only in the vocalization sign system but also in marginal notes. These are known as qere notes. The term qere is the Aramaic passive participle קֵרֵי ‘read’. The notes were marked when there was a conflict between the orthography of the text, known as the ketiv (from the Aramaic passive participle כֵּיטִי ‘written’), and the oral reading. The usual practice in the manuscripts was to write the vocalization of the qere on the orthography of the ketiv and then write in the margin the appropriate orthography of the qere without vocalization. The qere note in the margin is generally flagged by the word קרי (qere) under it or the abbreviation ק, e.g.

2 Kings 20.4

L: הָעֵיר Margin: החצר i.e. read the ketiv

33 Kahle (1930, 74–77): יאסף זה המקרא אל אאות המושבות شيئיהו בה הקהלת, הקראיين בשבחיות ובסעודה ומידת מצרים לкратאת הקהל ובי כל שבת ומועדו ברח.
In some places in the manuscripts, the qere note is accompanied by a sign that resembles a final nun ן. This was evidently a device to draw the attention of the reader (Ofer 2019, 89–91).

Qere notes are unevenly distributed across the Hebrew Bible. They are less frequent in the Pentateuch than in the Prophets and Writings.34

When there is a regular conflict between the orthography of the reading in frequently occurring words and forms, as is the case, for example, with the Tetragrammaton (ketiv יהוה, qere אדני or אלוהים), the place name ‘Jerusalem’ (ketiv ירושלם, qere ירושלם) and some morphological suffixes (see below), the vocalization of the word reflects the qere but there are no qere notes in the margins with the appropriate orthography.

It is important to distinguish between the qere notes and the qere. The term qere should properly refer to the entire reading tradition, reflected by the vocalization, whereas the qere notes concern selected cases where the reading tradition differs sufficiently from the orthography to lead to errors in reading. Errors in reading included not only errors in pronunciation but also errors in the understanding and parsing of a word.

As remarked, the transmission of the Hebrew Bible involved the intertwining of written text and oral reading tradition. The written text was copied by scribes and the memory of the oral reading tradition was passed on from generation to generation by teachers. The scribes and the teachers constituted two distinct groups and their activities were distinct. This is one of the reasons why discrepancies arose between the two channels.

of transmission. To understand further the phenomenon of a reading tradition (qere) of the Hebrew Bible that does not always correspond to the orthography of the written text (ketiv), it is helpful to compare the qere to the oral reading traditions of the Qurʾān, known as qirāʾāt.

According to early Islamic sources, immediately after the death of the prophet Muḥammad, Qurʾānic verses were preserved in both written and oral form. They were recorded in writing on small fragmentary objects, such as palm stalks and thin stones, and were transmitted in human memory ‘in the hearts of men’ (ṣudūr al-rijāl). The implication is that oral traditions accompanied written traditions from the very beginning of the process of transmission. After the written text of the Qurʾān had been officially stabilized and had undergone a process of standardization in the form of the edition of the caliph ʿUthmān (seventh century C.E.), considerable diversity still remained in the various traditions of orally reciting the text, despite the fact that ʿUthmān had commanded the written texts that did not conform to the new ʿUthmānic recension to be destroyed. These oral reading traditions exhibited different linguistic features, reflecting differences between the spoken Arabic dialects of the period, and also textual differences. Some of the differences were also due to grammatical errors by reciters. For approximately two centuries after the introduction of the ʿUthmānic standard written text, some textual differences in the reading traditions still deviated from the or-

The Tiberian Pronunciation Tradition of Biblical Hebrew

The textual differences, therefore, were not only different interpretations of the written orthography but also, it seems, different readings that arose in oral transmission. By the third century A.H./ninth century C.E., however, the permitted forms of reading were strictly brought into line with the orthography of the text and with standardized rules of Arabic grammar. This was largely due to the activities of Ibn Mujāhid (d. 324 A.H./936 C.E.), who had the official backing of the government authorities. Ibn Mujāhid also reduced the number of authorized reading traditions to seven canonical ones, which were transmitted from a recognized authority and had a large number of tradents. The principle of conformity with the orthography of the ʿUthmānic text did not necessarily require correspondence to the reading originally intended by the orthography, but rather it was required that the reading could be accommodated by the orthography. The potential for variation was increased by the fact that what was fixed was the orthography without diacritical dots on the Arabic letters (known as the ṭarāṣ). This is likely to have been intentional in order to accommodate a diversity of reading traditions. The text, therefore, could not serve as a stand-alone document but rather functioned as an aide-mémoire for the oral reading (Graham and Kermani 2007, 116; Roxburgh 2008, 8). Various different dialectal forms of Arabic were permitted in the reading traditions, so long as they could be supported by the ṭarāṣ. The orthography originally represented the western Arabian dialect of the Ḥijāz in which a glottal stop was elided. The word for ‘well, spring’, for example, was pronounced as bir in the dialect of Ḥijāz (i.e. ﯞ) and this is what
was originally intended by the orthography ﯽ. This was how it was pronounced also in some of the canonical reading traditions. Other canonical reading traditions, however, read the rasm with a glottal stop, viz. biʾr, in accordance with the phonology of the eastern Arabian dialect (i.e. ﯽ). Some of the most widely followed canonical readings in later centuries, in fact, followed the eastern type of pronunciation, which deviated from what the orthography was originally intended to represent.36

The qere of the Hebrew Bible was most likely analogous to the Qurʾānic reading traditions, especially those of the early Islamic period, which sometimes differed textually from the orthography.37 As with the Qurʾānic reading traditions, the qere reflects an orally transmitted reading tradition of the written text, i.e. a memorized tradition of oral recitation. It need not be assumed that it is derived from a variant written tradition that had its origin in written manuscripts.38 Indeed allusions to Jewish education in the Second Temple Period refer to learning the Torah

36 For a good overview of Qurʾānic reading traditions see Leemhuis (2017). See also Nasser (2013) and Graham and Kermani (2007).

37 Cf. Crowther (2018), who draws analogies between the diversity of Qurʾānic oral reading traditions with the pluriformity of biblical texts from Qumran.

38 We take the view here of scholars who have stressed the oral dimension of the text reflected by the vocalization; cf. especially Barr (1968, 194–222; 1981), Morag (1974), M. Breuer (1997) and Ofer (2019, 87–89). A discrepancy between a reading tradition and the written text similar to the one found in the transmission of the Hebrew Bible is found
by hearing the recitation of texts, which would be memorized and repeated orally. This acquired knowledge of the text would stand independently of the written text. Josephus (d. 100 C.E.) describes such a process of education as follows:

Let the high priest stand upon a high desk, whence he may be heard, and let him read the laws to all the people; and let neither the women nor the children be hindered from hearing.\(^{39}\)

Such memorized oral traditions could potentially survive punctuations such as the physical destruction of written texts, as is likely to have happened after the destruction of the First Temple in the sixth century B.C.E.\(^{40}\) and as is reported to have happened during the reign of Antiochus IV Epiphanes, who, according to 1 Macc. 1.56-57, ordered the destruction of books in the Temple in 168–167 B.C.E. In a similar manner oral traditions of the Qurʾān maintained textual traditions that were eliminated by the physical destruction of written non-ʿUthmānic versions (Zbrzezny 2019).

The *qere* notes in the medieval Masoretic codices are unlikely to have originated as written marginal corrections of specific words in the written text, as advocated, for example, by scholars such as Ginsburg (1897, 183–87) and Gordis (1971).


Rather they constitute a system that was developed before the vocalization signs were created to alert the reader to places where the oral reading deviates from what is represented by the written orthography.

In the early Islamic tradition, the Qurʾān was typically recited only from memory during congregational prayers. In an attempt to bring the oral traditions more into line with the written text, Ḥajjāj ibn Yūsuf (d. 95 A.H./714 C.E.), the governor of Iraq, ordered the recitation to be made from a book rather from memory alone (Hamdan 2006, 172). Such an attempt to bring the recitation of oral tradition more closely together with the text is likely to have occurred also in Judaism in the process of fixing the text after the destruction of the Temple. The oral and written traditions of both the Hebrew Bible and the Qurʾān, nevertheless, continued to be separate levels of transmission. The oral reading was the oral performance of the written text, whereby the two levels were intertwined.

As is the case with Qurʾānic reading traditions, the *qere* reflected linguistic differences from the *ketiv*, textual differences and sporadic errors in reading.

The linguistic differences often appear to reflect dialectal divergences. The *qere* of the pronominal suffixes ְ— [־ף-], ְ— [־ט-] and ְ— [־וכ-], for instance, reflect different morphological forms from those reflected by the *ketiv*. The *ketiv* of the second person suffixes ְ—, ְ— reflect forms without a final vowel and the 3ms suffix ְ— appears to reflect a suffix containing a front vowel, such as -ֳו or the like. The forms of the *qere* are reflected in Qumran manuscripts and Hebrew epigraphic texts from the first
millennium B.C.E. by spellings such as חַ- and צ (Cross and Freedman 1952, 53, 66–67; Qimron 1986, 58–60). The spelling of these suffixes with the normal Masoretic type of orthography is also found in Qumran and epigraphic texts. The qere of the suffixes חַ-, צ and צ, moreover, is reflected by the orthography of the consonantal text in a few sporadic cases, e.g. כָה ‘your hand’ (Exod. 13.16), גָר ‘you have sojourned’ (Gen. 21.23), מ ‘his arrows’ (Psa. 58.8). It is not necessarily the case, therefore, that the linguistic differences between the qere and the ketiv always reflect later stages of development of the Hebrew language, but rather in many cases these may have been contemporary dialectal differences. Exceptional pronominal forms that appear in the ketiv but not in the qere and have been considered archaic are often attested in the orthography of Qumran manuscripts. This applies, for example, to 2fs pronominal forms with final yod:

ketiv יָהְת, qere יָהְת 1 Kings 14.2 ‘you (fs)’

ketiv הלכתי, qere הלכת י 31.21 ‘you (fs) went’

ketiv יָל, qere י 2 Kings 4.2 ‘to you’

The yod occurs on these pronominal forms in Qumran manuscripts where they do not occur in the ketiv of the Masoretic Text, suggesting that it was still a living linguistic feature in the late Second Temple period. Examples are particularly numerous in the scroll 1QIṣa, e.g.42

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41 For a detailed discussion of the attested forms of the suffix see Hornkohl (2020).

42 Material incorporated from the Gesenius grammar project contributed by Aaron Hornkohl.
In fact, the forms with yod occasionally occur in the qere of the Masoretic text, e.g. חַיֶָָ֑֣י כִי ‘your (fs) life’ (Psa. 103.4).

There are other less frequently occurring instances where there appear to be differences in morphology between the form represented by the orthography of the ketiv and the qere without it being felt necessary to write a qere note, e.g.

Cant. 3.4. ‘until I had brought him’
Gen. 24.47. ‘and I placed’
Lev. 20.26. ‘and I have separated’

Here the ketiv orthography is likely to reflect the forms והביאתיו and ואשם, respectively. Evidently, the orthography of the ketiv was considered to be acceptable as a representation of the qere due to analogy with orthography in other contexts, e.g. הביא ‘bring!’ (1 Sam. 20.40), and defective spellings such as והביאתיו ‘officers’ (Exod. 14.7). 43

With regard to textual differences between the qere and the ketiv, sometimes there is a difference in the whole word, e.g. 2 Kings 20.4, written העירה ‘the town’, read העיר ‘the court’ or the

43 The linguistic differences between the qere and the ketiv are particularly prominent in Biblical Aramaic, where in many cases each of these layers clearly reflects different dialects of Aramaic.
division of words, e.g. Ezek. 42.9, written הָאֵֶ֑ל ה מִתַ֖חַת הַל שָכ וֹת, read ‘below these chambers’. In some isolated cases the discrepancy amounts to omissions or additions of words or phrases, e.g. Jer. 31.38, written הנה וימי, read הבנה וימי ‘behold the days are coming’.

In a few cases, a textual difference in the qere does not differ in its phonetic form from the reading offered by the ketiv. This applies, for example, to several instances where the ketiv is לֹא ‘not’ and the qere is לא ‘to him’ and vice versa, e.g.

qere: אֲשֶׁר לֹא חֹמָָ֗ה

‘The house that is in a city with a wall (ketiv: a city that is not a wall) shall be made sure in perpetuity to him who bought it’ (Lev. 25.30).

qere: לא

‘He would say “No, you must give it now”’ (ketiv: ‘He would say to him “You must give it now”’) (1 Sam. 2.16).

In such cases, the conflict between the oral qere and the orthography of the ketiv is only a difference in its interpretation, which shows that the oral reading was transmitted together with an associated semantic content. So the note in the margins of medieval Masoretic manuscripts stating that the qere is לֹא where the ketiv has לא indicates that in the reading tradition this word לֹא has the meaning ‘to it’ and offers an orthography that is more appropriate for this than the orthography of the ketiv (לא), which
reflects a different meaning of lō, namely the meaning of the negative particle. In late antiquity, this semantic content was expressed by the Targums (Onqelos and Jonathan), which frequently reflect an interpretation of the qere and not the ketiv (e.g. Onqelos to Lev. 25.30: ‘a house that is in town that has a wall’). In a number of cases, however, the Targums reflect the semantic content reflected by the orthography of the ketiv. This applies, for example, to the Targum to 1 Sam. 2.16, which reflects the ketiv ל to him: and he said to him’. This reflects a diversity of interpretative traditions.

Another case where the ketiv and qere have the same phonetic form is 2 Sam 5.2: ketiv והבמי את, qere note הבמיא את ‘the one bringing in + object marker’ (הַמֵבִ֖יא א ת). The ketiv seems to have arisen by haplography of an ʾalef. The qere note need not be taken as evidence that it has its origin in a written manuscript with the correct orthography, but rather indicates that in the reading tradition the ketiv הבמי is interpreted as meaning הבמיא. The purpose of the note was to ensure that readers parsed the anomalous orthography הבמי correctly. Similar cases of qere notes that do not reflect a different pronunciation but rather offer help in parsing words with an unusual orthography include Jer. 18.3 והנהו, qere note הנהו ‘and behold he’ (וַּהֲנָהו) and Exod. 4.2 המז, qere note המז ‘what is that?’ (מַה ז). In these last two cases, the orthography of the ketiv has the purpose of reflecting the prosodic bonding of the words. Although this prosodic bonding indeed exists also in the qere, the qere note was
considered necessary since such combinations of words are normally not represented in this way in the orthography.

Another case of the \textit{qere} note apparently differing only in orthography from the \textit{ketiv} is

1 Chron. 11.17. L: וַיִתָּא, ‘and he desired’, \textit{qere} note: וַיָּא, i.e. the \textit{qere} is וַיָּא.

Here the spelling of the \textit{qere} note with final \(יָוָךְ\) (imitating the orthography of the 3ms pronominal suffix on plural nouns \(יָוָךְ\)) is likely to be a device to ensure that the ending of the word is read as a final diphthong. Similar \textit{qere} notes for this verb are found in Prov. 23.6 and Prov. 24.1. An analogous type of note is found in Jer. 17.11: \textit{ketiv} יָמָו, \textit{qere} יָמו, ‘his days’ (דועי). The orthographies וַיָּא and יָמָו would, in principle, be possible for the representation of a final diphthong consisting of \textit{qamesh} and consonantal \textit{vav} [כָּבֵן]. The point is that the \textit{vav} in orthographic sequences such as \(וָךְ\) and \(וָוָךְ\) at the ends of words would normally be read in the biblical corpus as a vowel. The \textit{qere} note warns against following the normal practice, which would result in an error of reading.

In a few cases, the \textit{qere} has a \textit{qamesh haṭuf} or \textit{haṭef qamesh} where the \textit{ketiv} has a vowel letter \textit{vav}, e.g.

Neh. 4.9. L: וָנָשָב, ‘and we returned’, \textit{qere} note: ונשָב, i.e. the \textit{qere} is ונשָב.

The purpose of the \textit{qere} note is to supply a more appropriate orthography for the short vowel of the reading tradition since the orthography of the \textit{ketiv} with \textit{vav} could cause an error in reading.
In some cases falling into the category of those just discussed, in which the *qere* note presents a more frequent variation of orthography rather than the orthography of a completely different word, there is a Masoretic note relating to orthography rather than a *qere* note, which serves the same purpose, e.g.

Neh. 13.23. L: נִי֖וֹתועַמ דִי וֹתואַש ד *Ashdodite, Ammonite women*, note י (‘the *vav* is redundant’), i.e. the *qere* is נִי֖וֹת אַש ד דִי וֹת.

In these types of cases the manuscripts occasionally differ, some having a *qere* note and others a Masoretic note relating to orthography (Ofer 2019, 92), e.g.

2 Sam. 16.8. לֹ֥חַח:

L: תַח תָ ו *the *qere* is תַח תָ יו’

A: כָּה ד ‘one of four cases in which the orthography (of this suffix) lacks (*yod*)’

Notes such as those just described, in which the *qere* is pronounced the same or similarly to the *ketiv*, suggest that the *qere* notes were originally compiled before the creation of the vocalization signs, since the vocalization would have ensured that such an error of reading was not made. References to differences between *qere* and *ketiv* are, in fact, already mentioned in Rabbinic literature (Yeivin 1980, §105; Ofer 2008; 2009).

In a large proportion of cases where the *qere* differs from the *ketiv*, the *qere* represents an easier reading than the *ketiv*. The reading may be textually easier. The *qere*, for example,
sometimes has a vav where the ketiv has a yod that is textually difficult and has evidently arisen through scribal error, as in:

Jer. 13.20. L: יִשַׁעֲיקֵיכֶם ‘lift up your (pl) eyes’ (where the ketiv reflects יִשַׁע ‘lift up (fs)’), qere note יִשַׁע, i.e. the qere is יִשַׁע.

In some places, the qere inverts the letters of a ketiv of an obscure form to produce a familiar form, e.g.

2 Sam. 20:14. L: יִקְלַלְוּ ‘and they assembled’, qere note יִקְלַלְוּ, i.e. the qere is יִקְלַלְוּ.

In such cases in the Aleppo Codex the vocalization signs are not marked in the order required by the qere but rather are marked on the letters of the ketiv in a different order from the form of the qere that they are intended to represent, i.e. יִקְלַלְוּ (Yeivin 1962). Here each individual letter has the vocalization required by the qere but the sequence of vowels is still according to the order of the letters in the ketiv. This may reflect the notion that the qere here is correcting a mistaken orthography, which is scrambled in the ketiv.

The qere may be socially easier, in that it supplies a euphemism in place of a less socially polite ketiv, e.g.

Deut. 28.30. L: יִשְׁבַבְנָה ‘he will ravish her’, qere note יִשְׁבַבְנָה, i.e. the qere is יִשְׁבַבְנָה ‘he will lie with her’.

It may be theologically easier by, for example, supplying a substitution for the sacred Tetragrammaton or avoiding an anthropomorphism, as in
Deut. 16.16. L: שָל וֹש פ עָמִ ים ׀ בַשָנָָ֡ה יֵרָא ַּ֨ה כָל־ז כוּר ךִָ֜א ת־פ נֵ י ָּ֥֗ו הָָּ֥ו אֱלֹה ָּ֥֗י ‘Three times a year all your males shall appear before the Lord, your God’.

Here the verb יֵרָא ַּ֨ה is read as a nifʿal, but the ketiv יראה appears to have originally represented a transitive qal verb ‘he will see (the face of the Lord)’. The reading tradition was less anthropomorphic and so theologically more acceptable.

In a few cases, however, the qere contains textual differences that appear to be more difficult than that of the ketiv and have arisen by an error, e.g.

2 Sam. 16.12. L: נִֶ֑יוב עֵי, qere note בעי, i.e. the qere is ‘upon my eye’.

The ketiv reflects the word בּעֵי, ‘my punishment’, and this would seem from the context to be the original reading here (C. McCarthy 1981, 81–83) and the reading ‘my eye’ has arisen by an erroneous reading of the word: אֶלֶּה יְהוָּ ה בְּעֵי (קריבعي), ‘It may be that the Lord will look upon my punishment (qere my eye) and that the Lord will repay me with good for this cursing of me today.’ The Septuaginta translates ἐν τῇ ταπεινώσει μου ‘in my humiliation’, which is clearly a rendering of the ketiv. The interpretation of Targum Jonathan, however, reflects the reading of the qere: מה אֶפְּלָא קָדָם יִרְא אֵלֹהִים, ‘what if the tear of my eye is revealed before the Lord?’ Another example is

Gen. 8.17. L: צֵ או ַּ֨ה, qere note היצא, i.e. the qere is צֵ אי ַּ֨ה.
The *qere* here is the morphologically difficult form יבּעֵינִי, whereas the *ketiv* reflects the expected form יבּעֵין. Here again, the *qere* seems to have arisen by an erroneous reading of a *yod* instead of a *vav*. The letters *vav* and *yod* were often difficult to distinguish in the Hebrew square script used in the Second Temple Period (Tov 2012, 228–32).

Difficult *qere* readings such as יבּעֵינִי and יבּעֵין, which apparently arose from a confusion of written letters, do not necessarily originate in scribal errors in written texts but rather could have been due to misreadings of a written text in the oral recitation. This would imply that the oral reading tradition, although memorized and potentially independent of the written text, in practice had some degree of dependence on it. As remarked, it is best characterized as an oral performance of the visible written text. The tradition of this oral performance was evidently less fixed in antiquity and could adjust to the visible written text, even when this was misread. At a later period, the Tiberian reading tradition was fixed in its textual form, but it nevertheless continued to have the status of an oral performance of the written text and so have some degree of dependence on it. This is reflected, in particular, in the phenomenon of orthoepy in the Tiberian reading tradition, i.e. the effort to ensure that the distinct elements of the written text are given their optimal realization (§I.0.11.).

The intertwined nature of the oral reading tradition and the written text is reflected also in the interpretation exhibited by the early versions and by the interpretation traditions that existed during the first millennium C.E. when the Tiberian reading was still a living oral tradition. In the ancient versions, such as the
Septuagint, the Peshitta and the Vulgate, the renderings of passages with *qere* and *ketiv* differences in the Masoretic tradition in some cases reflect the Tiberian *qere* and in other cases reflect the *ketiv*.44 Even Greek transcriptions of Hebrew proper names in the Septuagint in some cases reflect the *ketiv* rather than the *qere*.45 It is possible that in the source text and source reading tradition of the Septuagint in the Second Temple Period the *qere* and *ketiv* variations were distributed differently from what came to be fixed in the Masoretic tradition. This is less likely, however, in later versions such as the Peshitta and Vulgate, and it appears that the translators were basing themselves on either the *qere* or the *ketiv*. In the Talmudic period, indeed, the Rabbis based their interpretations of Scripture on both the *qere* and the *ketiv*, and traces of this practice continued into the Middle Ages.46

I.0.6. **The Accents**

The *qere* became canonical and fixed. After the canonization of the *qere*, another level of oral reading was superimposed on the *qere* in the form of the divisions of the *qere* text expressed by cantillation. These divisions, which came to be represented graphically by the medieval accent signs, expressed a particular

44 According to Gordis (1971, 66) the Peshitta and Vulgate versions reflect approximately 70% *qere* readings and the Septuagint approximately 60%.


interpretation of the text. Occasionally the accent divisions do not correspond to the tradition of the written text. This applies to some cases where there is a conflict between the accents and the paragraph divisions, known as *parashiyyot*, in the Tiberian Masoretic text. These paragraph divisions in the layout of the written text are found in the manuscripts from Qumran, both biblical and non-biblical. There is a large degree of agreement between the paragraphing of the Qumran biblical scrolls and that of the medieval manuscripts, which indicates that the tradition can be traced back to the Second Temple period. In a number of places, however, the paragraph divisions in the medieval manuscripts do not coincide with the end of a verse according to the accents. This is known as *פסוק פסקה באמצע* ‘a paragraph division within a verse’, e.g. Gen. 35.22, 1 Sam. 16.2. The reason for this appears to be that the paragraph division of the written text and the division expressed by the cantillation are two different layers of exegetical tradition, which occasionally do not correspond with one another. In a number of cases, the cantillation divisions conflicted with the *qere*, as is seen by the fact that in a number of verses a division in the *qere* represented by a pausal form in the vocalization has a conjunctive accent in the cantillation.

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47 There is evidence that the written accent signs were introduced before the vocalization signs in the various traditions of notation of reading traditions (Dotan 1981).

48 For this phenomenon see Revell (1980; 2015), I. Ben-David (1995) and Khan (2013a, 59–60). According to Dresher (1994) and DeCaen and Drescher (2020) this phenomenon is motivated by the system of prosodic division, which obliges conjunctives to be used in long verses in
The cantillation is a layer of reading that has roots in late antiquity. There are references to the teaching of biblical cantillation in Talmudic literature. One passage (Babylonian Talmud, *Berakhot* 62a) mentions the use of the right hand by the teacher or leader of the congregation to indicate the accents of the reading. The term פסקי טעמים ‘stops of the accents’, which is found in Talmudic literature, reflects the function of the accents to mark syntactic division. The association of the chant with the interpretation of the meaning of the text was recognized, as is shown by the Talmudic interpretation of Neh. 8.8 ‘[And they read from the book, from the law of God, clearly;] they gave the sense and (the people) understood the reading’ (בִ֖ינוּ בַמִק רָָּֽאו ש וֹם ש ָכ ל וַיָ), which is said to refer to the reading with accents.

Evidence for the division of the biblical text by accents in the Second Temple period is found in a Septuagint manuscript from the second century B.C.E. that has spaces corresponding to the major pausal accents of the Tiberian tradition (Revell 1971). In addition to the Tiberian accent signs, there was also a tradition of marking cantillation divisions by accents in manuscripts with Babylonian vocalization. Divisions of the Babylonian cantillation in most cases coincide with those of the Tiberian tradition (Shoshany 2003; 2013). This can be interpreted as reflecting that they had a common origin in antiquity.

There is evidence that in the Second Temple period the exegesis of the syntax of the biblical text did not always some places where they are not expected. This would imply that the prosodic accent system was imposed on an earlier inherited reading tradition.
correspond to that of the Tiberian accents. This is seen in the Septuagint translation, which often reflects a different syntactic division of the verse. From the Pesher commentaries found in Qumran, moreover, it appears that the delimitation of biblical verses did not always correspond to the placement of the final pausal accent (silluq) in the Tiberian tradition. It should be taken into account, however, that, just as there was a large range of consonantal textual traditions at this period, it is likely that there were a variety of exegetical traditions regarding the syntax of the text.

This is seen in the case of Isa. 40.3. In the New Testament, ‘the voice of one crying in the wilderness’ of Matt. 3.3 reflects an interpretation that is different from the one reflected by the Tiberian accents. In the Manual of Discipline from Qumran (1QS 8.13-14), however, the introit ‘a voice calls’ is omitted and the teacher uses the verse to exhort the sectarians ‘to prepare a way in the wilderness’, i.e. establish a community there. This shows that the Masoretic interpretation of the syntax was also current at that period. The version found in Matt. 3.3 is apparently an exegetical reworking to support the call of John from the wilderness (Fishbane 1988, 367–68). Another case is Deut. 26.5. The interpretation in conformity with the accents ‘An Aramaean was seeking to destroy my father’ can be traced to the Second Temple period. Midrashic literature, however, indicates that there was also an ancient tradition of interpreting it ‘My father is an Aramaean about to perish’ (Goldschmidt 1960, 34ff.). It is likely

49 The Septuagint translation (συρίαν ἀπέβαλεν ὁ πατήρ μου ‘my father abandoned Syria’) seems to reflect a slightly different consonantal text.
that the exegetical tradition of the Masoretic accents has its origin in the teachings of mainstream Pharisaic Judaism. Within the accent system itself one can sometimes identify different layers of tradition. One example of this is the decalogue in Exod. 20.13-16. The accentuation of this passage is unusual in that most words have two different accents. The explanation of this double accentuation is apparently that it reflects two layers of tradition. According to one layer of tradition, the four commandments are presented in four separate verses, whereas in another they form together one accentual unit.

The Targums frequently reflect an interpretation of the text that corresponds to the divisions of the cantillation. In Deut. 26.5, for instance, the disjunctive accent on the first word of the clause אֲרַמִי אֹבֵד אָבִי indicates that it is syntactically separated from the following word and so the two should be interpreted as subject and predicate rather than a noun and attributive adjective. The sense reflected by the accents, therefore, is ‘An Aramaean (i.e. Laban) was seeking to destroy my father’. This is a Midrashic interpretation, which is reflected by Targum Onqelos (לבן ארמאיה בעא לאובדא ית אבא). We may say, therefore, that three layers of textual tradition became fixed and canonized, one written, i.e. the ketiv, and two oral, i.e. the qere and the cantillation tradition. It is not known whether there was a difference in the historical depth of the two oral layers of tradition. The accents, however, clearly relate more closely to the qere than the ketiv. When, for example, the qere

50 For the existence of different layers of accent systems see Menahem Cohen (1987).
contains words that are not written in the *ketiv*, these words have accents and, vice versa, words that are written but not read have no accents. When a word that occurs in the *qere* is omitted in the *ketiv*, some manuscripts write the accents, e.g. in Jer. 31.38, where the *ketiv* is הָנַה יָמִים and the *qere* is בָּאוֹיֵם הָנַה יָמִים ‘behold the days are coming’, L writes the accents of the *qere* בָּאוֹיֵם on a filler sign:

L:

This phenomenon of two oral traditions may be compared to the toleration of pluriformity in the oral reading traditions (*qirāʿāt*) of the Qurʾān. As we have seen above, attempts were made to restrain this pluriformity, but it was not eliminated altogether and a limited diversity of reading traditions were legitimated. The most direct analogy to the different Qurʾānic *qirāʿāt* is the existence of reading traditions that were distinct from the Tiberian one, namely the Babylonian, Palestinian and various non-standard Tiberian traditions. One could, however, also regard the existence of distinct oral layers within the Tiberian tradition as a manifestation of the legitimation of a pluriformity of reading traditions.
I.0.7. The Representation of the Qere in Written Form

As is well known, the Targums sometimes go beyond the oral reading reflected by the medieval Masoretic tradition and make further adjustments for purposes of exegesis or the resolution of perceived textual difficulties. One may regard them, therefore, as a further layer of tradition, refining the oral cantillated qere. It is of interest that some features of the oral qere and the adjustments of the Targums actually appear in the written text of some Qumran Hebrew Bible manuscripts.51 This may be compared to the situation in the early years of the transmission of the Qurʾān. There are references to the existence of early codices of the Qurʾān that deviated from the ʿUthmānic text. Some of the readings attributed to these codices that differed from the ʿUthmānic text survived as oral reading traditions after the ʿUthmānic recension had become the standard written form of the text.52 Even in some medieval manuscripts of the Hebrew Bible, the reading of the qere was written in the text in place of the reading of the ketiv. These were predominantly manuscripts written for private use. Such manuscripts, which are mainly preserved in the Genizah in fragmentary form, often deviate from the traditional Masoretic tradition in other respects. Many, for

51 For the reflection of the qere in the ketiv of 1QIṣa3 from Qumran see Kutscher (1979, 519–21). The correspondences between the adjustments of the Targum and the ketiv of Qumran manuscripts have been discussed by Gottlieb (2016).

52 See Leemhuis (2017).
example, exhibit features of Non-Standard Tiberian vocalization or lack accents. An extreme case of such private medieval manuscripts is a corpus of Hebrew Bible manuscripts written by Karaite scribes in Arabic transcription (§I.0.13.3.). These regularly represent the *qere* in the transcription rather than the *ketiv*. By contrast, monumental manuscripts, which were typically deposited in public institutions, preserved the traditional distinction between the *ketiv* and the *qere*.

Biblical manuscripts with Palestinian vocalization, which in general should be considered to be private texts, frequently have the *qere* form written in place of the *ketiv* (Revell 1977, 164–65). Manuscripts with Babylonian vocalization, most of which can be assumed to have been written in Iraq, correspond to the Tiberian consonantal text very closely and differ only in a few details. These differences are generally related to orthography and include, in some cases, the harmonization of the *ketiv* with the *qere*. Such small divergences between the ‘Easterners’ (*Madin-ḥa’e*) and the ‘Westerners’ (*Maʿarba’e*) are mentioned in the Tiberian Masoretic notes and also in lists appended to Tiberian manuscripts.

### I.0.8. The Historical Depth of the Tiberian Reading Tradition

There are a number of indications that the Tiberian reading tradition, i.e. the *qere* of the Tiberian Masoretic Text, which came to be represented by the Tiberian vocalization sign system, had its roots in the Second Temple Period.
As has been remarked, the textual differences between the reading and the written text are referred to in Rabbinic literature. Furthermore, some of the Qumran scrolls from the Second Temple period have in a number of places the text of the Tiberian qere. One may trace back the text of qere forms even further, into the period of literary growth of the biblical books. There is internal evidence for this in the distribution of qere and ketiv within the Masoretic text. This is found, for example, in the fact that the ketiv of the text of Chronicles often corresponds to the qere of its earlier biblical source. An example of this is the word מִגַּרְשָׁגֱה ‘surrounding pasture-lands’, which is used in association with the lists of Levitical cities in Josh. 21 and 1 Chron. 6. The Chronicler is clearly using the text of Josh. 21 as his literary source. In the original text in Joshua, the word is always written as a singular form but it is read in the reading tradition as a plural: מִגַּרְשֹׁגֱה. This reflects a later interpretation of an originally singular form as a plural (Barr 1984). This ‘later’ interpretation, however, is no later than the consonantal text of Chronicles, where it is written as a plural. Even if we do not attribute this interpretation to the author of the Chronicles passage, there are good grounds for arguing that the text of the reading tradition of Josh. 21 is as old as the consonantal text of 1 Chron. 6.  

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53 This is found particularly in ‘popular’ texts such as 1QIṣa; cf. Kutscher (1979, 519–21).

54 For the antiquity of the reading tradition see the discussion in Barr (1968, 207–22) and Grabbe (1977, 179–97). Maimon Cohen (2007) argues that the qere variants listed in the Masoretic notes are linguistic
In Late Biblical Hebrew, certain verbs with a reflexive or non-agentive meaning appear as *nifʿal* in the past suffix conjugation form (perfect) whereas they appear as *qal* in Classical Biblical Hebrew. The intransitive form of the verb ‘to stumble’ (כָּשֵל), for example, appears in the *nifʿal* נִכְשֵל in the book of Daniel (וִ֝בִכָּשֵל ‘and he will stumble’ Dan. 11.19) but in the *qal* form כָּשֵל elsewhere. In the prefix conjugation (imperfect), however, the verb is vocalized as a *nifʿal* throughout the Bible. This is because the *ketiv* of the prefix conjugation (יכשל) is ambiguous as to the verbal conjugation and could, in principle, be read as *qal* or *nifʿal*. The Tiberian reading tradition treats the verbal forms as *nifʿal* where this would be compatible with the consonantal text, but the occurrence of the *qal* form in the suffix conjugation in Classical Biblical Hebrew suggests that the verb was originally read as *qal* in all forms. This is clearly the case in the infinitive form of this verb וֹ֗וִיכָשֵל (Prov. 24.17), where the consonant text lacks the initial he of the *nifʿal* (וכָּשֵל) and so must have represented the *qal*, but it is nevertheless read as a *nifʿal*. The crucial point is that the replacement of the *qal* by the *nifʿal* is reflected by the consonantal text itself in Late Biblical Hebrew in the book of Daniel. In some cases, the evidence for the development of an original *qal* verb into a *nifʿal* form that is independent of the vocalization is found in the Qumran manuscripts from the Second Temple period many centuries before the creation of the vocalization sign system. This applies, for example, to the verb נָּגְשׁ ‘to approach’. On account of the assimilation of the initial *nun* in this variants that date back to the time of the composition of the biblical books.
verb when in contact with the following consonant, the orthography of the prefix conjugation can only be read as qal (יִגַש), since a nifʿal reading would require the insertion of a nun in the consonantal text (גָוש). The orthography of the suffix conjugation form (גָוש), however, could be read as either qal or nifʿal, and it is the nifʿal reading that was adopted in the reading tradition (גָוש). In the Qumran text 4Q512 (40–41, 2) the infinitive of this verb appears in the form בהונגש, which is unambiguously a nifʿal (בְּהוֹנָגש) (Ariel 2013, 947). Similar distinctions between the suffix conjugation and prefix conjugation of passive forms are found, whereby the former is vocalized as puʿal whereas the latter is vocalized as nifʿal (א.ג. ‘was torn apart’ vs. לָטורה). Furthermore, the vocalization interprets certain verbs as piʿel, which are likely to have been originally qal. The verb גרש ‘to drive out’, for example, is normally vocalized as piʿel in the prefix and suffix conjugations (וֹגרַשׁ, תָּרַשׁ), in which the orthography is ambiguous between a qal or piʿel reading. In the participles, however, where the orthography of qal and piʿel would be distinct, the original qal is preserved (וְגוֹרַשׁ, לָרַשׁ). The shifts of puʿal to nifʿal and qal to piʿel are developments that are attested in Post-biblical Hebrew already in Second Temple sources.55

Another case of correspondence of the ketiv of late books with that of the qere of earlier books is the word ‘Jerusalem’. The

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55 For these issues relating to the vocalization of verbal forms see Ginsberg (1934), Ben-Ḥayyim (1958, 237), Qimron (1986) and Fassberg (2001). For further re-interpretations of the Masoretic orthography in the Samaritan reading tradition see Ben-Ḥayyim (2000, 338–339) and Schorch (2004).
regular *ketiv* or this word in the earlier books is יְרוּשָׁלַם, whereas the *qere* is יְרוּשָּׁלַם [jərʊʃaˈlajm] with the final syllable broken by a glide. In some of the late books, there are a few examples of the *ketiv* of this work spelt with a *yod* before the final *mem*, e.g. מִירָוֹשָלָם (Esther 2.6).

External evidence for the antiquity of the *qere* includes the fact that in many cases where there is a semantic difference between the *qere* and the *ketiv*, the meaning of the *qere* is reflected by the Greek Septuagint. A clear example of this is the exegetical alteration in the reading tradition whereby an original expression of ‘seeing the face of God’ is changed into the theologically more acceptable ‘appearing before God’ by reading the verb as a *nifʿal* rather than as a *qal*, e.g. Deut. 16.16 השלייח פְּתַחְתָּו שָל וֹש פ עָמִ ים בַשָנָָ֡ה יֵרָא ַּ֨ה כָּל־אֱלֹה ָּ י כוּר ךִָ֜ א ת־פ נֵ י ָּ֗י הוָ ה

‘Three times a year all your males shall appear before the Lord, your God’. This change is clear where the verb is an infinitive and it lacks the expected initial *he* of the *nifʿal* form in the consonantal text, e.g. Exod. 34.24 בַעֲלָֹּתךָ לֵרָאוֹת א ת־פ נֵי י הוָ ה אֱלֹה  יךָ

‘When you go up to appear before the Lord, your God’. This change in the reading tradition is reflected not only in the Targums but also already in the Septuagint (C. McCarthy 1981, 197–202), the Pentateuch section of which is normally dated to the third century B.C.E.

One example that demonstrates the conservative nature of the phonology of the Tiberian reading is the pronunciation of the *pe* in the word נְפֶרֶךְ ‘his palace’ (Dan. 11.45). According to medieval sources, this was pronounced as an emphatic unaspirated stop, whereas the letter *pe* with *dagesh* in all other places in the reading tradition was pronounced as an aspirated...
stop, i.e. a stop followed by a short flow of air before the onset of the voicing for the ensuing vowel (§I.1.17.). The hard pronunciation of the pe is also mentioned by Jerome, who states that it is the only ‘Latin’ p in the entire Bible (p in Latin was regularly pronounced as an unaspirated stop).56 The hard pronunciation is also reflected by the Greek transcription Απαδανω by the Church father Theodoretus (fifth century CE). Here the Hebrew letter is with Greek ψ (i.e. Latin p), which, like Latin p, was pronounced as unaspirated [p].57 The word is in origin a loan from Old Persian. The unaspirated pronunciation of the pe, which is uncharacteristic of Hebrew, evidently preserves a feature that existed in the pronunciation of the source language.58 The fact that this feature, which conflicted with normal Hebrew pronunciation, should have been preserved from the original

56 Notandum autem quod cum pe littera hebraeus sermo non habeat, sed pro ipsa utatur phe cuius uim graecum φ sonat—in isto tantum loco apud Hebraeos scribatur quidem phe sed legatur pe. ‘But it should be noted that while Hebrew speech does not have the letter pe (i.e., Latin p [p]), but instead of it uses phe, the force of which is approximated by the sound of Greek φ (i.e., [ph])—in that particular place (i.e., Dan. 11.45) among the Hebrews phe (i.e., ψ [ph]) indeed is written but it is read as pe (i.e., Latin p [p])’. Translation by Ben Kantor. Cf. Sutcliffe (1948, 124–25).

57 Some Greek transcriptions represent the Hebrew pe with Greek ϕί (i.e. aspirated [pʰ]), e.g. εφαδανω (Theodotion, second century C.E.), εϕαδανω / αϕαδανω (Polychronios, fifth century C.E.). These could be interpreted as reflecting variant reading traditions. The Greek data were supplied by Ben Kantor.

58 Steiner (1993).
period of composition right down to the period of the Masoretes, centuries after contact of the transmitters of the tradition with the source language had ceased, demonstrates great conservatism in the Tiberian reading tradition.

Another relevant issue in this context is the pronunciation of the letter א, which is read in the Tiberian reading tradition in two ways, distinguished in the vocalization by points, namely either as [ʃ] (šin) or as [s] (sin), the latter being equivalent to the sound of the letter ס (samekh). It is clear that the reading tradition of א differed from the original pronunciation of the letter in the pre-exilic period when Hebrew was first committed to writing, otherwise the letter ס would regularly appear in the orthography where the reading tradition pronounces the sound [s].

It is noteworthy, however, that roots and words that were

59 This orthographic phenomenon can be interpreted in two ways. The pre-exilic א may have been pronounced as a single sound, presumably [ʃ], in all contexts. Possible evidence for this is the fact that in the Samaritan reading tradition the letter is always pronounced [ʃ], including where the Tiberian tradition has sin. This feature of the Samaritan reading tradition may have its roots in a type of pronunciation that existed side by side with the Tiberian type in the Second Temple Period. Alternatively, the letter א in the pre-exilic orthography may have been intended to represent two sounds, which, according to this interpretation, are normally thought to have been [ʃ] and a lateral sibilant resembling the lateral s [ɬ] of Modern South Arabian languages. In the Second Temple Period the lateral sibilant would have shifted to [s]. It should be taken into account, furthermore, that both of these alternative types of pronunciation of א may have existed in the pre-exilic period. The necessity to use a single letter to
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regularly spelt with *sin* in pre-exilic books are occasionally spelt interchangeably with *sin* and *samekh* in later books, e.g.

Ezra 4.5: חַגְרַהוּ וְאֱלֹהִים ‘and they hire’ vs. 2 Chron. 24.12 שֹכְרָים

The letters *sin* and *samekh* occasionally interchange in proper names in the late books, e.g.

Ezra 4.11: אַרְתַּחְשֶׁסְתָּא אֲרָתָה ‘Artaxerxes’ vs. Ezra 7.1 אַרְתָּחַשֶׁסְתָּא

Such cases of interchange between the written letters *sin* and *samekh* are sporadic and most likely unintentional deviations from the standard orthography that reflect the interference of contemporary pronunciation.

In Rabbinic literature, the *qere* of *sin* is sometimes referred to as *samekh* and its *ketiv* as *shin*. In these sources, the reading (*qere*) of the letter *sin* is identified with that of *samekh*. Interchanges of orthography such as וּסֹכְרִים and שֹכְרִים, therefore, constitute another case of the *qere* being datable to the Second Temple Period by orthographic variations internal to the consonantal text.

In some manuscripts with Palestinian and Babylonian vocalization, the letter *sin* is distinguished from *shin* by writing over *sin* a miniature ג (samekh) and over *shin* a miniature ש (shin) (Revell 1970a, 87; Kahle 1902, 11). In some manuscripts with Palestinian vocalization written in abbreviated form (known as

represent two sounds arose from the fact the alphabet used to write Hebrew was in origin the one that was developed to represent Phoenician, in which the two sibilant sounds in question were not distinguished.

*Steiner (1996).*
a letter \textit{samekh} is written in place of \textit{sin} (Revell 1977, 66).

There is some evidence that the placement of \textit{samekh} over the letter \( \text{ש} \) as a diacritical sign for \textit{sin} was an ancient practice with roots in the period in which the \textit{ketiv} was being stabilized, i.e. the Second Temple period. One persuasive case is the variant spellings of the following proper name in the books of Nehemiah and Ezra:

Neh. 7.52. L: נפישים, \textit{qere} note: נפישים, i.e. the \textit{qere} is נפישים.

Ezra 2.50. L: נפיסים, \textit{qere} note נפיסים, i.e. the \textit{qere} is נפיסים.

If we leave aside the difference between the \textit{ketiv} and the \textit{qere} regarding the medial vowel in this name, the spelling with the added \textit{shin} in Neh. 7.52 נפישים could be explained as the result of the fact that the spelling was originally נפישים with a superscribed \textit{samekh} over the \textit{ש} to indicate that it should be read as \textit{sin}. The \textit{samekh} was subsequently incorporated into the line of the text by scribal error.\footnote{Cf. Honeyman (1944).} The reading of the first letter of the sequence \textit{שס} as \textit{shin} is likely to have been a later orthoepic measure to ensure that the two letters were read distinctly (§I.0.11.). The form נפישים in Ezra 2.50 with \textit{samekh} is presumably an orthographic variant of the original form נפישים with \textit{sin}. If this is the correct explanation, then this is further evidence for the equivalence of \textit{samekh} and \textit{sin} at an early period.

It should be pointed out that in \textit{qere} notes in the medieval manuscripts a \textit{sin} of the \textit{ketiv} is spelt \( \text{ש} \) and not \( \text{ס} \), e.g.
Ezra 4.23. L: אַר תַח שַ ש ת, qere note:_HP, i.e. the qere is תַח שַ ש ת.

Ezra 10.37: L: יַעֲשָ, qere note: יַעֲשָ, i.e. the qere is יַעֲשָ.

Ezra 10.44. L: יַנְש, qere note: יַנְש, i.e. the qere is יַנְש.

In such cases, the focus of the qere note is not on the sin but rather on other letters in the ketiv. It may be for this reason that it has not been replaced by samekh in the note. Moreover, the purpose of the qere notes was to supply an appropriate orthography of the qere. Within the norms of the biblical orthography, ש was an appropriate orthography of [s] and so there was no need to alter it.

Another indicator that the roots of the Tiberian reading tradition were in the Second Temple period is its close relationship with the Babylonian reading tradition, which is reflected by manuscripts with Babylonian vocalization. This close relationship between two branches of tradition transmitted in different geographical locations is most easily explained through the comparative method of historical linguistics as the result of a common genetic connection in a single location at an earlier period. The most obvious place of origin would be Second Temple Palestine. Just as the written text of both the Babylonian tradition and the Tiberian tradition has its origins in a proto-Masoretic text of the Second Temple Period, it is likely that there was a proto-Masoretic reading tradition, which likewise split into an eastern and western branch. This proto-Masoretic

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62 For the phenomenon of the proto-Masoretic text-type in the Second Temple sources see Tov (2012).
The Tiberian Pronunciation Tradition of Biblical Hebrew

reading tradition was clearly distinct from the Samaritan reading tradition, which itself exhibits some features that can be correlated with Second Temple sources, such as the long pronominal forms (attimma, -kimma).\(^{63}\)

As remarked, there is evidence of great conservatism in some elements of the Tiberian reading tradition, such as the pe of וֹאַפַד נ (Dan. 11.45), but a comparison of the Tiberian and Babylonian branches of the biblical reading tradition shows that in some features the Babylonian reading appears to be more linguistically conservative. This is shown by the fact the Babylonian tradition sometimes has parallels with earlier sources that are lacking in the Tiberian tradition. For example, the preservation of an /a/ vowel in unstressed closed syllables that is found in the transcriptions of the Septuagint, Origen and Jerome is a feature of Babylonian pronunciation, whereas this vowel is more widely attenuated to /i/ in the Tiberian tradition, e.g. Septuagint מַבָּסָר ‘Mabsar’ (Tiberian: מַבָּסָר, 1 Chron. 1.53),\(^ {64}\) Origen’s Hexapla λαμαλαμα ‘for the battle’ (Tiberian: לַמִּל חָמֶה Psa. 18.40),\(^ {65}\) Jerome: macne ‘cattle’ (Tiberian: מִכְנֵה),\(^ {66}\) Babylonian מַבָּסָר [mavˈsːɑːr].\(^ {67}\) Babylonian corresponds to Origen and Jerome and also to some Qumran texts in preserving the unstressed /o/ vowel

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\(^{64}\) Sperber (1937, 191).

\(^{65}\) Brønno (1943, 387).

\(^{66}\) Siegfried (1884, 50), Sperber (1937, 192).

\(^{67}\) Yeivin (1985, para. 41.46).
in prefix conjugation verbs where it is reduced to *shewa* in Tibe-
rian, e.g. תִּיצְבֶלֶנֶה (`you will
plunge me’),\(^ {68}\) cf. Origen ἰεφφολοῦ (= יִּיצְבֶלֶנֶה Psa. 18.39),\(^ {69}\) Jerome
*iezbuleni* `he will honour me’ (Tiberian: יִּיצְבֶלֶנֶה Gen. 30.20),\(^ {70}\) and
the frequent occurrence of *vav* in the Qumran manuscripts after
the second radical of prefix conjugation verbs where Tiberian has
*shewa*, e.g. יִּיצְבֶלֶנֶה, יִּיצְבָּלֶנֶה, יִּיצְבָּלֶנֶה.\(^ {71}\)

Some features of the Tiberian reading that differ from Bab-
ylonian may have developed under the influence of the vernacu-
lar Aramaic of the Jews of Palestine. It is not clear whether this
applies to the aforementioned features, but we can identify a pos-
sible case of influence in the pronunciation of consonantal *vav.*

We know from medieval sources that in the Tiberian reading tra-
dition of Biblical Hebrew the default pronunciation of this letter
was a labio-dental [v] (§I.1.6.). In Jewish Palestinian Aramaic,
*vav* appears to have had the same labio-dental pronunciation.
This is shown by the interchange of *vav* and fricative *bet* in Jewish
Palestinian Aramaic texts and Rabbinic Hebrew of sources of Pal-
estinian provenance. The fact that fricative *bet* in these texts also
sometimes shifts to *pe* due to devoicing shows that it must have

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\(^ {68}\) Yeivin (1985, para. 16.36).

\(^ {69}\) Janssens (1982, 92).

\(^ {70}\) Siegfried (1884, 48), Sperber (1937, 158).

\(^ {71}\) Qimron (1986, 50; 2018, 195-196), Reymond (2014, 209–21). For
the parallels between these Qumran forms and the medieval Babylonian
tradition see Yeivin (1972).
been labio-dental and this implies that vav also was labio-dental.\textsuperscript{72} There is also evidence of the pronunciation of vav as a labio-dental in Mishnaic Hebrew, in that vav in some words corresponds to bet in Biblical Hebrew and vav and bet interchange in the orthography of some manuscripts, e.g.

\[ \text{לָהּוּ נִ} \] 'he has disfigured her' (\textit{Soṭah} 1.7); cf. Biblical Hebrew

\[ \text{לְבִּי} \] (M. H. Segal 1927, 34–35)

\[ \text{אֲבָזִים ~ אֲוָזִים} \] 'geese' (Bar-Asher 2015, 61-62)

The shift in the pronunciation of vav to a labio-dental in Aramaic and Hebrew in late antique Palestine is likely to be due to convergence with a shift of [w] to [v] in Greek at this period (Kantor and Khan forthcoming).\textsuperscript{73}

The Babylonian tradition itself appears to have undergone some change due to the influence of the local vernacular, which resulted in a number of features that differed from Tiberian due to their being innovative rather than conservative. One such feature that is characteristic of the Babylonian pronunciation tradition is the shift of ḫolem to šere, which is reflected in the vocalized

\textsuperscript{72} A. Ben-David (1960, 255), Kutscher (1976, 16–17), Sokoloff (1968, 30), Epstein (1964, 1223–26). This pronunciation of vav can also be reconstructed in the Samaritan tradition of Hebrew (Ben-Ḥayyim 2000, 33).

\textsuperscript{73} Possible evidence for the embryonic merging of vav and fricative bet in Palestine is found already in some Qumran manuscripts, see Qimron (2018, 122) (I am grateful to Noam Mizrahi for drawing my attention to this).
manuscripts by an interchange of these two vowels.\textsuperscript{74} The Karaite scholar al-Qirqisānī writing in the tenth century C.E. attributes this feature to influence from the language of the ‘Nabāṭ’, i.e. the Aramaic speaking population of Iraq.\textsuperscript{75} The fronting of back vowels is still a feature of modern vernacular Iranian dialects in western Iran, including those spoken by Jews (Borjian 2012, 9, §D14).

One aspect of Tiberian vocalization that several scholars have identified as an indicator of the antiquity of the reading tradition is the apparent historical layering of variant types of vocalization of words with the same orthography across different Biblical books. These are differences in vocalization between words in late biblical books and corresponding words in earlier biblical books. In such cases, the vocalization found in the later books often corresponds to a type of vocalization that is characteristic of Rabbinic Hebrew or Aramaic, i.e. languages associated with the language situation in the Second Temple Period rather than the pre-exilic period. In two cases in Chronicles, for example, the nifʿal of the verb דִּיָּל is vocalized in an unusual way, with shureq rather than ḥolem and dagesh in the middle radical: וּנִל ד ‘they were born’ (1 Chron. 3.5, 20.8). This morphological feature is not found in the vocalization of the earlier books but is found in some traditions of Rabbinic Hebrew.\textsuperscript{76} The vocalization of these forms apparently reflects a dialectal form of morphology

\textsuperscript{74} Yeivin (1985, para. 11.6).

\textsuperscript{75} Cf. al-Qirqisānī (Kitāb al-ʾAnwār w-al-Marāqib, ed. Nemoy 1939, vol. 2: 140).

\textsuperscript{76} Cf. Yalon (1964, 152–57) and the references cited in Morag (1974, 310).
that was current in the time of the Chronicler. By implication, the vocalization of the earlier books must reflect a different, presumably slightly earlier tradition (Morag 1974). A further example is the difference in vocalization between אָמָלָל ‘feeble’ (Psa. 6.3) and אָמָלִים ‘the feeble’ (Neh. 3.34). The vocalization אָמָלִים in the late biblical book reflects the one that is used in Rabbinic sources (Boyarin 1988, 63–64). The dual of the noun קִרְבּ in Hab. 3.4, with the normal pattern of the dual, but קִרְבּוֹ in Dan. 8 (verses 3, 6, 20), with the pattern of the stem of plural nouns, as is found in early vocalized manuscripts of the Mishnah (Kister 1992, 47, n.9; 1998, 246, n.9). The form מָרָב ‘Arab(ian)’ occurs in pre-exilic sources, whereas the word has the vocalization מָרִיב, corresponding to that of Aramaic, in post-exilic sources (Nehemiah and Chronicles) (Steiner 2016, 313). There is a difference in vocalization between הלִלְיוֹם (1 Chron. 14.4) and הלִלִים in the parallel passage in 2 Sam 5.14. The word חֲבֹל in the phrase וּחֲבֹל חָבַל נ ‘we have acted corruptly’ (Neh. 1.7) is vocalized with the vocalic pattern of an infinitive construct in a context where the vocalic pattern of an infinitive absolute may have been expected in earlier books. In Dan. 11.20 the construct of the noun הָדָר ‘glory’ is vocalized הֲדַר, rather than הָדָר, which is the vocalic pattern of the construct in earlier books.  

Such differences in vocalization across pre-exilic and post-exilic books constitute strong evidence for the argument that  

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77 These last three cases are noted by Jan Joosten, paper delivered at the conference The exegetical value of the Masora: Pointing and accentuation in historical perspective (Oxford, 7-8 November, 2016).
there is historical layering in the reading tradition reflected by the medieval vocalization. The variant types of morphophonology in the late books, which often correspond in form to Rabbinic Hebrew or Aramaic, would have become incorporated into the reading tradition of the late books at some point in the Second Temple Period, whereas the variants found in the earlier books must reflect an earlier stage in the development of the biblical reading tradition. Crucially the later types of morphophonology were not extended to the reading tradition of the earlier books.

I would like to explore in greater detail the last point, i.e. the fact that the late morphophonology in the forms in question was not applied uniformly across the reading of all books. We have, in fact, already seen some counterexamples to this phenomenon. Attention was drawn above to the phenomenon whereby innovations in verbal patterns that are characteristic of the Second Temple Period (i.e. shifts of intransitive qal to nifʿal and transitive qal to piʿel) were extended to the vocalism of the earlier books. There are also cases of exegetical harmonization whereby the vocalism of words in late books is extended to parallel phrases in earlier books that have an orthography reflecting a different meaning. An example of this is the word מָרָשִׁים ‘surrounding pasture-lands’ in 1 Chron. 6. As remarked, the Chronicler is clearly using as his literary source the text of Josh. 21, in which the word is written as a singular form but it is read in the reading tradition as a plural: מָרָשִׁים. This reflects a later interpretation of an originally singular form as a plural. This ‘later’ interpretation is reflected also by the consonantal text of
Chronicles, where it is written as a plural. The later interpretation has been extended to the reading tradition of the earlier book.

It should be taken into account that there are a number of other variations in Tiberian vocalization within the biblical corpus that cannot easily be correlated with chronological layering.\(^78\) These include, for example:

(1) Variations in the use of *dagesh* in the same lexeme such as בָּס ‘let it go round’ (1 Sam 5.8) vs. בָּס ‘it goes round’ (1 Kings 7.15); בָּשָּׁם ‘his wound’ (Isa. 53.5) vs. בָּשָּׁם ‘my wound’ (Gen. 4.23)

(2) Variations in *ḥaṭef* vowels in the same lexeme, such as בָּשָּׁם ‘they consider’ (Isa. 13:17) vs. בָּשָּׁם ‘they conceive’ (Psa. 35:20)

(3) Variation between *hireq* and *segol* in the same lexeme, as in בָּשָּׁם ‘and he carried into exile’ (2 Kings 24.14) vs. בָּשָּׁם ‘he carried into exile’ (Jer. 52.28), or at least in the same morpheme, as in בָּשָּׁם ‘and I will be honoured’ (Isa. 49.5) vs. בָּשָּׁם ‘I will be asked’ (Ezek. 36.37).

(4) Variations between *qibbuṣ* and short *qameṣ* as the reflex of a historical short *u* in the same lexeme or in similar contexts, e.g. בָּשָּׁם (Psa. 150.2) vs. בָּשָּׁם ‘his greatness’ (Deut. 11.2).

(5) Occasionally a *ḥaṭef qameṣ* occurs in a prefix conjugation verb (imperfect) before a pronominal suffix or a cohortative suffix rather than the normal vocalization with *shewa*

\(^78\) Several of these were noted by Nöldeke (1912).
in such contexts. This reflects the lack of complete reduction of the vowel that occurs after the second radical in forms without suffixes, e.g. וּאֶשֶלֶן ‘I will plant it (m)’ (Ezek. 17.23), וָאֶשֶׁכָּל ‘and I weighed’ (Ezra 8.25), אֲלַקְּנַה ‘let me glean’ (Ruth 2.7).

(6) Variations between šere and pataḥ in the stem of pi’el verbal forms, e.g. יָדַל ‘[who] has brought up?’ (Isa. 49.21) vs. בָּדֶל ‘he made great’ (Josh. 4.14).

(7) Variations between hireq and šere before gutturals in pi’el verbs, e.g. נִאֵר (Lam. 2.7, ‘he has spurned’) vs. מֵאֵן ‘he has refused’ (Num. 22.13).

The key question is whether the types of variation in Tiberian vocalization discussed above, diachronic and synchronic, have any semantic or exegetical significance.

Some morphophonemic variations are exploited to express distinctions in meaning in various reading traditions of the Hebrew Bible. There are many examples of this in the Samaritan tradition of reading. Typically the pairs of variant patterns of a word in the Samaritan tradition consist of one member that is conservative and another member that is innovative by a process of analogy or assimilation to an Aramaic form, or two members that are originally morphophonemic alternants that have now become distinct in meaning.79 Many of these distinctions are between different grammatical categories of lexical items.

79 See in particular Florentin (1996) for examples of this phenomenon.
Internal differences in vocalism have developed, for example, between wayyiqtol past forms and yiqtol non-past forms, e.g.\textsuperscript{80} 

\begin{align*}
\text{wt\textbar r\textbar d} \text{ ‘and she went down’ (Tiberian דַּרְכָּא)}, \text{ by analogy with the pattern qåṭ\textbar ål vs. té\textbar råd ‘she goes down’ (non-past, Tiberian דַּרְכָּא, דַּרְכָּא)}
\end{align*}

A morphophonemic distinction is made in the Samaritan tradition between verbal and nominal participles, e.g.

\begin{align*}
\text{q-w-m ‘to rise’: qā\textbar ūm (verbal, based on Aramaic) vs. qam (nominal)} \\
\text{nif\textbar al form: niqqåṭål (past verbal, by analogy with imperfect yiqqåṭål) vs. niqåṭål (nominal)}
\end{align*}

There are a number of cases of variants of a single lexeme with and without gemination of one of the consonants to express distinctions in meaning, e.g.

\begin{align*}
\text{ā\textbar dåni ‘Lord’ (divine) vs. ā\textbar danni ‘master’ (human)}\textsuperscript{81} \\
\text{ā\textbar}s\textbar īdå ‘the stork’ (animal) (Tiberian דְַַ֑סִיד הַחֲסִידָּ הַחֲסִידָּּ Lev. 11.19) vs. assidåk ‘your pious one’ (human) (Tiberian הַחֲסִידָּּ הַחֲסִידָּּ Deut. 33.8)\textsuperscript{82} \\
\text{yam\textbar ən ‘Yamin’ (proper name) (Tiberian יָמִַ֥ין Gen. 46.10) vs. yamm\textbar ən ‘right hand’ (Tiberian יָמִַ֥ין).}\textsuperscript{83}
\end{align*}

\textsuperscript{80} The transcription system of Ben-Ḥayyim and Florentin is adopted here.

\textsuperscript{81} Ben-Ḥayyim (1957a-77, vol. 4, 8-9, vol. 5, 194; 2000, 260).

\textsuperscript{82} Florentin (1996, 231).

\textsuperscript{83} Florentin (1996, 234).
wyāḇād ‘and he perished (past)’ (< *yaʿābad, Tiberian דָּבָא) vs. yāḇād ‘he perishes (non-past)’ (< *yaʿābad with assimilation of the /ʾ/ to the /b/, Tiberian דָּבָא), i.e. a pair of alternants such as Tiberian יַחַשְּבָה (Isa. 13:17) vs. יַחַשְּב (Psa. 35:20) has come to express a difference in meaning.84

ʿarəm ‘the cities’ (Tiberian סְפִיר) vs. ʿarrəm ‘cities’ (Tiberian סְפִיר)85

wāmā ‘and the cubit’ (Tiberian הָאַמָה) vs. wāmmā ‘and a cubit’ (Tiberian הָאַמָה)86

Most of the cases of synchronic variation listed in (1)–(7) above do not appear to have semantic or exegetical significance. Many of these types of variation in the Tiberian vocalization are not found, or only very marginally found, in the Babylonian tradition of vocalization, i.e. the other descendant of what I propose to identify as the proto-Masoretic reading tradition. This is either because the Babylonian tradition is more conservative of the proto-Masoretic reading of the particular feature in question whereas the Tiberian variation is a later development or the Babylonian tradition has levelled variation that has been preserved by the Tiberian tradition. In the list of features (1)–(7)

84 Florentin (1996, 218). This particular minimal pair is not attested in the Samaritan Pentateuch, but it can be inferred from the contrasting patterns used for the attested forms of the past and non-past, e.g. wyāḇāḏu יָבָא ‘and they perished’ (Num. 16:33) vs. tāḇāḏ דָּבָא ‘it becomes lost’ (Deut. 22:3).

85 Ben-Ḥayyim (2000, 92).

86 Ben-Ḥayyim (2000, 92).
above the Babylonian tradition lacks variation in features (3)–
(7). In features (3)–(5) it is more conservative and in features (6)–
(7) it has levelled earlier variation. These are presented as (3a)–
(7a) below:

(3a) והגלה ‘and he carried into exile’ (2 Kings 24.14): [hiʁˈlɔː]87

והגלה ‘he carried into exile’ (Jer. 52.28): [hiʁˈlɔː]88

ואכבד ‘and I will be honoured’ (Isa. 49.5): [ʔikkɔˈvaː]89

ואדרש ‘I will be asked’ (Ezek. 36.37): [ʔiddɔˈraːʃ]90

(4a) The Babylonian reading tradition normally preserves a his-
torical short *u where in Tiberian it shifts to short /ɔ/ 
(qameṣ), e.g.

זַדָּל ‘his greatness’ (Deut. 11.2): [ɡuðˈloː]91

חכמה ‘wisdom’ (Jer. 49.7): [ħuχˈmɔː]92

87 Yeivin (1985, 302). The transcriptions of the examples with Babylo-
nian vocalization are in some cases approximations, since there is un-
certainty regarding the precise realization of some of the phonetic seg-
ments in the Babylonian pronunciation.

88 Yeivin (1985, 144).

89 Yeivin (1985, 505).

90 Yeivin (1985, 505).

91 Yeivin (1985, §37.12).

92 Yeivin (1985, §37.18).
In the Babylonian reading tradition, it is the norm for the vowel of the prefix conjugation verbal stem to be preserved before suffixes, e.g.

‘I will remember him’ (Jer. 31.20): גַּוֹנְרֵ֑נִי [ʔizko'ranu:]  
‘you will plunge me’ (Job 9.31): וּזְבֵלֵֽן [titbo'le:ni:]  
‘and we will inquire’ (2 Chron. 18.6): וִנְרֵַ֑שַׁה [wniðroʃe:]  
‘I will remember’ (Psa. 77.4): גָוּרֵ֑נִי [ʔizko'gan:]  

In the Babylonian reading tradition it is the norm for the vowel of the final syllable of the 3ms pi‘el to be pataḥ, e.g.

Isa. 49.21 ‘he brought up’ OB נָֽדֹּר [ʁid'da:l]  
Isa. 1.12 ‘he asked’ OB בָּקַֽשׁ [viq'qaʃ]  

The Babylonian vocalization reflects a tradition in which it is the norm for the vowel to be šere before a guttural in the pi‘el, e.g.

‘it will deny’ (Job 8.18): שָֽמַג [wχe'haʃ]  
‘and he will serve as a priest’ (Exod. 40.13): קַֽהֵן [wχe'ha:n]  

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93 Yeivin (1985, §24.1).  
95 Yeivin (1985, §20.01).  
96 Yeivin (1985, §20.06).
and it will graze’ (Exod. 22.4): רֵעֵב [wveʔaɾ]

‘he has spurned’ (Lam. 2.7): נִאֵר [neʔaɾ]

‘he renounced’ (Psa. 10.3): נִִ֘אֵ֥ץ [neʔasˁ]

It is unlikely, therefore, that synchronic variations such as those listed in (3)–(7) had any semantic or exegetical significance in the proto-Masoretic reading tradition, since they are either a later development in the Tiberian tradition without clear semantic significance or were early features but were eliminated in the Babylonian tradition. They were simply cases of internal morphophonemic variation that is common across languages.

The variations in the use of dagesh in the same lexeme in the specific examples cited under (1) above do not appear to have any semantic or exegetical significance. It should be noted, however, that several examples of dagesh distinguishing the meaning of doublets of the same lexeme or homophonous words can be found in the Tiberian tradition and this has been developed further in the Babylonian tradition. There are, for example, a number of homophonous pairs of words in the Tiberian tradition that are distinguished by dagesh. These include cases such אֲבִיר ‘powerful’ referring to God, used in the construct state in phrases such as אֲבִיר יַעֲקֹב ‘the Mighty One of Jacob’ (Gen. 49.24, Isa. 49.26, Isa. 60.16, Psa. 132.2, 5) vs. אַבִּיר ‘powerful’ used to refer to humans (for further details see §I.3.1.3.).

With regard to pairs of forms from the same lexeme exhibiting a variation between a haṭef vowel and silent shewa (as in כִּזְבֶּן vs. כִּזְבֶּן), in many such cases there appears to be a metrical motivation for the variation, which will be discussed in
§I.2.5.4. We have seen, however, that in the Samaritan tradition such a variation has been exploited to distinguish meaning in pairs such as wyābād ‘and he perished (past)’ (< *yaʿabad) vs. yābbād ‘he perishes (non-past)’ (< *yaʿbad). There is, indeed, one isolated example of the exploitation of such variation to express a semantic distinction in the Tiberian tradition, namely the difference in vocalization between the verb יָעַבְר ‘he supplants’ (Jer. 9.3) and the proper name יָעַבְר.

Returning now to the list of variant vocalizations from the late books, we should examine whether these had any semantic or exegetical significance. I should like to argue that there are indeed grounds for hypothesizing that many of the examples of such variations were motivated by an attempt to express a semantic distinction. It is relevant to note that these distinctions appear also in biblical manuscripts with Babylonian vocalization, so they must be attributed to the proto-Masoretic reading tradition. Some examples of semantic distinctions are as follows:

טָמָל ב (Neh. 3.34)

All cases of תָמָל ב and its inflections are predicative, most with clear verbal inflection. טָמָל ב is the only nominal form with nominal inflection (functioning as an attributive adjective): וְאִמְּלָל ב ‘and those who spread a net upon the water will languish’ (Isa. 19.8), ‘I am languishing’ (Psa. 6.3), vs. הָאָמַל ב ‘the feeble Jews’ (Neh. 3:34). This distinction in vocalism can be compared to the development of a

97 Examples of such forms that are attested in the manuscripts can be found in Yeivin (1985, 608, 843, 956, 1050).
distinction in vocalism between verbal and nominal participles in the Samaritan tradition.

נוּל ד/נוּל ד

Here again, the formal distinction appears to reflect a distinction between verbal and nominal categories. The form נוּל ד is the only inflection of the nifʿal of ילד that has transparent verbal inflection in the biblical corpus: ‘and these were born to him in Jerusalem’ (1 Chron. 3.5). Other attestations of the nifʿal of this verb are either in the singular form נוּל ד, which is explicitly adjectival, or נוּל ד with pataḥ but often used impersonally without agreement with a plural subject, so both may have been interpreted as adjectival, e.g. ‘behold a son is born’ (1 Kings 13.2), אֲשֶׁר נָּוֹלַד־ל֖וֹ וַאֵל ה הָיוּ ב נֵי דָוִֽי ד ‘These are the sons of David that were born to him in Hebron’ (1 Chron. 3.1).

יִלוֹד/יָלוּד

There may be a distinction also here between nominal and verbal participles. Targum Jonathan to (2 Sam 5.14) clearly interprets ילד as a verbal participle: ‘These are the names of the ones who were born to him in Jerusalem’. The form ילד is clearly used as a noun in some contexts, e.g. ילד, ‘the living child’ (noun) (1 Kings 3:26); cf. Targum Jonathan: ילד תיָוִים. Targum Jonathan to (1 Chron. 14.4), the parallel to 2 Sam 5.14, is ילד תיָוִים אֲשֶׁר הָיוּ ב יְרוּשָׁלַֽם and these are the names of the ones who were born who were being
raised/were adolescents in Jerusalem’. This Targumic rendering of 1 Chron. 14.4 seems to reflect a nominal interpretation of the participle, presumably motivated by the added relative modifier phrase אֲשֶׁר הָיָה, which would typically take a nominal antecedent.

The two forms of these apparently synonymous construct forms in the biblical corpus express a distinction between ‘divine glory’ (הֲדַר) and ‘human glory’ (הֲדַר), e.g. ‘the glory of His kingdom’ (God’s glory) (Psa. 145.12) vs. ‘glory of the kingdom (human glory)’ (Dan. 11.20). As we have seen above, the practice of using gemination to express semantic distinction is often applied to separate the usage of the same lexeme in divine and human contexts, e.g. אֲבִיר (divine) vs. אָבִיר (human) and examples cited above from the Samaritan and Babylonian traditions.

There is a distinction in meaning here between ‘desert nomad’ (עֲרָבִי) and ‘a gentilic term of an ethnic group’ (עַרְבִי), ‘and no desert nomad/Arab will pitch his tent there’ (Isa. 13.20) vs. ‘Geshem the Arab’ (Neh. 2.19). One may compare this to the formal distinction in Arabic between ʾaʿrābi ‘nomad of the desert’ vs. ʿarabi ‘Arab, Arabian’ (ethnic term).

The dual form קַרְנִים in Daniel chapter 8, which has a characteristically Rabbinic type of vocalization, has the meaning ‘horns’.
The form קַרְנֵי in Hab. 3.4, which has the normal dual vocalic pattern, has the meaning ‘rays (of light)’. This is the only other place where the word occurs in the biblical corpus as a common noun without a suffix or not in construct. The difference in vocalization, therefore, is likely to express a distinction in meaning between the two forms.98

חֲבֹל vs. חָבֹל

The infinitive absolute form חָבֹל immediately preceding the cognate verb occurs in Exod. 22.25 as an internal object with the meaning of ‘taking in pledge’: ‘If ever you take your neighbour’s garment in pledge’ (Exod. 22.25). Here the infinitive absolute is an inner object of the verb. It is connected to the verb by a conjunctive accent, which is typical for infinitive absolute internal objects; cf. שָׁבֹע אָשֶׁר literally: ‘I shall return a returning’ (Gen. 18.10). The construction חֲבֹל חָבַל (Neh. 1.7) differs prosodically from חָבֹל חָבַל (Exod. 22.25) in that the initial form חֲבֹל is separated from what follows by a disjunctive accent. The word חֲבֹל differs from חָבֹל semantically, in that it is from a different, albeit homophonous, lexical root. Finally it differs from it syntactically according to the interpretation reflected by the early versions, which treat it as an adverbial noun rather than an inner object: LXX διελύσαμεν ‘we have broken with a breaking [covenant]’, Vulgate: vanitate seducti sumus ‘we have been seduced by vanity’, rather than nominative active participles, which are the common translation technique of Greek and

98 See the remarks of Yeivin (1985, 844, n.74).
Latin for inner objects, e.g. נִּכְנֶה קָנֶה קָנֶה: LXX κτώμενος κτήσομαι ‘buying I shall buy’ (2 Sam 24.24).

We may summarize the hypothesis developed above regarding the formation of the reading tradition as follows. The variations in vocalization in the late biblical books are very likely to have had their origin in the language situation of the Second Temple Period. The proto-Masoretic reading tradition of the late books was fixed in the Second Temple Period and the distinctive late forms of vocalization discussed above are likely to reflect features of contemporary vernacular speech. At the time when the proto-Masoretic reading was fixed for the late books, a reading tradition was already in existence for the earlier books. During the Second Temple period, some of the innovative features of the reading of the late books were extended to the earlier books (e.g. the reading of intransitive qal verbs as nifʿal and the transitive qal as piʿel). Some of the innovative features of the later period, however, were not retroverted into the reading of the same lexemes in the earlier books, but rather the corresponding earlier forms were retained. One factor, perhaps the key factor, that motivated this retention of some of these distinct forms in the reading of the biblical corpus was the desire to distinguish different aspects of meaning or the distinction between homophonous lexemes. There were other cases of variation across the proto-Masoretic reading tradition as a whole, some most likely the result of synchronic language variation. Some of these variations were exploited to distinguish meaning (in particular, gemination). A large proportion of the synchronic
variation, however, did not have any semantic or exegetical significance. Some of this type of variation that survived in the Tiberian tradition was eliminated by levelling in the Babylonian tradition. Moreover, some new variation with no semantic significance developed in the Tiberian and Babylonian reading traditions after the two branches split from the proto-Masoretic tradition. The use of gemination to distinguish meaning within lexemes and between homophonous lexemes was extended further after the Tiberian and Babylonian branches had divided, especially in the Babylonian branch (§I.3.1.3.).

The exploitation of diachronic or synchronic morphophonemic variation to express distinctions in meaning was a form of inner-biblical exegesis. It should be pointed out, however, that similar processes occur in living spoken languages.99 One phenomenon that is directly analogous to the issue of diachronic variants discussed here is the phenomenon of doublets, which are found in many languages by a process of retaining older forms alongside new forms of the same lexeme with different meanings. An example from Neo-Aramaic is as follows. In the North-Eastern Neo-Aramaic dialects, a historical *ḡ develops into /ʾ/ or zero /∅/. So in the Barwar dialect100 *šaḡəš ‘to trouble; to dandle (a child)’ developed into ša∅əš, which is pronounced šayəš with a glide. The new form šayəš means specifically ‘to dandle, to rock (a child)’. The old form šaḡəš, however, is retained in the dialect with the meaning of ‘to trouble’. This is a strategy for reducing

99 I have described some cases from Neo-Aramaic dialects in Khan (2018a).

ambiguity in the meaning of a lexeme. Such a development is directly analogous to the hypothesized process described above whereby older forms were retained alongside new forms in the biblical reading tradition during the Second Temple as a strategy to reduce ambiguity and elucidate meaning in the biblical corpus.

I.0.9. **THE PRESTIGE OF THE TIBERIAN TRADITION**

Despite the fact that there are indications that the Tiberian pronunciation tradition had undergone linguistic change in the course of its transmission since splitting from the proto-Masoretic reading, in the Middle Ages the Tiberian reading tradition was regarded as the most prestigious and authoritative. The medieval sources justify this by the claim that the transmitters of the Tiberian tradition were able to preserve the original reading more accurately since they never left Palestine, unlike the diaspora communities. In reality, as we have seen, the Tiberian reading did undergo change and was, in many cases, less conservative than the Babylonian tradition. It is likely that the authoritative-ness of the Tiberian tradition had its roots primarily in its association with the Palestinian Yeshiva ‘Academy’, the central body of Jewish communal authority in Palestine, which was based in Tiberias from late antiquity until the Middle Ages.

After the Bar-Kochba revolt in the second century C.E., rabbinic leadership moved to the Galilee. Rabbi Joḥanan (d. 279 C.E.) established an academy in Tiberias. Subsequently, the

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1. Cf. the passages from al-Qirqisānī discussed in Khan (1990c) and the introduction of the long version of the Masoretic treatise *Hidāyat al-Qāri’* (§II.L.0.3. in the edition in this volume).
Jewish patriarch (*nasī*) relocated from Sepphoris to Tiberias, which transformed Tiberias into the Jewish capital of Palestine. A large number of Jewish sages who were active in Palestine in the Talmudic period studied in Tiberias. The Palestinian Talmud and most of the Aggadic Midrashim were redacted in the city (Rozenfeld 2010, 120–26). After the Islamic conquest of the city in 636, it became the capital of the administrative district known as Jund al-Urdunn. The city flourished between the eighth and tenth centuries, as is witnessed by archaeological records of its urban expansion, incorporating the neighbouring town of Hammat (Avni 2014, 72–78). During the ninth and tenth centuries, Tiberias was a thriving centre also of Muslim scholarship (Gil 1992, 329–30).

The association of the Masoretes with the Palestinian Ye-shiva is reflected by the fact some of the Masoretes had direct connections to this academy. One of the known Masoretes was indeed the ‘head of the Academy’, namely Pinḥas Rosh ha-Yeshiva (‘head of the Academy’), who lived in the ninth century. We also know of a certain ʾAḥiyahu ha-Kohen ha-Ḥaver, whose epithet ḥaver indicates that he was a ‘member of the Academy’.  

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102 See the *Treatise on the Shewa* edited by Levy (1936, 9), the document published by Mann (1969, 2:43–44) and Gil (1992, 179). The passage in the *Treatise on the Shewa* refers to the Tiberian pronunciation as a tradition that was received from ‘the men of the Great Assembly’ (אנשי הגדולה), which was the supreme legislative body in Palestine during the Second Temple Period.
The medieval sources describe how teachers from Tiberias would travel to various communities of the diaspora to give instruction in the Tiberian reading and how people from the diaspora communities would travel to Tiberias. We read, for example, in the introduction of the long version of the Masoretic treatise *Hidāyat al-Qāriʾ*:\(^{103}\)

‘The people in the communities of the exile would press any teacher who travelled (from Tiberias) to these distant lands to teach their children the reading of the Land of Israel and eagerly imbibed that from him, making him sit down so that they could assiduously learn it from him. Whoever came from the exile to the Land of Israel had a desire for the teaching of the reading of the Land of Israel that was equally ardent as that of those absent [i.e. those just mentioned who received teachers in diaspora lands] and for abstaining from his own (tradition of reading)’.

Similarly, we read in a medieval Karaite commentary on Genesis in a passage concerning Gen. 49.21:

The fact that he compared Naftali to ‘a hind let loose’ (אֵיבָלָ ה שָלָח, Gen. 49.21) is on account of what he foresaw by the help of prophecy, namely that he would be beautiful of voice, excellent in reading, excellent in speaking Hebrew. This is because from the inheritance of Naftali teachers and masters will go forth, such as Ben Asher and Ben Naftali. The Jews of the world follow the reading of these two teachers. This is the reading of Palestine, which has been disseminated throughout the corners of the world. The teachers of it have gone forth to the land of Iraq and other

\(^{103}\) Edition in vol. 2 of this book, §II.L.0.4.
The Tiberian Pronunciation Tradition of Biblical Hebrew places. They have taught people and written many copies (of manuscripts). He compared it (the inheritance of Naftali) here to a ‘hind let loose’, which is beloved and brought up in dwellings that bring ease to the heart, just as is the case with the teachers who were sent from the inheritance of Naftali to the lands of the exile to teach people the reading of Palestine. For that reason, he said ‘a hind let loose’. … The superbly beautiful reading has its origin in the inheritance of Naftali, namely the town of Tiberias, which is uniquely renowned for this. For this reason, he said ‘which gives words of beauty’ (תָּנָכִ֖ת אֲבֹרְנִ֥ים, Gen. 49.21), since the reading (of Tiberias) is the original one.\footnote{II Firk. Evr. Arab. II 4633, fol. 241r-241v: \(הַנֹתֵ֖ן אִמְרֵי־שָָּֽפְר, \) Gen. 49.21), since the reading (of Tiberias) is the original one.\footnote{II Firk. Evr. Arab. II 4633, fol. 241r-241v: \(הַנֹתֵ֖ן אִמְרֵי־שָָּֽפְר, \) Gen. 49.21), since the reading (of Tiberias) is the original one.104

The prestige and authoritative nature of the Tiberian reading are reflected in various ways.

Many manuscripts with Babylonian vocalization exhibit convergence with the Tiberian tradition of reading, eliminating thereby distinctly Babylonian features. In some manuscripts with Babylonian signs, there is almost total convergence with the

\footnote{This extract was published by Mann (1935, 2:104–5) with some mistakes in reading. The text above is the correct reading of the manuscript.}
Tiberian pronunciation tradition and additional signs were even created to ensure a maximally close correspondence.\textsuperscript{105}

The same applied to Biblical manuscripts with Palestinian vocalization. Many of these represent a reading tradition that is very close to the Tiberian one. This is almost certainly due to convergence, which involved the creation of signs to express vowel quality distinctions that did not occur in the Palestinian pronunciation.\textsuperscript{106} It should be noted that the background and status of the Palestinian tradition of pronouncing the Hebrew Bible were different from the Tiberian and Babylonian. When the author of \textit{Hidāyat al-Qāriʾ} refers to the reading of ‘the Land of Israel’, he is clearly referring to the Tiberian tradition, not the tradition of reading with Palestinian pronunciation. The term ‘the reading of Palestine’ (\textit{al-Shām}) in the passage from the Karaite commentary on Genesis is likewise referring to the Tiberian tradition. The Karaite scholar al-Qirqisānī (tenth century Iraq) discusses in his \textit{Kitāb al-ʾAnwār} the relative merits of the reading of Babylonia (\textit{{Irāq}) and the reading of Palestine (\textit{al-Shām}).\textsuperscript{107}

Here also what is intended is the Tiberian tradition. For al-Qirqisānī the Palestinian tradition of reading was not relevant in his discussion of authority. This appears to reflect the fact that the Palestinian pronunciation was a popular tradition of reading, which had no authoritative roots. Al-Qirqisānī’s focus on the Babylonian and Tiberian traditions reflects the fact that only these two traditions had claims to authority. It is likely that this

\textsuperscript{105} Yeivin (1985, 77–87).

\textsuperscript{106} Revell (1977), Chiesa (1978).

\textsuperscript{107} See the passages from al-Qirqisānī discussed in Khan (1990c).
was due to the fact they were both descendants of the original proto-Masoretic reading. Al-Qirqisānī maintains that of these two, the Tiberian is the most authoritative.

The distinctive features of Palestinian pronunciation, which are particularly discernible in the non-biblical manuscripts with Palestinian pronunciation, have close parallels with what is known about the vowel system of Jewish Palestinian Aramaic.¹⁰⁸ Unlike Tiberian and Babylonian, the Palestinian biblical reading is unlikely to be a direct descendant of the proto-Masoretic reading, but rather it has its roots in other traditions of reading that were current in Palestine in antiquity. The Greek transcription in Origen’s Hexapla (the middle of the third century C.E.) reflects a reading that has even more evidence of influence from the Aramaic vernacular, especially in the pronominal suffixes, such as the 2ms suffix -akh, e.g. σεμαχ ‘your name’ (Tiberian .TIM Psa. 31.4).¹⁰⁹ This is also a feature of the Samaritan tradition, e.g. yēdāk ‘your hand’ (Tiberian: יָד).¹¹⁰ Some of these features, such as the Aramaic type of pronominal suffixes, appear in medieval non-biblical texts with Palestinian vocalization. In the second half of the first millennium, however, it appears that the popular biblical reading converged to a greater extent with the prestigious Tiberian tradition. As a result, the Aramaic type of suffixes were eliminated in the biblical reading.¹¹¹

¹¹⁰ Ben-Ḥayyim (2000, 228).
Various features deviating from the Tiberian reading tradition that are found in the earlier biblical traditions are rarely attested in the medieval biblical traditions but are found in non-biblical Hebrew texts. This applies, for example, to the forms of the 2ms suffixes without a final vowel in Origen and Jerome, and indeed in the consonantal text that is found already in the proto-Masoretic biblical manuscripts from Qumran (ת-, ה-), which is a feature that surfaces in some traditions of post-biblical Hebrew (Ben-Ḥayyim 1954, 27–32, 63; Kutscher 1979, 442–43; Fassberg 1989), including biblical quotations within non-biblical Hebrew texts (Yahalom 1997, 24). The gutturals are clearly weakened in some biblical texts from Qumran and are omitted or interchanged in the orthography (Fassberg 2013, 665), but in the medieval biblical texts one does not find evidence of such systematic breakdown of distinctions. In non-biblical texts, on the other hand, there is evidence of such a weakening. In piyyuṭim, for example, ו often rhymes with א, and likewise כ rhymes with כ, reflecting a weakening of the pharyngeals to laryngeals (Yahalom 1985, 173). In piyyuṭ manuscripts with Palestinian vocalization segolate nouns ending in a guttural often have an ‘e’ vowel in the last syllable without a furtive pataḥ (e.g. כלְמ meleḥ ‘salt’, Tiberian: כלְמ) (Yahalom 1997, 25), again reflecting the weakening of the guttural.

Another indicator of the prestigious nature of the Tiberian reading tradition is the fact that the early traditions of Hebrew grammar that emerged in the tenth century, i.e. those of Saadya Gaon and the Karaite grammarians, were based on the Tiberian
reading.\textsuperscript{112} The grammarian Ibn Janāḥ (eleventh century Spain) states that the Tiberians were ‘the most eloquent of the Hebrews in language and the most lucid’.\textsuperscript{113}

Finally, there is evidence in some sources of hypercorrections in the production of the Tiberian reading. These reflect situations in which a reader’s pronunciation of Hebrew differs from the standard Tiberian pronunciation, due to it belonging to a different tradition\textsuperscript{114} or being influenced by a vernacular language, but the reader nevertheless attempts to pronounce words with the Tiberian pronunciation due to its prestige. In some cases, this results in producing distinctive features of Tiberian pronunciation that are used in the incorrect context (see chapter 4 for details).

\textbf{I.0.10. \textsc{The Internal Diversity of the Tiberian Tradition}}

There was not complete uniformity in any of the traditions of reading reflected by the vocalization systems. This applied also to the Tiberian school. We have seen (§I.0.8.) that there are inconsistencies in the Tiberian vocalization across different parts of

\textsuperscript{112} Dotan (1997), Khan (2000b; 2000a). Some features of Babylonian pronunciation sporadically appear in the works of the eastern grammarians such as Saadya (Dotan 1997, 39) and the Karaites (Vidro 2011, 131–36).

\textsuperscript{113} \textit{Kitāb al-Luma‘} (ed. Derenbourg 1886, 29): הַמָּאָס הָאֲפֹנָה אַלּוּבְרָאוֹנִיט לַאֳסָנָה לִבְרָאוֹנִיט.

\textsuperscript{114} For examples of such hypercorrections in manuscripts reflecting a Tiberianized Babylonian tradition see Yeivin (1985, 185).
the Hebrew Bible. There were also various streams of tradition in the Tiberian Masoretic school that differed from one another in the reading and vocalization of particular words. The monumental Hebrew Bible manuscript codices with Standard Tiberian vocalization that have survived from the Middle Ages exhibit minor differences in vocalization of this nature. This applies even to manuscripts that were written by the same scribe.\textsuperscript{115} Minor differences between vocalization practices of Masoretes and differences in the vocalization of codices are referred to also in Masoretic notes and Masoretic treatises. The tradition of vocalization reflected in the Standard Tiberian manuscripts was, however, far more uniform than other non-Tiberian traditions. This was the result of greater efforts of standardization of the Tiberian tradition due to its greater authoritative status. The standardization process is reflected in particular by Masoretic treatises collating differences between Masoretes, the best known being the ‘Book of Differences’ (\textit{Kitāb al-Khilaf}) of Misha‘el ben ‘Uzzi‘el, who was active in Jerusalem at the end of the tenth or early eleventh century.\textsuperscript{116} This work concerned differences between the two

\textsuperscript{115} Examples of this are manuscripts written by the scribe of L, Samuel ben Jacob, who has been identified as the scribe of several other early Bible manuscripts. These manuscripts exhibit minor differences in vocalization among themselves. See Phillips (2016; 2017; 2020).

\textsuperscript{116} Lipschütz (1964; 1965). A manuscript preserved in the Karaite synagogue in Cairo (known as C3) contains the inscription אינני מישאל בנו עזיאל בן יוסף בן הלל בדקתי זאת התורה שלقدس חצר בן בכתויה ירחמיהו אל I Misha‘el ben ‘Uzz‘iel ben Yoseph ben Hillel checked this holy Torah in the enclosure of ben Bakhtavaih, may God have mercy on him’ (Gottheil 1905
foremost Masoretic authorities at the end of the Masoretic period in the first half of the tenth century, Aharon ben Asher and Moshe ben Naftali. This lists disagreements between Ben Asher and Ben Naftali in 867 specific places and agreements of Ben Asher and Ben Naftali against another, usually unnamed, authority in 406 places. Most of these relate to differences in very small details. The majority of the disagreements concern the minor gaʿya (i.e. gaʿya on a short vowel in a closed syllable) and shewa gaʿya (i.e. gaʿya written on shewa) (§I.2.8.2.2., §I.2.9.). A few relate to spellings, divisions of words, and vocalization. Several of these are listed by Mishaʾel in the introduction as general differences rather than relating to specific passages. Ben Asher, for example, vocalized a preposition ל or ב with shewa when it was followed by yod with hireq (e.g. לַישׁהָא for Israel’), Ben Naftali, on the other hand, vocalized the first letter with hireq with no vowel on the yod (לָישׁהא). Whereas Ben Asher vocalized יִשׁשכָר ‘Issachar’, Ben Naftali vocalized this name יִשׂשכָר. Another Masorete, Moshe Mohe, vocalized it יִשׂשכָר. Ben Asher vocalized the kaf in all forms of the verb אכל ‘to eat’ before segol with hatef patah, e.g., תָּֽאכֲלֹה ‘you will eat it’ (Ezek. 4.12), reflecting the reading of the shewa as mobile, whereas Ben Naftali read the shewa in all such cases as silent (§I.2.5.7.5.). The purpose of the collation of differences no. 18; Penkower 1989). This is likely to be the Mishaʾel who was the author of Kitāb al-Khilaf. The scholarly institution known as the enclosure of ben Bakhtavaih was founded by Yūsuf ibn Bakhtavaih (also known as Yūsuf ibn Nūḥ) in Jerusalem at the end of the tenth century and was the hub of Karaite scholarship there in the first half of the eleventh century.
was to impose a degree of standardization on the Tiberian Masoretic tradition, which had developed into a number of heterogeneous sub-schools by the tenth century, of which those of Ben Asher and Ben Naftali were regarded as the most authoritative. The readings of Ben Asher in *Kitāb al-Khilaf* conform very closely to the readings of the manuscript A, which was produced by Ben Asher, and also to L, which contains many erasures and corrections that made the correspondence closer than was originally the case. The Ben Naftali readings conform closely to C.\(^{117}\)

At the close of the Masoretic period in the tenth century and the early eleventh century, the traditions of Ben Asher and Ben Naftali were considered to be equally authoritative. Mishaʾel ben ʿUzziʾel does not give priority to Ben Asher or Ben Naftali in *Kitāb al-Khilaf*. In his Masoretic treatise *Hidāyat al-Qāriʾ*, Ṭābū al-Faraj Hārūn, likewise, does not give priority to either one of these two authorities. It is significant, however, that according to one passage in this treatise a reader should not mix the traditions according to personal assessment of correctness of the reading of individual words in each tradition. One should adopt either the tradition of Ben Asher in its entirety or that of Ben Naftali in its entirety:

‘The reader, therefore, has two options. Either to read with the reading of Ben Naftali, in which case he must read all good and difficult forms that he (Ben Naftali) reads, or to

read with the reading of Ben Asher, which also is authoritative. If somebody reads what he deems to be the best reading of this one and of that one, he would (read) without any rule, because he deviates from the rationale of each of them.¹¹¹⁸

The lack of ranking of these Masoretic authorities was the practice among Masoretic scholars until the time of Maimonides, who declared Ben Asher to be the most reliable authority. David Qimḥi (d. 1235), it seems, was the first who decided in favour of Ben Asher in the context of reported differences between Ben Asher and Ben Naftali (Lipschütz 1965, 4).

The fact that the Kitāb al-Khilaf rarely mentions vowels and accents implies that their reading was virtually entirely fixed in a tradition over which there was consensus among Masoretic authorities. A passage in an anonymous Masoretic treatise discussing the cantillation of the Tiberian accents indicates that the way the accents are read has been transmitted ‘from the hearts of the two masters (ʾal-ʾustāḥayin)’, i.e. Ben Asher and Ben Naftali, and they cannot be explained, i.e. their form is fixed by tradition and readers cannot exercise any personal initiative with regard to them:

‘As for all the other accents, every one of them has a single melody that does not change for any reason, either lengthening or shortening, as is the case with pronouncing a vowel and shortening it. It is not possible to explain how

they are read, because they are melodies transmitted from
the hearts of the two masters.\footnote{CUL T-S NS 301.21: אֲרַמָּא בָּעַכִי אַלּוּשֶׁמִים נַמְעָלָה כָּל אַוֹד מַגֵּעָא לָהֵי לְךָך्: וַאֲרַמָּא אַלּוּשֶׁמִים נַמְעָלָה כָּל אַוֹד מַגֵּעָא לָהֵי לְךָך्.}

This passage makes it clear that the ultimate bases of au-
thority of the reading were Ben Asher and Ben Naftali. This can
be compared to the way reading traditions of the Qurʾān (qirāʾāt)
were anchored to the authority of particular scholars.

Although readers had to adhere to the traditions of Ben
Asher and Ben Naftali in most details of their reading without
personal initiative, the masters themselves did, it seems, take
some degree of personal initiative in fixing their traditions. This
applies in particular to Ben Naftali, whose reading tradition ex-
hibits more consistency in various features than the more con-
servative tradition of Ben Asher. In some places, for example, Ben
Naftali has introduced pausal forms where they are not found in
the Ben Asher tradition, with the result that their distribution in
his reading is more consistent than they are in that of Ben Asher
(A. Ben-David 1957b). Ben Naftali, moreover, introduced various
orthoepic measures into his tradition to ensure a greater accuracy
of reading (§I.0.11.).

The focus on minor gaʿya and shewa gaʿya in the lists of
Kitāb al-Khilaf indicates that these details also formed part of the
fixed sub-traditions of Ben Asher and Ben Naftali. The fixing of
the vowels, accents, minor gaʿya and shewa gaʿya is reflected by
the fact that there is only minimal variation in these features
across the model Masoretic Tiberian Bible manuscripts. By the
end of the Masoretic period, however, not every detail had been completely fixed and there was some permitted variation in the sign system and also some variation in the oral reading. This applied in particular to the writing of *hatef* signs on non-guttural consonants and the pronunciation of major *gaʿya* (i.e. *gaʿya* on long vowels) in the oral reading, as expressed by the following passages from *Hidāyat al-Qāri*:

The people responsible for this matter have agreed on the rule of combining *shewa* and a vowel (i.e. writing *hatef* signs) only under the four (guttural) letters. It is said, however, that some scribes wanted to remove uncertainty from places that may lead to error and have combined a vowel with *shewa* (under a non-guttural letter) ... because they thought that people would err in the reading ... This is an exception to their customary practice. What supports the claim that this is the view of only some of them with regard to letters not belonging to the group of the four (guttural letters) is that in most codices one does not find what has been presented as counterevidence (i.e. the combination *shewa* with a vowel under non-guttural letters), but all codices are uniform in the combination of *shewa* with a vowel under the four (guttural letters) letters.\(^{120}\)

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\(^{120}\) Long version of *Hidāyat al-Qāri*, edition in vol. 2 of this book, §II.L.2.12.6. Differences between scribes regarding the writing of *hatef* signs under non-guttural consonants is referred to also in in the earlier Masoretic treatise *Diqduqe ha-Ṭeʿamim*, which is attributed to Aharon ben Asher (ed. Dotan 1967, sec. 19).
The *gaʿya* does not have a definite status in the reading of Scripture. One reader may omit it and another reader may sustain it.\(^{121}\)

This is also reflected by the model Tiberian Masoretic Bible codices, which exhibit a greater degree of variation in the writing of *ḥaṭef* signs on non-guttural consonants (§I.2.5.5.) and the marking of major *gaʿya* than in features that had been fixed, such as vowels, accents, minor *gaʿya* and *shewa* *gaʿya*.

### I.0.11. Orthoepy

The variation in the marking of *ḥaṭef* signs on non-guttural consonants reflects the continual efforts that were made to refine the vocalization system to ensure accurate reading towards the end of the Masoretic period. By combining a vowel sign with a *shewa* sign, the *shewa* was unambiguously marked as vocalic, which removed potential ambiguity of the sign in the vocalization system and so reduced the risk of inaccurate reading (§I.2.5.5.). Another measure to ensure correct reading of vowel length that is occasionally found in standard Tiberian manuscripts is the use of *ḥaṭef* signs in unstressed closed syllables to mark explicitly that the vowel is short. A few examples of this are found in L, e.g. בַָּחֲרַּֽם מִ֖ם ‘on the magicians’ (Exod. 9.11), הָעֲרֶֽבֶּֽים ‘the evening’ (Exod. 30.8), יְחִיקוּ ‘they are strong’ (2 Sam. 10.11), לָכַּֽךְ ‘he brings trouble on you’ (Josh. 7.25) (§I.2.5.1.).\(^{122}\)


\(^{122}\) The phenomenon in L is described by Dotan (1985).
It is important to distinguish these differences in notation with regard to the clarity of representation of the reading from the existence of genuine differences in the reading between Masoretes that are reflected in works such as Misha’el ben ʿUzzi’el’s Kitāb al-Khilaf.

I would like to focus here in particular on another development that took place within the Tiberian tradition, namely an increasing effort to pronounce the reading with maximal clarity, a phenomenon that I shall call orthoepy. Such orthoepic measures are sometimes not discernible from the vocalized text and can only be reconstructed from external sources, in particular transcriptions and Masoretic treatises.

The basic principle of orthoepy is to ensure that the distinct elements of the text are given their optimal realization, keeping them maximally distinct and avoiding slurring over them. These elements include letters, vowels, syllables and words.\(^{123}\)

One orthoepic measure was to minimize the number of separate orthographic words that had no accent and so were at risk of being slurred over. The Tiberian tradition, in general, is more orthoepic in this respect than the Babylonian tradition through the Tiberian practice of placing conjunctive accents on orthographic words between disjunctive accents. In the Babylonian tradition, there are only disjunctive accents and the words between these are left without any accent (Shoshany 2003; 2013). The vocalization of some words that have acquired conjunctive accents in the Tiberian tradition reflects their

\(^{123}\) This phenomenon corresponds closely to the careful recitation of the Arabic Qurʾān known as tajwīd (Nelson 2001).
originally unstressed status. This applies to stressed construct forms such as ‘the matter of the release’ (Deut. 15.2), and cases such as ‘the pride of Jacob’ (Psa. 47.5), ‘all the brothers of a poor man’ (Prov. 19.7), where the object marker and the quantifier have the vocalization characteristic of their unstressed form (אָת and כָּל) rather than of their stressed form (אֵת and כֹּל).

There are still, however, a sizeable number of orthographic words in the Tiberian tradition that have no accent and are connected to the following word by the maqafe sign. The lists of differences in Kitāb al-Khilaf, however, show that Ben Naftali in a number cases read a word with a conjunctive accent where Ben Asher read it with maqafe (A. Ben-David 1957b, 391–92), e.g.

Lev. 24.16

Ben Asher: בְּנֵקָב וּשָׂם, Ben Naftali: וּשָׂם בְּנֵקָב, ‘when he blasphemes the Name’

Gen. 39.6

Ben Asher: יִפְּחַתְּאָר, Ben Naftali: יִפְּחַתְּאַר, ‘beautiful in form’

Job 12.3

Ben Asher: וּאֵין מִי־אֵַ֥ין, Ben Naftali: אֵַ֥ין וּאֵין מִי, ‘with whom is not?’

This and other features of Ben Naftali’s tradition, some of which are discussed below, indicates that he introduced more

124 Cf. the long version of Hidāyat al-Qārī, edition in vol. 2 of this book, §II.L.3.2.
orthoepic innovations in the reading than Ben Asher, who was, in general, more conservative.

The orthoepic measures taken to separate prosodically words connected by maqəqef sometimes resulted in reading a word as prosodically separated even when the maqəqef sign continued to be written. One clear example of this is the reading of the word מַה vocalized with pataḥ and connected by maqəqef to the following word, the first letter of which has dagesh, e.g. מַה־דִּב ‘and what did he say’ (Jer. 23.35). It is clear that the pataḥ in this particle originally developed due to its prosodic and syllabic bonding with the following word, and this is reflected by the maqəqef. It continued, however, to be written as an orthographically separate word. In order to ensure that the orthographic distinctness was expressed clearly in pronunciation one of two orthoepic strategies were followed, both of which are reflected by transcriptions of the Tiberian reading into Arabic script. The most common strategy was to lengthen the pataḥ, e.g. מַה־תִצ ‘Why do you cry?’ (Exod. 14.15). Another strategy was to glottalize the pataḥ vowel by pronouncing an [h] after the vowel, which separated syllabically from what followed, e.g. מַה־ש מ ‘What is his name?’ (Exod. 3.13) (for further details see §I.2.8.1.2., §I.2.11.).

Various orthoepic measures were taken to ensure that adjacent letters in contact were enunciated clearly and not slurred together. Here again, these measures were more developed in the tradition of Ben Naftali than in that of Ben Asher. According to Kitāb al-Khilaṭ, Ben Naftali placed a dagesh in the first nun of the name נ in the combination נֹּת (ed.
Lipschütz 1965, בד). This was a measure to prevent the coalescence of two identical letters across a word-boundary, by strengthening the second letter, which stood at the onset of a syllable. Another strategy to keep the articulation of adjacent identical letters separate is seen in Ben Naftali’s reading of the name Issachar יִשָּׁשְכָר. In Ben Asher’s tradition the second and third letter of the name are pronounced as a geminate sin: רְשָׁשְכָּר [jissɔːχɔːɔʀ̟]. The form יִשָשָכָר [jiʃsɔːχɔːɔʀ̟] of Ben Naftali looks, prima facie, to be a more archaic form, corresponding more closely to the ketiv and perhaps to proposed etymologies of the name such as יש שכר ‘there is hire’ or איש שכר ‘man of hire’. It is possible, however, that the pronunciation of the second letter of the name as shin was an intentional dissimilation as an orthoepic strategy to keep it distinct from the sin. A similar process seems to have taken place in the name שָּׁשֲׂמִיִּנֶו פִּ in Neh. 7.52. Here the first letter in the sequence ש is likely to have been a sin and this was dissimilated to shin by an orthoepic process to keep it distinct from the following identical sounding samekh (cf. the discussion of the form of this name in §I.0.8.).

Ben Naftali marked a dagesh in the qof of the verb ‘he supplants’ (Jer. 9.3) (ed. Lipschütz 1965, ל) as a orthoepic strategy to ensure that the shewa on the preceding guttural was read as silent, and therefore not confused with the more common proper name יַעֲקֹב ‘Jacob’. A related orthoepic measure that developed in the Tiberian tradition, which is not attributable to any specific subtradition, is what I call the extended dagesh forte

125 See for example Skinner (1994, ad loc.).
reading. This involved pronouncing the *dagesh lene* of בֶּגֶדכֶפֶת letters at the beginning of syllables as *dagesh forte* (§I.3.1.11.3.). The extended *dagesh forte* reading arose by giving the *dagesh* sign its full value in all contexts. The primary motivation for this was most likely an attempt to make a maximally clear distinction between fricative and plosive forms of the בֶּגֶדכֶפֶת letters. Another effect of strengthening the pronunciation of the *dagesh* was to mark a clear separation between syllables.

The orthoepic features of the Tiberian reading have a variety of different historical depths. The orthoepic practices that we have examined so far appear to be developments that took place in the later stages of the transmission of the Tiberian reading, probably around the end of the Masoretic period in the tenth century. It is possible to identify some orthoepic measures, however, that have a greater time depth. One such case is the lengthening of the vowel of prefixes of the verbs היה and חי (§I.2.10.), e.g. בהיהו [tʰi:jɛː] ‘it will be’ (Jer. 7:34), וייחו [ji:jɛː] ‘let him live’ (Neh 2:3). The lengthening of the vowel of the prefixes in the verbs היה and חי is likely to have been an orthoepic measure taken to ensure that the initial guttural consonants were not weakened. If these consonants were weakened, the two verbs would not be formally distinguished. There is evidence that this particular orthoepic feature has deep historical roots that can be traced to the proto-Masoretic reading in Second Temple Palestine before the split of the Tiberian and Babylonian branches (see §I.2.10. for details). It arose as a measure to ensure that the gutturals were not weakened in these verbs at a period when gutturals were vulnerable to weakening under the influence of
Greek. It would appear, therefore, that orthoepy was already a feature of the ancient reading and that care over the oral reading of the text went hand in hand with care over the copying of the written text at an ancient period, presumably within Temple circles during the Second Temple period.

I.0.12. THE CLOSE OF THE TIBERIAN MASORETIC PERIOD

The activities of the Tiberian Masoretes came to an end in the tenth century after the generation of Aharon ben Asher and Moshe ben Naftali. The archaeological record shows that Tiberias was almost deserted in the second half of the eleventh century. This seems to have been due to the combined effect of devastating earthquakes in 1033 and 1068 and the political instability caused by the Seljuk raids into Palestine in the middle of the eleventh century. When the Crusaders invaded Palestine in 1099, Tiberias was a half-ruined city (Avni 2014, 87–88; Gil 1992, 397–418). The cessation of the activities of the Masoretes, however, occurred before this decline of the city in the tenth century, when, it seems, the city was still thriving. The key factor that brought about the end of the Masoretic school is likely to have been the removal of the Palestinian Yeshiva to Jerusalem, which can be dated to the middle of the tenth century.126

The knowledge of the Tiberian reading tradition, which was the most prestigious form of pronunciation, rapidly fell into oblivion after this period. During the period in which the Tiberian Masoretes were active, the oral tradition of Tiberian reading was transmitted alongside the vocalization sign system.

As we have seen, the sign system, indeed, was constantly being refined to represent the reading with maximal accuracy. This is clear, for example, in the many added *ḥaṭef* signs under non-guttural consonants in A, which was vocalized by Aharon ben Asher in the Masoretic period. The oral reading tradition was primary and the sign system was a mechanism of graphic notation.

Bible codices, of course, also had the consonantal text (*ketiv*). In the Talmudic period, a practice developed of interpreting Scripture on two levels, one according to the consonantal text (*ketiv*) and one according to the way it was read (*qere*). It is reflected by the Talmudic dictum: 'The reading has authority and the traditional text has authority.' Traces of this type of exegesis are found in medieval sources. It was a practice that was condemned by many medieval Karaites, who recognized the authority of only the reading tradition. This is reflected not only in their rejection of exegesis on the basis of the *ketiv*. They used vocalized codices rather than scrolls for liturgical reading. Moreover, in many cases they dispensed with the Hebrew *ketiv* altogether and wrote biblical

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127 Naeh (1992; 1993), who argues that this exegetical technique was not practiced in the Rabbinic tradition before the Amoraic period.

128 A vocal exponent of this was the Karaite al-Qirqisānī, see Khan (1990c) and §I.0.13.3. Some medieval Karaite scholars did, however, accept the possibility of interpreting according to the *ketiv* where it conflicted with the *qere*, see al-Fāsi, *Kitāb Jāmiʿ al-ʿAlfāz* (ed. Skoss 1936, vol. 1, 12-13), Hadassi (Bacher 1895a, 113) and Habib (2020).

manuscripts that consisted of Arabic transcriptions of the reading tradition.\textsuperscript{130}

The Karaite grammarian ʾAbū al-Faraj Hārūn, who wrote his works in Jerusalem in the first half of the eleventh century, states in the introduction to his Masoretic treatise *Hidāyat al-Qāriʾ* that his sources were earlier Masoretic treatises and the pupils of the writers of these earlier treatises.\textsuperscript{131} This indicates that he had access to an oral tradition of instruction in the Tiberian reading that was still alive in his time in Jerusalem. Karaite scholars in Jerusalem in the eleventh century were, in many respects, the heirs of the Masoretic school. It was in Jerusalem in the early eleventh century that Mishaʾel ben ʿUzziʾel, who was also a Karaite, composed his work *Kitāb al-Khilaf*, which recorded differences between the Masoretes Aharon ben Asher and Moshe ben Naftali (Penkower 1989).

Already at this period, however, Hebrew grammarians outside of Palestine were not able to gain direct access to the oral tradition of Tiberian reading. Ibn Janāḥ writing in the first half of the eleventh century in Spain, for example, laments the fact that he was not able to verify the length of particular occurrences of *qamesḥ* vowels in the Tiberian tradition:

‘In such places [i.e. in the reading of the biblical text] and others like them, a person needs readers and teachers [of

\textsuperscript{130} Khan (1992b).

\textsuperscript{131} Edition in vol. 2 of this book, §II.L.0.9.
the Tiberian tradition], which we lack in this country of ours.\textsuperscript{132}

After the close of the Masoretic period and the death of the primary Masoretic authorities Ben Asher and Ben Naftali, the anchoring of the written vocalization signs to authoritative oral traditions was broken. The primary base of authority began to shift to the vocalization sign system, which was the textualization of these oral traditions. Only the oral reading of Masoretic authorities such as Ben Asher and Ben Naftali was independent of the vocalization vowel system. This is the import of the following passage in \textit{Hidāyat al-Qārī}:

Indeed there is no doubt that when somebody takes a simple codex without accents or pointing, he stumbles in the reading ... apart from a few exceptional people that are found in some generations, such as Ben Asher and Ben Naftali in their time and those like them.\textsuperscript{133}

As the orally transmitted Tiberian reading was lost and the primacy of its authority was transferred to the written sign system, the signs were read with reading traditions that differed from the Tiberian tradition. The incipient signs of this are found

\textsuperscript{132} ספר הדה אלתלקין ויאתח פפי הד ה אלמואצ ע וגירהא מת להא יצ טר אלאנסאן אלי אלרואה, אֱלֳדַיָּן עדמנאהם נחן פי קאציתנא הד ה, Kitāb al-Luma', ed. Derenbourg (1886, 322–23). Ibn Ezra states that ‘scholars of Egypt and [North] Africa’ (חכמי מצרים ואפריקייא) knew how to pronounce the Tiberian \textit{qames} correctly; cf. \textit{Sefer Ṣaḥot} (ed. Lippmann 1827, 3b). This was presumably referring to his own time, i.e. the twelfth century.

in a variety of medieval manuscripts in which standard Tiberian vocalization is written under words with another vocalization system.¹³⁴ These can be interpreted as reflecting the tolerance of two traditions of written vocalization alongside each other in a way that can be compared to the apparent tolerance of different written textual traditions alongside each other in some Qumran manuscripts, which has been alluded to above (§I.0.2.).¹³⁵ It is clear from the medieval sources that one of the traditions in such manuscripts, viz. the Tiberian, was more prestigious.

One of the consequences of the shift of authority to the written vocalization and accent sign systems after the loss of the Masoretic authorities who were guarantors of the oral tradition was the increasing production and reliance on Bible codices that recorded the authoritative sign systems.¹³⁶

In most communities other than Yemen the oral traditions that came to be used to read the standard Tiberian vocalization were derived ultimately from the Palestinian pronunciation of Hebrew, with a five vowel system (without distinctions between *qames* and *patah*, on the one hand, and *sere* and *segol*, on the other) that was based on that of Jewish Palestinian Aramaic. As we have seen, the Palestinian pronunciation tradition had no

¹³⁴ In the Genizah Bible manuscript T-S A38.10, for example, the scribe has vocalized the text with both Babylonian and Tiberian signs.

¹³⁵ A similar situation is found in some early Qurʾān manuscripts in which the vocalization records different reading traditions, distinguishing them with different colours of ink (Dutton 1999; 2000).

¹³⁶ See Outhwaite (2018) for discussion of the commissioning and production of codices.
authoritative roots, but this was not relevant after the transition of the authority of the Tiberian tradition from the oral reading to the written sign system. It was the written sign system that now preserved the authoritative standard. This meant that the process whereby the Palestinian pronunciation was adapted to converge with the standard Tiberian pronunciation, which is reflected in manuscripts with Palestinian vocalization signs, now no longer took place.

It is unlikely that the removal of the Palestinian Yeshiva from Tiberias was the only factor that brought about the loss of the oral Tiberian reading tradition. Another factor is likely to have been that it was transmitted by a very small number of elite practitioners. A related issue was that the conservative Tiberian tradition and its highly careful orthoepic features deviated in various ways from the spoken vernacular languages of the Jewish communities. The Palestinian pronunciation of Hebrew, by contrast, was very widely used and was closer to the vernacular. As remarked, the vowel system of the Palestinian pronunciation had its roots in that of Jewish Palestinian Aramaic, which was the vernacular of the Jews in the early Islamic period. When the Jews of the region adopted Arabic as their vernacular, this rapidly had an impact on the Palestinian pronunciation tradition. In regions where the Arabic dialects did not have interdental fricatives ($\theta$ and $\delta$), for example, there is evidence that already in the Middle Ages the Hebrew consonants $tav$ and $dalet$ came to be pronounced as stops ($t$ and $d$) in all contexts (§I.4.2.) (Khan 1997).
Developments in the transmission of the Qurʾān in the tenth century may also have had an impact on the fate of the Tiberian reading tradition. At this period an official policy, endorsed by the ruling ʿAbbāsid régime, was instigated by the scholar Ibn Mujāhid (d. 324 A.H./936 C.E.) to reduce the number of reading traditions of the Qurʾān. Before the time of Ibn Mujāhid, a very large number of reading traditions of the Qurʾān existed. Many of these were transmitted by only a small number of readers. As a result of the activity of Ibn Mujāhid, the traditions with restricted numbers of transmitters were eliminated in favour of seven canonical traditions that had wide levels of transmission. Some of the smaller traditions that were lost exhibited unusual features that deviated from normal Arabic usage. One example of such non-canonical readings (šawādhdh) that is of particular interest in light of the discussion above concerning the orthoepic extension of dagesh forte to all contexts in Tiberian Hebrew (§I.0.11.) is the practice of some Qurʾān readers to geminate a consonant after a preceding vowelless consonant, e.g. ُيَخْطَٰت فِي ِّيَخْطَٰت يَاكْحُطُّف ‘it takes away’ (Q 2.20). This process of obsolescence of traditions with small numbers of transmitters and with features that deviated from normal Arabic usage, which took place in the Islamic world in the tenth century, could have influenced the transmission of the Hebrew Bible at that period,

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137 Ibn Mujāhid, Kitāb al-Sabʿa fī al-Qirāʾāt (ed. Cairo, 1972), Nöldeke et al. (1938, 155–56).

138 This is recorded in the collection of shawādhdh by Ibn Khālawayh (d. 370/980), Mukhtaṣar fī Shawādhdh al-Qurʾān min Kitāb al-Badīʿ (ed. Bergsträsser, 1934, 3).
whereby the continuation of the Tiberian oral reading was disfavoured due to the small number of readers.

After the loss of the orally transmitted Tiberian pronunciation and its textualization as a historical relic in the written signs, readers and teachers of the Hebrew Bible were obliged to interpret the sign system as it was received. Many features of the Tiberian pronunciation that are not discernible in the sign system fell into complete oblivion. These include the orthoepic features I have described above, such as the extended *dagesh forte* reading. In the later Middle Ages, the standard Tiberian sign system was a graphic fossil that reflected an extinct tradition that was different from the pronunciation traditions of the various communities. In some cases, however, the reading was adapted to the sign system. A conspicuous example of this is the development of Biblical reading in late medieval Ashkenaz.

The distribution of vowel signs in manuscripts from medieval Ashkenaz dating to the twelfth and thirteenth centuries reflects a five-vowel system, in which no distinction is made between *qamesh* and *patah*, nor between *šere* and *segol*.139 This indicates that at that period the pronunciation of the Ashkenazi communities still had the original Palestinian five vowel system. By the middle of the fourteenth century, a new vowel system evolved in the Ashkenazi tradition of Hebrew, in which there was a distinction in pronunciation between *qamesh* and *patah* and between *šere* and *segol*. One of the main causes of this change in the vowel system was the occurrence of vowel shifts in the dialects of German that were spoken by the Jews. In the twelfth

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139 Eldar (1978).
century, a number of German dialects, including Yiddish, developed a labio-velar pronunciation (in some [o] and in others [u]) of Middle High German [aː] as well as of [a] in an open syllable. This shift found its way into the Hebrew component of Yiddish. Since, however, words of Hebrew origin were assimilated into Yiddish at an earlier period, in which there were no quantitative distinctions (between long and short a), this shift only affected cases of [a] in an open syllable. In Hebrew words that met the criteria for the shift to [o] or [u], a lengthened [a] in open syllables mostly corresponded to historical qames, e.g., [poter] (= פָטוּר) ‘released’, [boro] (= בָרָא) ‘he created’, [dvorim] (= ברִים) ‘words’, and in a few cases also to historical patah, as in [noxem] (= בָרִים) ‘Nahum’, [kadoxes] (= קַדַחַת) ‘fever’. In the thirteenth and fourteenth centuries, Yiddish began to develop a diphthongized articulation of long [eː] in an open syllable. The shift [eː] > [ei] or [ai] entered the Hebrew component of Yiddish as a reflection of šere (in an open syllable), as in [eyme] (= אֵימָה) ‘terror’, [breyšis] (= ברֵאשִית) ‘in the beginning’ and also as a reflection of segol (in an open syllable) in a small group of words that were pronounced in Yiddish as if they were vocalized with šere, e.g., [meylex] (= מלך) ‘king’, [keyver] (= כָּבֵר) ‘grave’, etc. The variations between [o] and [u], on the one hand, and [ei] and [ai], on the other, in Ashkenazi Hebrew were reflections of the local dialects of Yiddish. At approximately the same period as these vowel shifts took place in the vernacular dialects, the scribes in Ashkenaz began to make an association between the newly developed vowel distinctions and the Tiberian vowel signs.
What is of particular interest is that in the biblical reading tradition mismatches between the sign system and the pronunciation were adjusted, e.g. *pataḥ* was always read with the [a] quality, even where it was pronounced as [o] or [u] due to the sound shift of [a] in stressed open syllables in the Hebrew component of Yiddish, e.g. [kadoxes] (="ךָדָחָה"). The written sign system, therefore, had an impact on the biblical reading tradition, in that there was an attempt to assign a particular phonetic value to each sign.\(^{140}\)

This development of the Ashkenazi reading in the late Middle Ages reflects the primacy of the authority of the written sign system over the oral reading tradition. Such a phenomenon should be contrasted with the situation in the Masoretic period, when the oral Tiberian reading tradition of particular Masoretes had primary authority and the sign system underwent a constant adaptation to reflect it.

We may identify a typological parallel here between the developments after the destruction of the Second Temple and those that occurred after the demise of the Tiberian Masoretic school. Before the destruction of the Temple, there was a stabilized proto-Masoretic text within a pluriformity of other textual traditions. After the destruction of the Temple the prestigious proto-Masoretic text gained general acceptance. The diversity reflected by the pluriform biblical manuscripts from Qumran was replaced by a uniform prestigious text that was read with a pluriformity of oral reading traditions, of which one, the Tiberian tradition, was regarded as the most prestigious. After the dispersal of the Tiberian school, the pluriform written

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\(^{140}\) Weinreich (1965), Eldar (2013).
vocalization sign systems reflecting the different oral reading traditions were gradually replaced by a uniform prestigious vocalization system that was read with a pluriformity of oral reading traditions. In both cases, there was a punctuation in Jewish society involving the loss of a central prestigious body that was responsible for the stabilization of the transmission of the Hebrew Bible. In the first century C.E., this was the destruction of Temple. In the tenth century C.E., it was the loss of the Tiberian Masoretic school. In both cases, after the ongoing activity of stabilization ceased, the tradition reached completion and became fossilized. In both cases, the written tradition, of the text or of the vocalization system respectively, gained general acceptance.

I.0.13. SOURCES FOR THE TIBERIAN PRONUNCIATION TRADITION

The early model Tiberian Bible codices are an important starting point for the reconstruction of the Tiberian pronunciation tradition. Various additional sources, however, are crucial for establishing many aspects of pronunciation that are not discernible in these codices. In this section, we shall review these additional sources.

I.0.13.1. Masoretic Treatises

A number of important details relating to pronunciation can be found in a variety of treatises written by Tiberian Masoretes or by scholars close to their circle who had direct access to the Tiberian Masoretic tradition.
A number of early Masoretic treatises that are written in rhymed Hebrew and preserved mainly at the end of the medieval Tiberian Bible codices contain material relating to pronunciation. Many of these were published by Baer and Strack (1879). They relate to selected issues concerning vocalization and accents, particularly the shewa and gaʿya. In some cases, they go beyond description and offer explanatory rules for differences based on their context of occurrence. Some of the Hebrew texts gathered by Baer and Strack, furthermore, concern topics relating to grammatical theory, such as the classification of consonants according to their points of articulation, or according to whether they are ‘radical’ or ‘servile’ letters, the distinction between construct and absolute forms, the distinction between contextual and pausal forms, and verbal tenses.

Baer and Strack attributed the majority of the texts in their corpus to a Masoretic treatise known as Diqduqe ha-Ṭeʿamim (see below for meaning) by the Masorete Aharon ben Asher (tenth century), although they did not clearly delineate the scope of the treatise. Dotan (1967) made a thorough study of such texts and concluded that the original treatise of Ben Asher contained twenty-six sections, which are reproduced in a fixed order in some manuscripts. Other sections, of unknown authorship, were subsequently added to these in various manuscripts. The work was not intended as a systematic collection of rules relating to the accents, but only as a treatment of selected details that were regarded as potentially problematic. This is reflected by the name of the work Diqduqe ha-Ṭeʿamim, which can be rendered ‘The Fine Details of the Accents’. The work also includes discussions of
some aspects of vocalization, in particular of the shewa. Dotan argues that Aharon ben Asher incorporated some of the material of Diqduqe ha-TeV’anim from earlier Masoretic collections. This probably explains why the work is in Hebrew, since in the tenth century Masoretic treatises were generally written in Arabic. The source material for the work is likely to have been composed in the ninth century.

A number of Arabic Masoretic treatises are extant that are datable to the tenth century. Most of these concern the biblical reading tradition and its phonological principles. In some cases, a number of the technical terms and even sections of the text itself are in Hebrew. These Hebrew elements may be regarded as vestiges from the earlier Hebrew tradition of Masoretic treatises. Some of the texts datable to the tenth century include treatises on vowels and the shewa, such as those identified by Allony as Kitāb al-Muşawwitāt ‘The Book of Vowels’ (Allony 1963) and Seder ha-Simanim ‘The Order of Signs’ (Allony 1965). These two treatises offer explanations for the distinction between vowels based on factors such context and placement of stress, and develop many of the topics that are found in the Diqduqe ha-TeV’anim. In some cases, the explanations for distinctions in vowels is correlated with semantic distinctions, which is a level of functional explanation not found in earlier texts. The functional concern of the work is also clear in the title of one of the extant sections of the text ‘īlal al-muşawwitāt ‘the reasons for the vowels’ (Morag 2003, 251–52). An Arabic treatise devoted to the shewa that is datable to the tenth century was published by Levy (1936). This develops an analysis of the shewa based on a
theory of syllable structure. The treatise warns that mistakes in reading *shewa* can lead to the corruption of the form of words and, in general, has a pedagogical tone. This reflects the fact that the correct transmission of the Tiberian reading still depended on a tradition of teaching even after the details of the Tiberian Masora had been committed to writing (Eldar 1994, 3–8; Khan 2012, 3–4).

Allony (1973) published a fragment of an Arabic treatise on consonants, which he attributed to ʿEli ben Yehudah ha-Nazir. This also appears to be datable to the tenth century. The extant text is concerned mainly with the pronunciation of the letter *resh*. A remarkable feature of this text is the reference by the author to the fact that he undertook fieldwork in the streets of Tiberias to verify his analysis of the *resh* in Tiberian reading, on the grounds that *resh* had the same pronunciation in the local speech of the (Jewish) inhabitants of Tiberias: “I spent a long time sitting in the squares of Tiberias and its streets listening to the speech of the common people, investigating the language and its principles, seeing whether anything that I had established was overturned or any of my opinions proved to be false, in what was uttered with regard to Hebrew and Aramaic etc., that is the language of the Targum, for it resembles Hebrew ... and it turned out to be correct and accurate”. The interpretation of this is not completely clear. The Aramaic mentioned by the author could have been vernacular Aramaic that was still spoken in Tiberias at the time. The Hebrew must have been the recitation of Hebrew liturgy or the occurrence of a ‘Hebrew component’ (Hebrew words and
phrases) within vernacular speech. Drory (1988, 33–35) suggested that this report of fieldwork may have been an imitation of the topos in the medieval Arabic grammatical literature of verifying grammatical phenomena by carrying out fieldwork among the Bedouin Arabs, who were deemed to be speakers of ‘pure Arabic’, the inhabitants of Tiberias being the corresponding tradents of pure Hebrew. A Hebrew treatise concerning the resh is found also in the corpus published by Baer and Strack (1879, §7), in which it is likewise stated that this pronunciation existed in the conversational speech of the common people (‘it is on their tongues, whether they read the Bible or converse in their conversation, in the mouths of men, women, and children’).

The authorship of these works on Tiberian pronunciation cannot be established with certainty, although Allony, who published many of them, attributed them to various medieval scholars who are known from other sources. In most cases, there is no decisive evidence for these attributions and they should be treated with caution (Eldar 1986). It has been argued by Eldar (1988) that the treatise on the shewa published by Levy (1936) and Kitāb al-Muṣawwitāt ‘The Book of Vowels’ published by Allony (1963) are parts of the same work.

An important work composed in the eleventh century was the Hidāyat al-Qāri ‘The Guide for the Reader’. This work was studied in detail by Eldar, who published sections of it (see, in particular, Eldar 1994 and the references cited there). It can be classified as a Masoretic treatise, although, unlike the treatises
discussed above, the *Hidāyat al-Qāriʾ* was composed several decades after the time in which the final Tiberian Masoretic authorities, Ben Asher and Ben Naftali, were active. Its author was the Karaite grammarian ʿAbū al-Faraj Hārūn, who was based in Jerusalem in the first half of the eleventh century (Khan 2003). Although he did not have direct contact with the Masoretes of the tenth century, he did have access to teachers of the Tiberian reading tradition, who could still be found in Palestine in the eleventh century, in addition to the Masoretic treatises of earlier generations. ʿAbū al-Faraj produced the work in a long and a short version. The long version, which was composed first, contains more expansive theoretical discussions. The short version became more popular, as is reflected by the greater number of extant manuscripts. The work presents a systematic description of the consonants, vowels (including shewa), and accents. It was divided into three parts, part one being devoted to the consonants, part two to the vowels, and part three to the accents. The *Hidāyat al-Qāriʾ* was conveyed beyond the confines of Palestine to Yemen and to Europe. The long version was transmitted to Yemen, probably in the thirteenth century. Two abridgements were made of this in Yemen, one in Arabic (ed. Neubauer 1891) and one in Hebrew (ed. Derenbourg 1871). Each of these was known as *Maḥberet ha-Tījān* ‘The Composition of the Crowns’, since they were copied at the beginning of Bible codices known as ‘crowns’ (Arabic *tijān*) (Eldar 1994, 15–16). The short version of *Hidāyat al-Qāriʾ* found its way to central Europe

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141 Another derivative Arabic version was published in Ginbsburg’s (1885, 43-51) corpus of Masoretic material.
and two full Hebrew translations were made of it. One was made in Mainz and was given the title *Horayat ha-Qore* ‘Guide for the Reader’ in the manuscripts, the earliest being datable to the thirteenth century. The other translation was given the title *Tokhen ʿEzra* ‘The Ruling of Ezra’ in a manuscript dated 1145 and the title *Ṭaʿame ha-Miqra* ‘The Accents of the Bible’ in a manuscript dated 1285–1287. Both copies were made in Italy. In the version entitled *Ṭaʿame ha-Miqra* the work is erroneously attributed to the Spanish grammarian Yehudah ibn Balʿam (Busi 1984; Eldar 1994, 16–18).

The sections on the consonants and vowels in *Hidāyat al-Qāriʾ* are of great importance for the reconstruction of the Tiberian pronunciation tradition. This applies in particular to the original Arabic long and short versions. So far, no full edition of these is available. I have, therefore, included a critical edition of the sections on consonants and vowels of the Arabic versions of *Hidāyat al-Qāriʾ* together with a facing English translation as a supplementary volume to this book. Eldar (2018) has recently published the section on the accents from the Arabic versions.

### I.0.13.2. Masoretic Notes

The Masoretic notes in the margins of Bible codices occasionally contain information about the pronunciation of the reading tradition that supplements what is encoded in the vocalization sign system. This applies in particular to notes that relate to vowel length. The Masoretic note יִנַּט ‘short’, for example, occurs in places where there may be some doubt as to whether a vowel is long or short, as in:
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L: זָכַּר ! (2 Chron. 6.42). Masoretic note: the only form in the book in which the vowel is short, i.e. it is an imperative with a short qames and not a 3fs. past verbal form, which would have had a long qames.

A: רבבות (Deut. 33.17). Masoretic note: ‘short’, i.e. the hireq is short here, in contrast to cases with ga’ya, such as רבבות (Num. 10.36), in which the hireq is long.

I.0.13.3. Karaite Transcriptions of the Hebrew Bible into Arabic Script

In the tenth and eleventh centuries C.E., many Karaite scribes in the Middle East used Arabic script not only to write the Arabic language but also to transcribe Hebrew. Such Hebrew texts in Arabic transcription were predominantly Hebrew Bible texts. These were sometimes written as separate manuscripts containing continuous Bible texts. Some manuscripts in Arabic script contain collections of Biblical verses for liturgical purposes. Arabic transcriptions of verses from the Hebrew Bible or individual Biblical Hebrew words were, in many cases, embedded within Karaite Arabic works, mainly of an exegetical nature, but also in works of other intellectual genres. Several Karaite Arabic works also contain Arabic transcriptions of extracts from Rabbinic Hebrew texts (Tirosh-Becker 2011). The Karaites transcribed into Arabic script only texts with an oral reading tradition, as was the case with the Hebrew Bible and Rabbinic texts in the Middle Ages. The transcriptions reflect, in principle, these oral traditions. It is for this reason that the transcription of the Hebrew Bible
represents the *qere* (the orally transmitted reading tradition of the text) rather than the *ketiv* (the written tradition) (Khan 1992b).

Most of the known manuscripts containing Karaite transcriptions of Hebrew into Arabic script are found in the British Library (Khan 1993), the Firkovitch collections of the National Library of Russia in St. Petersburg (Harviainen 1993a), and in the Cairo Genizah collections (Khan 1990a). These manuscripts emanate from Palestinian circles of Karaites or Karaites in Egypt who had migrated to Egypt from Palestine after the capture of Jerusalem by the Crusaders in 1099. The majority of them were written in the tenth and eleventh centuries. Most of the transcriptions of Biblical Hebrew reflect the Tiberian reading tradition. The transcriptions, therefore, are an important source for the reconstruction of this reading tradition. The Karaites represented a movement within Judaism and were closely associated with the Tiberian Masoretes (§I.0.4.). The tradition of Biblical Hebrew reflected by their texts is not a separate communal tradition comparable, for example, to that of the Samaritans.

The Karaite Hebrew grammarians of the tenth and eleventh centuries were, in general, concerned with the reading tradition (*qere*) reflected by the Tiberian vocalization signs and showed little concern for the orthography of the written text (*ketiv*) (Khan 2000b; 2003; 2013b). The Karaite al-Qirqisānī, in his discussions of the bases of authority for the Hebrew Bible, contended that the ultimate authoritative source was the reading tradition of the people of Palestine (by which he meant Tiberias), rather than the written form of the text with orthographic inconsistencies. One
of his justifications was that the reading tradition had been transmitted by the whole community (ʾumma) since the time of the prophets whereas the written orthography had been transmitted on the authority of small circles of scribes, which is, therefore, more liable to corruption or wilful change (Khan 1990c). The Arabic transcription texts can be understood most easily as a reflection of the priority that the Karaites gave to the reading tradition.

I.0.13.4. Grammatical and Lexicographical Texts

Some of the early works on Hebrew grammar were written by scholars who had knowledge of the pronunciation of Hebrew in the Tiberian reading tradition. All these were written in the Middle East in the tenth and eleventh centuries at the end of the Masoretic period. As has been remarked, the grammarians of Spain did not have direct access to the Tiberian reading tradition, despite their extensive discussion of vocalization and phonology in a number of their works.

The grammatical works written by grammarians with a knowledge of the Tiberian reading tradition can be classified into the works of Saadya Gaon and the works of Karaites.

The grammatical writings of Saadya contain elements taken from the Masoretic tradition (Dotan 1997). After leaving Egypt, Saadya spent a few years in Tiberias studying with the Masoretes. According to Dotan, he composed his main grammar book (Kitāb Faṣīḥ Lughat al-ʾIbrāniyyīn ‘The Book of the Eloquence of the Language of the Hebrews, also known as Kutub al-Lugha
‘Books of the Language’) while he was in Tiberias during the second decade of the tenth century. The surviving sections of the work include not only treatments of grammatical inflection and word structure, but also several chapters relating to the Tiberian reading tradition. The material for some of these has clearly been incorporated from the Masoretic tradition and direct parallels can be found in the extant Masoretic treatises, such as *Diqduqe ha-Teʾamim* (Dotan 1997, 34–36). Dotan, indeed, suggests that one of the missing chapters may have been concerned specifically with accents. We may say that Saadya’s grammar book is not a product of collaboration with the Masoretes or a complementary expansion of the scope of Masoretic teaching, but rather was intended to stand apart from the Masoretic tradition.

The grammatical texts written by the Karaites, on the other hand, reflect a closer association with Masoretic activities, in that they were intended to complement the Masoretic treatises rather than incorporate elements from them. Several grammatical works have come down to us that were written by Karaite scholars who had direct access to the Tiberian reading tradition. These can be divided into works reflecting the early Karaite grammatical tradition and those written by the grammarian ʿAbū al-Faraj Hārūn together with texts dependent on ʿAbū al-Faraj’s works. The main source for the early Karaite grammatical tradition is the grammatical commentary on the Bible of ʿAbū Yaʿqūb Yūsuf ibn Nūḥ, known as the *Diqduq*, which was composed in Jerusalem the second half of the tenth century. ʿAbū al-Faraj’s works are datable to the first half the eleventh century and were, likewise, written in Jerusalem (Khan 2003). The *Diqduq* of Ibn Nūḥ
contains some discussion of pronunciation and accents, but this is usually related to some issue regarding linguistic form. The *Diqduq* was intended, it seems, to complement such treatises as *Diqduqe ha-Ṭeʿamim*, the exclusive concern of which was pronunciation and accents.

ʾAbū al-Faraj Hārūn ibn Faraj wrote several works on the Hebrew language. The largest of these is a comprehensive work on Hebrew morphology and syntax consisting of eight parts entitled *al-Kitāb al-Mushtamil ʿalā al-ʿUṣūl wa-l-Fuṣūl fī al-Lugha al-ʿIbrāniyya* ‘The Comprehensive Book of General Principles and Particular Rules of the Hebrew Language’ (Bacher 1895b; Khan 2003). ʾAbū al-Faraj subsequently wrote a short version of this entitled *al-Kitāb al-Kāfī fī al-Lugha al-ʿIbrāniyya* ‘The Sufficient Book concerning the Hebrew Language’, the entire text of which has been edited with an English translation (Khan, Gallego, and Olszowy-Schlanger 2003). The works of ʾAbū al-Faraj were radically different from the *Diqduq* of Ibn Nūḥ in their approach. There was, nevertheless, a certain degree of continuity of grammatical thought from the teachings of the earlier Karaite grammarians in the works of ʾAbū al-Faraj, which can be found especially in some of his theories of morphological structure. This continuity can be identified also in the scope of his grammatical works and their complementarity to the Masoretic treatises. The subject matter of *al-Kitāb al-Mushtamil* and his other grammatical works includes mainly the description of morphology and syntax. There is no systematic description of pronunciation or the accents. As we have seen, ʾAbū al-Faraj devoted a separate work to this topic, viz. the *Hidāyat al-Qāriʾ* ‘The Guide for the Reader’.
This was intended by him to complement his work on grammar. It was conceived as a continuity of earlier Masoretic treatises on pronunciation and accents, which were among his sources, as ʿAbū al-Faraj states in his introduction to the work. Thus the composition of *Hidāyat al-Qāri* by ʿAbū al-Faraj separately from his grammatical works may be explained as a continuation of the complementarity between grammatical and Masoretic treatises that existed among the Karaite grammarians of the previous generation (Khan 2014).

A number of valuable observations about the Tiberian pronunciation tradition are found in the extensive lexicographical work written in Palestine in the tenth century by the Karaite scholar David ben Abraham al-Fāsī known as *Kitāb Jāmiʿ al-ʾAlfāẓ* ‘Book of the collection of words’ (ed. Skoss 1936).

I.0.13.5. **Commentaries on *Sefer Yeṣira***

*Sefer Yeṣira* is a mystical work of cosmology and cosmogony that came to form part of the literature of the Qabbalah. It describes God’s creation of the world by means of the ten cosmic numbers (*sefirot*) and the twenty-two letters of the Hebrew alphabet (Gruenwald 1971). Scholars differ widely regarding the date of its composition. Gershom Scholem (1965, 158–204) believed it was written in Palestine in the Tannaitic period (second to third centuries C.E.) with some post-Talmudic additions, whereas Bravmann (1934, 29) and Allony (1972; 1982b; 1982a) argued that it was composed in the eighth or ninth century, due to the fact that it contains features that he identified as the result of influence from Arabic grammatical thought in the Islamic period.
The fact that *Sefer Yešira* is already referred to in the *Baraita d-Shmuel* and the poems of Eleazar ha-Kallir (c. sixth century) (Scholem 2007, 330) suggests that such passages are later additions to the original work. Weinstock (1972) argues that a variety of historical layers can be identified in the text, ranging from the Tannaitic period until the tenth century C.E. Hayman (2004, 5) also identifies layers in the text, but is reluctant to accept the early dating of Weinstock.

The work is extant in two main versions, one short and one long, without major divergences in ideas between them. On account of its focus on letters of the Hebrew alphabet, the work is of some importance for the history of the Hebrew language. It contains, for example, a classification of the letters according to their places of articulation in the mouth. It is not accurate, however, to identify the work as the first composition on Hebrew grammar and orthography, as was proposed by Mordell (1914). The inclusion of the letter *resh* together with תבגכפ in a list of the letters that have hard and soft realizations has been interpreted as reflecting a Babylonian rather than Tiberian tradition of pronunciation (Morag 1960). Numerous commentaries were written on work from the tenth century onwards, which made expositions of its laconic and enigmatic text. It is in some of these commentaries that one can find information about the Tiberian reading tradition. The two extant commentaries that are relevant in this respect are those of Saadya Gaon and Dunash ibn Tamīm, both written in the tenth century in Arabic. Saadya wrote a philosophical commentary on the long version of *Sefer Yešira* in 931
when he was Gaon in Iraq (ed. Lambert 1891). As has been re-
marked, Saadya was familiar with the Tiberian reading tradition
and makes reference to it in several places in this commentary.
ʾAbū Sahl Dunash ibn Tamīm made a commentary on the short
version in 955/6 in Kairouan. Fragments of the Arabic original
have been discovered in the Genizah (Vajda 1954; 1963). Several
later revisions were made, mainly in Hebrew (e.g. ed. Grossberg
1902). The commentary is apparently based on the lectures of
Dunash’s teacher, Isaac Israeli, who is said to have known the
Tiberian reading tradition.

I.0.13.6. Non-Standard Tiberian Systems of
Vocalization

There are a variety of extant medieval manuscripts of the Hebrew
Bible that are vocalized with Tiberian signs but do not follow the
standard Tiberian system of vocalization. These manuscripts
exhibit numerous differences among themselves, though certain
tendencies are observable. Some of the differences from the
standard Tiberian vocalization can be interpreted as reflecting
stages of development different from the one exhibited by the
standard system, some more primitive and some more advanced,
in particular in the use of the dagesh, rafe, shewa and ḥaṭef
signs. Other differences from standard Tiberian reflect a
different pronunciation tradition, the most conspicuous feature
being the interchange of segol and šere, on the one hand, and
patah and qamesḥ, on the other. Manuscripts exhibiting such
interchanges have been interpreted as reflecting the Palestinian

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142 See Khan (1991, 856; 2017b).
pronunciation tradition, since similar interchanges are found in manuscripts with Palestinian vocalization. The interchanges are, however, inconsistent across the extant manuscripts and they appear to reflect a variety of types of pronunciation with minor differences.

The Non-Standard Tiberian type of vocalization has been found in biblical manuscripts written in medieval Europe, in both Ashkenaz and Italy.\textsuperscript{143} The best known European biblical manuscript of this type is Codex Reuchlinianus, written in Karlsruhe in 1105 CE.\textsuperscript{144} A range of manuscripts with Non-Standard Tiberian vocalization that were written in the Middle East were discovered in the Cairo Genizah by Kahle (1930, vol. 2), who published descriptions of some of them. Descriptions of other Genizah fragments were subsequently made by other scholars, in particular Díez Macho (1956; 1963; 1971), Murtonen (1961) and Revell (1969). Further work has been carried out by Blapp (2017; 2018) and Arrant (2020) on the Bible fragments with Non-Standard Tiberian vocalization from the Genizah at the University of Cambridge.

The wide distribution of the non-standard type of Tiberian vocalization in many medieval manuscripts written in Europe led Kahle to believe that it must have been associated with a major

\textsuperscript{143} See Sperber (1956-1959). Additional manuscripts of this type from Italy are described by Pilocane (2004).

\textsuperscript{144} Cod. Reuchlin 3 of the Badische Landesbibliothek in Karlsruhe; cf. Sperber (1956-1959), Morag (1959). This type of vocalization is also found in liturgical manuscripts from medieval Ashkenaz (Eldar 1978) and some manuscripts of the Mishnah (Heijmans 2013b).
stream of Masoretic tradition that is traceable in the Masoretic sources. A common feature of the manuscripts is the vocalization with ḫireq before yod in contexts such as לִיש רָאֵל where standard Tiberian generally has shewa followed by yod with ḫireq (ל יִש רָאֵל). As we have seen, this is recorded in Masoretic treatises as a distinctive practice of Ben Naftali. For this reason, Kahle held that this vocalization type was associated with the tradition of Ben Naftali. In reality, however, the manuscripts with Non-Standard Tiberian vocalization contain numerous features that are not attributed to Ben Naftali or Ben Asher in the Masoretic lists, such as the extended use of dagesh and rafe and the interchange of qamesḥ and pataḥ, on the one hand, and segol and šere, on the other. The attribution of the system to the Ben Naftali school was subsequently followed by Prijs (1957). Díez Macho (1956; 1963) maintained that the vocalization had its roots in the Ben Naftali school but had undergone further development, and so he terms it ‘Pseudo-Ben Naftali’. Morag (1959) argues against the attribution of the system to the Ben Naftali school and terms it ‘Fuller Palestinian’. Dotan (2007, 645) believed that the vocalization was a continuation of the Palestinian vocalization. Allony (1964) termed the vocalization ‘Palestino-Tiberian’ on account of the fact that in many cases, as remarked, they reflect a Palestinian type of pronunciation. It is known that this type of pronunciation existed in medieval Ashkenaz before the fourteenth century. The term Palestino-Tiberian has been widely accepted (Eldar 1978; 145 He was following in this respect the identification by Delitzsch of the non-standard features of the Codex Reuchlinianus with the Ben Naftali tradition; see Baer and Delitzsch (1890, ix) and Ginsburg (1897, 640).
Heijmans 2013b). Yeivin (1980; 1983), however, preferred the term ‘Extended Tiberian,’ on account of the fact that the vocalization system in many of the manuscripts extends some of the principles found in the standard Tiberian vocalization, such as the use of the \textit{dagesh}, \textit{rafe} and \textit{ha\textae}f signs. It is this development of principles of standard Tiberian vocalization as well as the reflection of these principles in a less advanced stage of development in the corpus of Non-Standard Tiberian manuscripts that will be of particular interest to us in this book. I shall refer to the various vocalization systems of this type by the generic term Non-Standard Tiberian, following Blapp (2017, 2018) and Arrant (2020).

Despite the wide attestation of the Non-Standard Tiberian system of vocalization in manuscripts written in the Middle East that are preserved in the Genizah and in manuscripts written Europe in the High Middle Ages, in both Ashkenaz and Italy,\footnote{See Sperber (1956-1959). Additional manuscripts of this type from Italy are described by Pilocane (2004).} it never had the same status as the standard Tiberian system and it eventually fell into disuse. The existence of large numbers of manuscripts with Non-Standard Tiberian vocalization indicates that during the Masoretic period and for a period of time immediately following it, a pluriformity of Tiberian vocalization existed. Within this pluriformity the standard Tiberian system was regarded as the most prestigious, due to its association with the oral traditions of the Masoretic authorities, but there was no systematic attempt to replace the Non-Standard Tiberian sign systems. Indeed many of the manuscripts with Non-Standard
Tiberian vocalization have a monumental codicological form (Arrant 2020). It was only after the primary base of authority passed from the oral traditions of the Masoretes to the written vocalization that textualized these traditions that the standard Tiberian vocalization gradually began to replace the Non-Standard Tiberian sign systems, and indeed also other non-Tiberian sign systems.

I.0.13.7. The Tiberian Reading Tradition in Babylonian Vocalization

As remarked (§I.0.9.), due to the prestige of the Tiberian reading tradition, there was a tendency for other reading traditions to converge with it. As a result, non-Tiberian systems of vocalization were sometimes used in manuscripts to represent the Tiberian tradition. The vocalization in such manuscripts cast light on several aspects of Tiberian pronunciation. Of particular importance are manuscripts that represent the Tiberian tradition with a system of Babylonian signs known as ‘compound Babylonian vocalization’. The ‘compound system’ of Babylonian vocalization distinguished between long and short vowels, in that it marked short vowels in open and closed syllables by the use of different signs from those used to indicate long vowels. This system, therefore, is helpful for the reconstruction of vowel length. The longest and best known extant manuscript that represents the Tiberian reading with this compound system of Babylonian signs is the manuscript I Firkovitch Evr. I B 3 of the National Library of Russia, which is generally known as Codex Babylonianus Petropolitanus. This was published in facsimile by Strack
(1876) and is a major source for the reconstruction of Tiberian pronunciation (see, for example, A. Ben-David 1957a).

I.0.13.8. Tiberian Signs Used to Represent Other Languages

In the Middle Ages, Tiberian vocalization signs were used in manuscripts written in a variety of Jewish languages other than the canonical biblical languages of Hebrew and Aramaic. Those emanating from the medieval Middle East include manuscripts in Judaeo-Arabic (Blau and Hopkins 1985; Khan 1992a; 2010; 2017a), Judaeo-Persian (Shaked 1985, 35–37) and Judaeo-Greek (de Lange 1996). Of particular importance in this context are the medieval vocalized Judaeo-Arabic manuscripts, since many of these reflect the use of the vocalization signs with the phonetic and syllabic value that they had in the Tiberian reading tradition. This indicates that they were written when the Tiberian pronunciation was still a living tradition. Many of these vocalized Judaeo-Arabic manuscripts have been preserved in the Cairo Genizah. The vowel signs in vocalized Judaeo-Arabic manuscripts from the later Middle Ages, by contrast, do not reflect the Tiberian pronunciation, since by that period it had fallen into oblivion.
I.1. CONSONANTS

I.1.1. ʾALEF א (א)

Glottal plosive [ʔ]

Consonantal ʾalef occurs in the following contexts:

In the onset of a syllable at the beginning of a word, e.g. אָמַר [ʔɔːˈmaːr] ‘he said’ (Gen. 3.16), אֱלֹהִים [ʔɛloːˈhiːim] ‘God’ (Gen. 1.1).

In the onset of a syllable in the middle of a word after a silent shewa, e.g. שׁוֹב יָבָא [vaʃoːˈvaː] ‘and it became foul’ (Exod. 7.21).

In the onset of a syllable in the middle of a word after a vowel, a hatef vowel or vocalic shewa, e.g. יָבְאוּ [viːˈuː] ‘they bring’ (Exod. 16.5), אָזְר [ʔaʔazzer] ‘I gird you’ (Isa. 45.5) מָאָד [moˈʔoːd] ‘very’ (Gen. 1.31).

In the coda of a syllable in the middle of a word, e.g. יָבְאוּ [vaʃoːˈsoːor] ‘and he tied’ (Gen. 46.29).

In the Standard Tiberian tradition consonantal ʾalef in the middle of a word between vowels is marked with dagesh in four places:

(i) וּאָלֹאֵלָו ‘and they brought to him’ (Gen. 43.26)

(ii) וּאָלֹאֵלָו ‘and they brought to us’ (Ezra 8.18)

(iii) נָבְאוּ ‘you shall bring bread’ (Lev. 23.17)
(iv) ‘they were not seen’ (Job 33.21)

These four cases are specified in Masoretic treatises and Masoretic notes. They are referred to, for example, in the Masoretic treatise *Hidāyat al-Qāri*:

It has been said that *dagesh* is placed in '*alef* in some specific places in Scripture, namely in the following four cases: ‘and they brought him the present’ (Gen. 43.26), ‘and they brought to us by the hand of our God’ (Ezra 8.18), ‘from you dwellings you shall bring’ (Lev. 23.17), and his bones, which were not seen, are laid bare’ (Job 33.21).

Some examples of references to the four places in Masoretic notes include the following:

There are three occurrences of '*alef* with *dagesh* in a particular lexical item (viz. derivatives of the root *baw* ‘to come’), these being in the verses ‘You shall bring from your dwellings two loaves of bread to be waved’ (Lev. 23.17), ‘they brought to him the present which they had in their hand’ (Gen. 43.26), and one (case of '*alef* with *dagesh*) in another word,

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1 Long version, edition in vol. 2 of this book, §II.L.1.3.2.
(in the verse) ‘and his bones which were not seen stick out’ (Job 33.21).²

These show that the occurrence of *dagesh* in *’alef* in these specific places was fixed in the Tiberian tradition. In some of the early Standard Tiberian codices, however, *dagesh* is marked in *’alef* also elsewhere in addition to these canonical four places. This applies even to L, where it occurs in the following two additional places:⁴

L: Ruth 2.10: ‘and I’ (A: "ואני")

L: Ruth 2.11: ‘and you left your father’ (A: "אתם")

These two additional occurrences of *dagesh* in *’alef* in L are not referred to in the Masoretic notes, which indicates that they were not canonical in the Tiberian tradition. In the manuscript C there are numerous additional cases of *’alef* marked with *dagesh*, none of which are referred to in the Masoretic notes (Yeivin 1980, 285), e.g.

C: Hag. 1.1: ‘Shealtiel’ (L [BHS]: "שלطيיל")


³ Ginsburg (1905, 2), source: Masora magna in the Second Rabbinic Bible (Venice 1516–17, Bomberg) to Lev. 23.17, Job 33.21 and Ezra 8.18.

⁴ I am grateful to Ben Kantor for drawing these to my attention.
C: Jer. 38.12: בָּֽלַ֞ו ‘rags’ (L [BHS]: בָּֽלַו)

C: Isa. 51.19: ָ֖֙ אּוֹ ‘the things that befall you’ (L [BHS]: ָ֖֙ אּוֹ)

Ginsburg (1905, 2) draws attention to the existence of some Masoretic notes in European manuscripts that refer to a greater number of instances of dagesh in ’alef than the canonical four. These must reflect the awareness of a greater extent of marking the dagesh in some manuscripts.

In manuscripts with Non-Standard Tiberian vocalization, the marking of dagesh in consonantal ’alef is very frequent. In the Codex Reuchlinianus this is the general rule with only a minority of exceptions. In the single verse Isa. 37.33, for instance, we find: אֹ ּ בָּֽק (L [BHS]: אֹ בָּֽק, אֹ בָּֽק, ‘Assyria’ (L [BHS]: אֹ בָּֽק) (Morag 1959, 218). There is frequent marking of dagesh in ’alef also in manuscripts with Non-Standard Tiberian manuscripts written in the Middle East. In some of the Genizah fragments described by Blapp (2017), for example, the marking is as regular as in Codex Reuchlinianus. The following are a few selected examples from T-S A12.1 (Blapp 2017, 83):

אְָּ֧ֆ (T-S A12.1 | L [BHS]: אְָּֆ Prov. 29.15 ‘his mother’)

אַָ֣ץ (T-S A12.1 | L [BHS]: אַָ֣ץ Prov. 29.20 ‘he who is hasty’)

בֶּֽאֱּמ ֶַ֣ת (T-S A12.1 | L [BHS]: בֶּֽאֱּמ ֶַ֣ת Prov. 29.14 ‘truthfully’)

כֶּֽשֶׁ (T-S A12.1 | L [BHS]: כֶּֽשֶׁ Prov. 29.16 ‘they will see’)

וֹ ּֽ אּ (T-S A12.1 | L [BHS]: וֹ ּֽ אּ Prov. 29.14 ‘he said’)

וְּ (T-S A12.1 | L [BHS]: וְּ Prov. 29.18 ‘happy is he’)

וְּ (T-S A12.1 | L [BHS]: וְּ Prov. 29.19 ‘he’)
The motivation to mark the *dagesh* in the four canonical places in the Standard Tiberian tradition was, it seems, to ensure that the consonantal *ʾalef* was pronounced correctly and was not slurred over (Yeivin 1978, 1980, 285). The forms יָבֵּי (Gen. 43.26), יָבֵּי (Ezra 8.18) and יָבֵּי (Lev. 23.17) are distinguished from other instances of similar forms of this verb in the biblical corpus by having a conjunctive accent followed by a word with an accent on the initial syllable. This is the context in which *deḥiq* occurs when the final vowel of the first word is *qames* or *segol*, in which there is a fast reading and compression of the syllable between the two accents (§I.I.2.8.1.2.). They also exhibit the sequence of two adjacent high vowels [iː—uː] separated by *ʾalef*. It is likely, therefore, that the consonantal *ʾalef* was considered to be particularly in danger of being slurred over in such a context. Another common feature of these three cases is the occurrence of the sonorant consonant *lamed* at the beginning of the second word. The *ʾalef* in יָבֵּי (Job 33.21) was evidently considered to be in danger of losing its pronunciation and being read as a glide between the two high [uː] vowels.

The greater number of occurrences of *dagesh* in *ʾalef* in some of the model Tiberian codices, especially C, reflects the extension of this principle to other cases of consonantal *ʾalef* that were considered to be at risk of being misread. Still further extension of this practice is found in some manuscripts with Non-Standard Tiberian vocalization, in which the marking of *dagesh* has become virtually regular.
The question arises as to whether this dagesh in ’alef marked gemination or not. Some modern scholars have interpreted it as a sign to distinguish the consonantal realization of the ’alef from cases where it does not have consonantal realization (e.g. Morag 1959, 218–19, 1960, 208 n.6, 1963, 5–6). It would, therefore, be equivalent to a mappiq on the letter he, which distinguishes final consonantal he from final he that is a vowel letter, rather than a marker of gemination. A statement in Hidāyat al-Qāri’ appears to support this interpretation:

If it were said: Surely the dagesh in some of the four letters of this place (i.e. the letters אמהחע), namely in the ’alef in the four passages that you have just mentioned, disproves your statement that dagesh is not put on the letters of this place of articulation, the response would be: If one examines carefully the so-called dagesh in the ’alef in these four passages, one sees that it is not dagesh, since the speaker strives to introduce heaviness into it, but it is not made heavy.\(^5\)

There is, however, evidence for the gemination of the ’alef in some early Karaite sources. Yūsuf ibn Nūḥ, a Karaite scholar active in the second half of the tenth century, in his grammatical commentary known as the Diqduq compares the dagesh in the forms וּאִלּוָֹ֖ו יָבִ֥י (Gen. 43.26) and וּאִלִּיָּ֖ו יָבִ֥י (Ezra 8.18) to the dagesh that occurs in other forms due to the preceding stress:

\[וֹתְהָתֻּֽלַבּ (Job 13.9): \ldots \text{The dagesh that occurs in the lamed has arisen due to the fact that the stress lengthens the tav, resulting in } \text{’you}\]

\(^5\) Long version, edition in vol. 2 of this book, §II.L.1.3.5.
deceive him’. This conforms to what we have stated before, with regard to the occurrence of *dagesh* in some places when the stress lengthens what precedes, for example ‘to Moses saying’ (Exod. 6.10), ‘and they said “No”’ (Gen. 19.2), ‘and they said “No”’ (Ezra 8.18) and ‘and they said “No”’ (Gen. 43.26). The word ָ֖לּוּבָ֖ו יָבִ֥י is like ָ֖לּוּבָ֖ו יָבִ֥י, in that the stress and the *dagesh* occur within the same word. 6

This passage implies that the *dagesh* in the ʼ*alef* indicates gemination in the same way as the *dagesh* in ָ֖לּוּבָ֖ו יָבִ֥י. Ibn Nūḥ makes the following statement about the form ָ֖לּוּבָ֖ו יָבִ֥י (Job 33.21):

The imperative of this is ָ֖לּוּבָ֖ו יָבִ֥י, like ָ֖לּוּבָ֖ו יָבִ֥י and ָ֖לּוּבָ֖ו יָבִ֥י. 7

In Ibn Nūḥ’s system of grammar, the imperative form is the morphological base of derivations. This statement indicates that ָ֖לּוּבָ֖ו יָבִ֥י has the morphological base ָ֖לּוּבָ֖ו יָבִ֥י and that this has the same pattern as ָ֖לּוּבָ֖ו יָבִ֥י, which are the bases of the forms ָ֖לּוּבָ֖ו יָבִ֥י, ‘it is covered’ (Ecc. 6.4), ָ֖לּוּבָ֖ו יָבִ֥י, ‘and they stick out’ (Job 33.21) with medial gemination.

In a Karaite transcription of ָ֖לּוּבָ֖ו יָבִ֥י (Job 33.21) into Arabic script, an Arabic *shadda* sign is written over the ʼ*alef* that transcribes the ʼ*alef* with the *dagesh*:

6 תְּהָתֵלָו בַּע... יָבִ֥י לָלּוּבָ֖ו יָבִ֥י (ed. Khan 2000b, 369).

7 אמרה רָבָ֖ו יָבִ֥י, Diqduq (ed. Khan 2000b, 399).
The Tiberian Pronunciation Tradition of Biblical Hebrew

BL Or 2552 fol. 51r, 1 | L [BHS]: Job. 33.21 ‘they were [not] seen’

This manuscript, which is datable to the tenth or eleventh century, elsewhere uses the shadda sign only to mark dagesh forte. This is clear evidence, therefore, that the 'alef was being read as geminate.

The interpretation of the dagesh in 'alef as a marker of gemination rather than a mappiq is reflected also by a statement in a Hebrew Masoretic treatise:

Moreover, three of the four (i.e. the four letters אוחע) have a single fixed type (of pronunciation), which is less than all the (other) letters, (namely) השוע are deprived of taking dagesh.⁸

The implication of the passage is that 'alef, unlike the other guttural letters, does indeed take dagesh.

Returning to the passage from Hidāyat al-Qāri’ cited above, a close reading of this reveals that the author is not saying that the point in the 'alef is simply a mappiq indicating consonantal realization. Rather the reader ‘strives to introduce heaviness into

⁸ תָּוָּוָּו (Baer and Strack 1879, 5).
it, but it is not made heavy’, i.e. the reader intends to read it as a *dagesh forte*, but the muscular tension normally associated with *dagesh forte* is not achieved due to its articulation in the larynx. The articulation of the ’*alef* could, nevertheless, have been held for a longer duration.

In some manuscripts with Babylonian vocalization, the *dagesh* sign is marked on consonantal ’*alef* in a wide variety of words (Yeivin 1985, 265–66). It is significant that *mappiq* on final *he* is represented by a different sign (Yeivin 1985, 335–36), suggesting that the *dagesh* in the ’*alef* did not have the function simply of *mappiq* but rather indicated gemination.

In some of the reading traditions that have continued down to modern times in Jewish communities in the Middle East, the ’*alef* with *dagesh* in the four canonical places is indeed still read as a geminate ’*alef*, e.g. Aleppo (Katz 1981, 16), Baghdad (Morag 1977, 14), Yemen (Morag 1963, 5–6). Transcriptions of the Aleppo tradition, following Katz (1981, 16) are as follows:

- Gen. 43.26: [ˌvajjaˈβiʔˈʔu]
- Ezra 8.18: [vˈjaβiːʔˌʔu]
- Lev. 23.17: [təˈβiʔˈʔu]
- Job 33.21: [ˈruʔˈʔu]

These traditions of reading the ’*alefs* need not be interpreted as late interpretations of the point in the ’*alef*, as Morag (1977, 14) argues, but rather continuities of medieval traditions.

In sum, the weight of evidence suggests that the *dagesh* point in ’*alef* in the four canonical places in the Standard Tiberian
tradition indicated gemination of the ‘alef, and so should be transcribed [va̱ːɡɔːˈviːiʔʔuː], [tʰɔːˈviːiʔʔuː], [ɾ̟uʔˈʔuː]. The gemination was an orthoepic strategy that involved pronouncing the ‘alef with additional effort to ensure that it was not slurred over.

Within the Tiberian Masoretic tradition there are a number of pairs of identical lexical words, many of them in parallel passages, one of which has preserved the consonantal ‘alef whilst the other has lost it both in the ketiv and in the qere,⁹ e.g.

תוֹמ ָם (Gen. 25.24) — תְאוֹמ ָים (Gen. 38.27) ‘twins’

גוּר (Gen. 46.13) — גוּר (1 Chron. 7.1) ‘and Puah’¹⁰

תִּוְרָנִין (2 Sam. 22.40) — תִּוְרָנִין (Psa. 18.40) ‘you did gird me’

הֶבִּרְלֵית (1 Chron. 11.39) — הֶבִּרְלֵית (2 Sam. 23.37) ‘of Beeroth’

לֶשֶׁאֹתו (2 Kg. 19.25) — לֶשֶׁאֹתו (Isa. 37.26) ‘to cause to crash into ruins’

ירָפָץ (Jer. 8.11) — יִרְפָּא (Jer. 6.14) ‘and they have healed’

In some biblical scrolls from Qumran, an ‘alef that is pronounced consonantal in the Tiberian Masoretic tradition is omitted in the orthography, indicating that it had lost its consonantal

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⁹ These are listed in the Masora, e.g. Ginsburg (1880, §16a).

¹⁰ In the Non-Standard Tiberian manuscript BL Add MS 21161, fol. 250v this word is vocalized וּפוּאָה, which appears to be a hybrid form of וּפֻוָּה and וּפוּאָה.
pronunciation. This is particularly common in the scroll 1QIsa, but is found also occasionally elsewhere, e.g.\textsuperscript{11}

(1QIsa\textsuperscript{a} 3.17 | L [BHS]: מְא שְרֶַ֣יך Isa. 3.12 ‘your guides’)

(1QIsa\textsuperscript{a} 11.14 | L [BHS]: נֶּאֱסָפ ַ֔ים Isa. 13.4 ‘gathered [mpl]’)

(1QIsa\textsuperscript{a} 12.23 | L [BHS]: וּ ִ֥וּמָלְא Isa. 14.21 ‘and [the surface of the world] will be filled’)

(1QIsa\textsuperscript{a} 19.3 | L [BHS]: וּ ַֽֽיֶאְשְׁמ Isa. 24.6 ‘[and its inhabitants] pay the penalty’)

(1QIsa\textsuperscript{a} 33.11 | L [BHS]: טְלָא ַ֔ים Isa. 40.11 ‘lambs’)

(1QIsa\textsuperscript{a} 29.25 | L [BHS]: תָֽא נָת Isa. 36.16 ‘his fig tree’)

(1QIsa\textsuperscript{a} 13.19 | L [BHS]: ketiv הביאי qere Isa. 16.3 ‘give [fs advice]!’)

(4Q141 f1i.12 | L [BHS]: בַָ֔ו Deut. 32.17 ‘they came’)

(4Q138 f1.13 | L [BHS]: אֱל יאָב Deut. 11.6 ‘Eliab’)

(4Q78 f10–12.7 | L [BHS]: נֶּאֱוַה Joel 1.19 ‘pastures of’)

(4Q79 f1–2.9 | L [BHS]: הָאִָ֑רֶץ Hos. 2.2 ‘the earth’)

In living reading traditions that have survived down to modern times in Jewish communities in the Middle East a consonantal ‘alef is general pronounced, but is sometimes elided, especially between vowels, e.g.

\textsuperscript{11} Data supplied by Aaron Hornkohl.
Aleppo

ha'ele (Katz 1981, 15 | L [BHS]: הָאֶלֶּה Gen. 48.1 ‘these’)

Baghdad

wearba'ylim (Morag 1977, 13 | L [BHS]: וְאָרְבָּעִים Gen. 47.28 ‘and forty’)

Yemen

b'хи:w (Morag 1963, 3 | L [BHS]: בְּאָחִיו Isa. 19.2 ‘against his brother’)

Morocco

isra'il (Akun 2010, 65 | L [BHS]: יִשְׁרָאֵל Exod. 14.30 ‘Israel’)

The variants within the Masoretic tradition and the loss of ʾalef in the Qumran scrolls and modern living traditions reflect the vulnerability of consonantal ʾalef to weakening in reading traditions, which would have motivated orthoepic measures being taken to ensure their correct reading.

In the model Standard Tiberian manuscripts ʾalef that does not have a consonantal realization is sometimes marked with a rafe sign, e.g.

L: ָ֖שׁ ַ֗יִּר ָ֖א ‘my head’ (Psa. 40.13)

L: ָ֖נֹו ֹ֤לִ֙א ִ֙א ‘we do not fear’ (Hos. 10.3)

It is regularly marked in L on ʾalef between two vowels that is not read as consonantal, e.g.

L: ָ֖י ַ֣םא ָ֖פָ ‘the simple’ (Psa. 116.6)

L: ָ֖י ַ֗םא ָ֖ע ָ֜פָ ‘branches’ (Psa. 104.12)
Consonants

(1 Chron. 12.9) ‘and like gazelles’

These words are listed in the Masora as cases where ‘ʾalef is written but not read’.¹²

In some manuscripts with Non-Standard Tiberian vocalization the marking of rafe on non-consonantal ’alef is very frequent, e.g.

Codex Reuchlinianus:

ֲָ֖א ָ֖וְ (Morag 1959, 218 | L [BHS]: אַּמָּשֶׁאַ Isa. 23.1 ‘oracle’)

ֲָ֖א ָ֖בָי (Morag 1959, 221 | L [BHS]: אַּבְּאַ Isa. 37.33 ‘(does not) come’)

Genizah manuscripts

ֲָ֖א ָ֖וְל (T-S A12.1 | L [BHS]: אַּוְלַ Job 39.9 ‘will it be willing’) (Blapp 2017, 59)

ֲָ֖א ָ֖וְ (T-S A12.1 | L [BHS]: אַּוְ Prov. 29.24 ‘he who hates’) (Blapp 2017, 99)

ֲָ֖א ָ֖וְ (T-S A12.1 | L [BHS]: אַּוְ Prov. 29.24 ‘and not’) (Blapp 2017, 99)

In Non-Standard Tiberian manuscripts, ’alefs that are non-consonantal in the Standard Tiberian tradition are occasionally marked with dagesh. In some cases where the ’alef occurs word-internally, it is possible that these reflect consonantal readings of the ’alef, e.g.

ֲָ֖א ָ֖וְ (BL Add MS 21161, fol. 160v | L [BHS]: אַּוְ Psa. 104.12 ‘branches’)

¹² Ginsburg (1880, §13).
It is sporadically, however, marked on a word-final ʾalef, which must have been read as non-consonantal, e.g.

אּנ (T-S NS 248.2, Arrant 2020 | L [BHS]: אֶנ Gen. 13.9 ‘please’)

אָשֶׁר (T-S NS 248.2, Arrant 2020 | L [BHS]: אָשֶׁר Gen. 13.10 ‘and he lifted’)

אֵרוֹ (T-S NS 248.2, Arrant 2020 | L [BHS]: אֵרוֹ Gen. 15.1 ‘[do not] be afraid’)

In a few model Tiberian codices a rafe is marked on an ʾalef in the word יִשָּׁרָא where it would be expected to be consonantal, e.g.

C: יִשָּׁרָא, L [BHS]: יִשָּׁרָא in Israel (1 Sam. 3.11)

Yeivin (1978, 226) suggests that this phenomenon in the model manuscripts may indicate that in this proper name the ʾalef was not pronounced as consonantal, i.e. [jisrˁɔːˈel].

The marking of rafe on consonantal ʾalef is attested sporadically also in manuscripts with Non-Standard Tiberian vocalization, e.g.

דָּנִּי (T-S A12.1, Blapp 2017, 99 | L [BHS]: דָּנִּי Prov. 30.2 ‘I’)

A possible parallel to this elision of the ʾalef can be identified in the proper name דָּנִיֵּל [dɔːniye:el] ‘Daniel’ < *dān-iʔēl. Yeivin notes that in both names the ʾalef is followed by the letter lamed.
In Non-Standard Tiberian manuscripts that otherwise use dagesh extensively in consonantal ‘alef, the ‘alef in the word ישראָל is often marked with rafe (Pilocane 2004, 28).

In Biblical manuscripts with Palestinian vocalization, both the dagesh sign (ג) and the rafe sign (ג) are found marked on consonantal ‘alef, e.g.

**Dagesh:**

[וּ]יִשְׂרָאֵל (Bod. Heb. e 30 ff. 48-49 | L [BHS]: יִשְׂרָאֵל) (Kahle 1901, 278; Revell 1970a, 77)

**Rafe:**

[וּ]יִשְׂרָאֵל (Bod. Heb. e 30 ff. 48-49 | L [BHS]: יִשְׂרָאֵל) (Kahle 1901, 287; Revell 1970a, 77–78)

It is unlikely that in these cases the marking of the rafe reflects the loss of consonantal value of the ‘alef. The sign is likely to be intended to signal that the ‘alef is consonantal but ungeminated.

In L one encounters vocalizations such as the following:

**Num. 26.7:** (BHS: הַרְאוֹבִּינָּר, הָרְאוֹבִּינָּר) ‘the Reubenite’ (B: הַרְאוֹבִּינָּר, S: הַרְאוֹבִּינָּר)

**Josh. 12.6:** (BHS: הַלְּאָבָּנִין, הַלְּאָבָּנִין) ‘to the Reubenite’ (A: הַלְּאָבָּנִין)

**2 Kings 10.33:** (BHS: הַרְאוֹבִּינָּר, הַרְאוֹבִּינָּר) ‘and the Reubenite’ (A: הַרְאוֹבִּינָּר)
Job 31.7: מֻאּֽוּם (בְּלֵםֶשׁ) ḫ, 'blemish' (A: מַעָּֽוּם)

Dan. 1.4: מְאוּם (בְּלֵםֶשׁ) ḫ, 'blemish' (qere note: מום)

The way these words appear in BHS, which does not mark rafe, would lead one to believe that the ʿalef in L is a consonantal ʿalef between two vowels. In the manuscripts the ʿalef is marked with rafe and in manuscripts other than L there is only one vocalization sign, either qibbus before the ʿalef or a shureq dot on the vav, indicating that the ʿalef did not have a consonantal realization. The vocalization in L adds a qibbus sign on the letter preceding the ʿalef. This is, therefore, a double marking of the u vowel that follows the consonant. The words should be read [hɔːɾ̟uːveːˈniː], [muːum], as shown by other model manuscripts, and also by the qere note in Dan. 1.4. The double marking and qere note were strategies to ensure that the u vowel was pronounced immediately after the consonant.

I.1.2.ו (ב)

Bet with dagesh (ב): voiced bilabial stop [b]

Bet without dagesh (ב): voiced labio-dental fricative [v]

A bet without dagesh is frequently, but not regularly, marked by the rafe sign in the model Standard Tiberian codices.

According to Hidāyat al-Qāri’, the Tiberians called this letter by the name ב,ו. This form of the name is also found in

14 The second [u] is an epenthetic, which is inserted after the long vowel in CVVC syllables (§I.2.4.).

other Masoretic treatises, sometimes vocalized בָּ, and the later recensions of *Hidāyat al-Qāri*.

It is referred to in Masoretic treatises also as בָּך. Both of these spellings represent the Arabic name of the letter, viz. bāʾ, which is pronounced bē due to *ʾimāla* in Arabic dialects (Nöldeke 1910, 131). This form of the name is found in some versions of *Sefer Yeṣira*.

It is stated in *Hidāyat al-Qāri* that the bet with dagesh is pronounced by closing the lips firmly. In the Karaite transcriptions it is represented by Arabic bāʾ (Khan 1990a, 4, 2013).

According to *Hidāyat al-Qāri*, bet with rafe is pronounced by closing the lips lightly. Taken by itself, this could be a description of a bilabial articulation of bet rafe. This is not confirmed, however, by other sources. The light closure of the lips would have accompanied a labio-dental articulation, and no doubt it is this secondary feature that the author refers to. Elsewhere in the *Hidāyat al-Qāri* it is stated that bet rafe and consonantal vav have the same pronunciation:

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16 Allony and Yeivin eds. (1985, 96), Baer and Strack (1879, 7, §6)


21 Cf. Eldar’s (1980) commentary to this passage, n.75.
‘Every [consonantal] vav at the end of a word is pronounced, according to the Palestinians, with [the pronunciation of] bet rafe.’

This feature is alluded to also in a Masoretic treatise on the shewa:

‘Know that every vav which is prefixed to the beginning of a word and has shewa is read with (the pronunciation of) bet. ... I mean, it is pronounced as if it were the letter bet, as in ... and he shall say.’

In some Karaite transcriptions into Arabic script, a fricative bet is occasionally transcribed by Arabic wāw and, vice versa, a Hebrew consonantal vav is sometimes transcribed by Arabic bā’. This is a reflection of the fact that the two sounds were the same, e.g. in the manuscript BL Or 2548:

(BL Or 2548 fol. 3r, 10 | L [BHS]: יִנְבֶּֽךָ֖ס Isa. 5.4 ‘grapes’)

(BL Or 2548 fol. 42r, 3 | L [BHS]: לְקֹיָֽ֖ו Isa. 40.31 ‘those who are hoping for’)

We know from David ben Abraham al-Fāsī that in Palestine consonantal vav in these circumstances was pronounced as a

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23 אָמְרָה אָֽנֹיָֽ֖ו נְבַֽ֣א וְאָמַּֽ֗ו יוֹכַֽ֖ו בְּמֶֽ֣לַח לְֽרַחְמָֽ֗ו וְאוֹכַּֽֽ֣ו אָמַּֽ֗ו בְּֽֽאָֽו לְֽֽתַֽוְּחוֹתָֽ֖ו שְׁוָֽ֣א יוֹכַֽ֖ו בָּֽ֣א מַֽֽאֲלי נְֽבַֽאֲו (ed. Levy 1936, כ), 19. שְׁוָֽא יָֽזֶר וְבֵית בֹּכֶֽדֶל מַֽֽאֲלִי נְֽבַֽאֲו (ed. Levy 1936).
labio-dental (see the description of vav §I.1.6. for details). It follows, therefore, that bet rafe was a voiced labio-dental.

In a few sporadic cases bet rafe is represented by Arabic fāʾ in the Karaite transcriptions, e.g.

אַבֵּר   (Genizah MS 12, Khan 1990a, 151 | L [BHS]: וְאַבֵּרֹפֶ֣ב Num. 19.6 ‘and hyssop’)

The transcription with fāʾ reflects the perception that this Arabic sound was close acoustically to the voiced labio-dental [v]. It is common in transcriptions of Hebrew in medieval Muslim sources, e.g.

אַרְיָא   (al-Bīrūnī, Chronology of Nations, ed. Sachau 1878, 277 | יָרֵבֶה ‘desert’)

לַגְּאָא   (al-Bīrūnī, Chronology of Nations, ed. Sachau 1878, 187–192 | לְבָנָה ‘moon’)

דָאָפָא   (Ibn Khaldūn, Schreiner 1886, 253 | דְבֻּרָה ‘Deborah’)

There are a few isolated occurrences of pe in place of fricative bet in biblical manuscripts from Qumran, which could be taken as evidence that the labio-dental pronunciation existed already in the Second Temple period, e.g.²⁴

בַּפְנָא   (4Q6 f1a.3 | L [BHS]: בֵּנָת Gen. 34.1 ‘[to visit the] daughters [of the land]’)

²⁴ Data supplied by Aaron Hornkohl.
Joel 1.17 (4Q78 f10–12.7 | L [BHS]: ‘[seeds of grain] have shrivelled’)

Similar interchanges of fricative bet with pe are attested in Jewish Palestinian Aramaic, alongside interchanges with vav, e.g. "the Nabatean", "the Nabateans" (Dalman 1894, 74).

_Hidāyat al-Qāri‘_ describes the stop [b] as one of the primary letters (’uṣūl) and the [v] as an additional secondary letter (far‘).^25^

**I.1.3. **_Gimel_ (ג)

_Gimel_ with dagesh (גּ): voiced velar stop [g]

_Gimel_ without dagesh (ג): voiced uvular fricative [ʁ]

A _gimel_ without dagesh is frequently, but not regularly, marked by the rafe sign in the model Standard Tiberian codices.

In _Hidāyat al-Qāri‘_, the name of this letter is spelt גמאל, which appears to reflect a different pronunciation from that of the normal Hebrew form of the name גמל, with stress on the final syllable.^26^ In the Hebrew _Maḥberet ha-Tījān_, a later recension of _Hidāyat al-Qāri‘_, the name has the form גמו. ^27^

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^27^ Ed. Derenbourg (1871, 36).
**Consonants**

Gimel with dagesh was a stop, which, according to *Hidāyat al-Qāri‘*, was articulated with the middle of the tongue. The Karaite transcriptions represent it by Arabic jīm or, occasionally, by kāf, e.g.

חָמֵל (BL Or 2539 MS A, fol. 63r, 3 | L [BHS]: ה גָמ ִ֥ל Gen. 21.8 ‘to be weaned’)

כֶּבֶר (BL Or 2554 fol. 11r, 7 | L [BHS]: ג בַ֣וֹר Ruth 2.1 ‘mighty’)

These Arabic letters were pronounced respectively as a voiced palatal plosive [j] and an unvoiced velar plosive [kʰ]. This is the pronunciation described by the early Arabic grammarians Sibawayhi and al-Khalīl (eighth century C.E.). Ibn Sīna in the eleventh century describes jīm as pronounced slightly further forward. The Karaite transcriptions usually render gimel with dagesh by Arabic jīm due to the latter being a voiced consonantal plosive close to the place of articulation of [g]. It was preferred to kāf, which differed from jīm in being not only voiceless but also aspirated. It was a general principle of the transcriptions that voiced sounds were transcribed by one that was voiced but of a slightly different place of articulation rather than by an unvoiced letter of the same place of articulation.

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30 Roman (1983, 101–6, 218)
Gimel without *dagesh*, on the other hand, was a fricative articulated further back, on ‘the posterior third of the tongue, which is adjacent to the pharynx, opposite the (soft) palate.’\textsuperscript{31} In the Karaite transcriptions, fricative *gimel* is transcribed by Arabic *ghayn*, which was pronounced as a uvular fricative in the Middle Ages according to the descriptions of the Arabic grammarians.\textsuperscript{32}

*Hidāyat al-Qāri*\textsuperscript{2} describes the stop [g] as primary (‘*ašl*) and the fricative [ʁ] as secondary (‘*far*’).\textsuperscript{33}

**I.1.4. *Dalet* (ד)**

*Dalet* with *dagesh* (ד): voiced post-dental stop [d]

*Dalet* without *dagesh* (ד): voiced post-dental fricative [ð]

A *dalet* without *dagesh* is frequently, but not regularly, marked by the *rafe* sign in the model Standard Tiberian codices.

According to *Hidāyat al-Qāri*\textsuperscript{2}, the Tiberians called this letter *dāl*, which is the name of the corresponding Arabic letter.\textsuperscript{34}

\textsuperscript{31} *תלתָם* *אלסאן* *ממא* *יל* *אלתלמנס* *קורמא* *אלתנוג*  
\textsuperscript{32} Roman (1983, 218).
\textsuperscript{33} *תלתָם* *אלסאן* *ממא* *יל* *אלתלמנס* *קורמא* *אלתנוג*  
\textsuperscript{34} Long version, edition in vol. 2 of this book, §II.I.1.1.2.
This term is found also in some versions of *Sefer Yeṣira* (יהי),\(^{35}\) and in the later recensions of *Hidāyat al-Qāriʾ*, e.g. Arabic *Maḥberet ha-Tījān* (מקראות),\(^{36}\) Hebrew *Maḥberet ha-Tījān* (מקראות).\(^{37}\)

*Hidāyat al-Qāriʾ* states that the letter was articulated with ‘the extremity of the tongue in combination with the flesh of the teeth’, i.e. the gums.\(^{38}\) Likewise, Saadya describes the place of articulation of *dalet* as being adjacent to the inside of the upper teeth.\(^{39}\) When the letter had *dagesh*, the tongue was pressed firmly against the gums. When it was without *dagesh*, the tongue was pressed lightly against the gums. Both forms of the letter were articulated in the same place. The term ‘end of the tongue’ could include both the tip and the blade. Most versions of *Sefer Yeṣira* state that *dalet* was articulated with ‘the beginning of the tongue’,\(^{40}\) but this is equally vague. The Spanish grammarian Ibn Janāḥ (eleventh century) specifies that it was articulated with the

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\(^{36}\) Ed. Neubauer (1891, 12).

\(^{37}\) Ed. Derenbourg (1871, 36).


\(^{39}\) ופי דעלתא ... אונאה תגורה אלאסנטא ופי דעלתא; Saadya, *Commentary on Sefer Yeṣira* (ed. Lambert 1891, 75).


According to Morag (1960), however, the phonetic descriptions in *Sefer Yeṣira* reflect the pronunciation of Hebrew in Babylonia, so it must be used with caution when reconstructing the Tiberian pronunciation tradition.
blade of the tongue and not the tip.\footnote{This end (of the tongue) is not the tip of the tongue but what is slightly posterior to the tip; \textit{Kitāb al-Lumaʿ} (ed. Derenbourg 1886, 28).} This corresponds to the description in one version of \textit{Sefer Yeṣira}, where it is stated that the letters דטלנה were articulated with the ‘middle’ of the tongue.\footnote{דטלנה על תפי הלשוןمشתמש, \textit{Sefer Yeṣira} (ed. Hayman 2004, 93).} It is easier, however, to interpret \textit{Hidāyat al-Qāri} as referring to the contact between the tongue tip and the gums. An articulation with the blade of the tongue with the gums would have involved contact with the teeth.

\textit{Hidāyat al-Qāri} describes the stop [d] as primary (‘ašl) and the fricative [ð] as secondary (far\textsuperscript{r}).\footnote{Long version, edition in vol. 2 of this book, §II.L.1.2., Eldar (1980, fol. 8b, 254, n.58).}

The medieval scholar Isaac Israeli (ninth–tenth centuries C.E.), who had an expert knowledge of the Tiberian reading tradition, is said to have pronounced fricative \textit{dalet} with a secondary ‘emphatic’ articulation (i.e. pharyngealized with retraction of the tongue root and increased muscular pressure) in two words, viz. אֶפֶּרֶדֶן ‘his palace’ (Dan. 11.45) and יִרְכָּא ‘and they have bent’ (Jer. 9.2). This was apparently due to the fact that the pe and the resh in these words were pronounced emphatic (see §I.I.1.17., §I.1.20.) and the emphasis spread to the \textit{dalet}. The evidence for this is found in a commentary to \textit{Sefer Yeṣira} by Dunash ibn Tamim, who was a physician in court of the Fāṭimids in Kairouan, North Africa, in the tenth century C.E. He was the pupil of Isaac Israeli, who also worked as a physician in Kairouan:
The Arabs have sounds that the Hebrews do not have, namely the ẓād of קָדִיב (qadīb) and the ẓā’ of ‘aḍīm. The meaning of qadīb is ‘rod’ or ‘sceptre’. It is written with ṣade with a dot above it. It is a distinct sound, which resembles dalet rafe. The meaning of ‘aḍīm is ‘huge’. It is written with tet with a dot above it. It is a distinct sound, which resembles dalet rafe. ... Our master Yišaqq, the son of our master Shlomo, of blessed memory, (i.e. IsaacIsraeli) used to say that in the language of the Hebrews among the Tiberians there were (the sounds of) ẓā’ and ẓād and he used to read יָ֖וְי ט ע אָ֖י ל הָ֖אָ֖ו (Dan. 11.45, L: ִָ֖וְי ט ע אָ֖י ל הָ֖אָ֖ו) ‘He will pitch the tents of his palace’, in which he used to pronounce ẓā’ although dalet was written. He used to read יָ֖וְי אָ֖א ל ו הָ֖אָ֖ו (Jer. 9.2, L [BHS]: ִָ֖וְי אָ֖א ל ו הָ֖אָ֖ו ‘they bent their tongue’), in which he pronounced ẓād, although dalet was written. The reason for all this was that he was an expert in the reading of the Tiberians.

Early in the history of Arabic, the distinction between the pronunciation of ẓād (ﺽ) and ẓā’ (ﻅ) broke down. In modern

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44 BHS erroneously reads L as אָ֖֖הֶלְיוֹטָ֖אָ֖פ. 45 Our master Yišaqq, the son of our master Shlomo, of blessed memory, (i.e. IsaacIsraeli) used to say that in the language of the Hebrews among the Tiberians there were (the sounds of) ẓā’ and ẓād and he used to read יָ֖וְי ט ע אָ֖י ל הָ֖אָ֖ו (Dan. 11.45, L: ִָ֖וְי ט ע אָ֖י ל הָ֖אָ֖ו) ‘He will pitch the tents of his palace’, in which he used to pronounce ẓā’ although dalet was written. He used to read יָ֖וְי אָ֖א ל ו הָ֖אָ֖ו (Jer. 9.2, L [BHS]: ִָ֖וְי אָ֖א ل ו הָ֖אָ֖ו ‘they bent their tongue’), in which he pronounced ẓād, although dalet was written. The reason for all this was that he was an expert in the reading of the Tiberians.

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Cited by Mann (1931, 670, n.106). Cf. Schreiner (1886, 221), Dukes (1845, 9, 93), Grossberg (1902, 24).
vernacular dialects, the two have merged either to an emphatic stop ḏ (mainly in urban dialects) or to an emphatic interdental ḍ̣ (mainly in Bedouin dialects) (Versteegh 2011). In medieval Judaeo-Arabic, a ṣade with an upper dot (צ) was used to represent Classical Arabic ḍād (ض) and a ṭet was used to represent Classical Arabic ḍāʾ (ظ). As a result of their merger in the spoken language already in the Middle Ages, however, there was frequent confusion in the orthography of Judaeo-Arabic texts, in which a historical ḍād and a historical ḍāʾ were both represented by either צ or ט interchangeably. The representation of a Hebrew dalet in the passage by both צ and ט and the statement attributed to Isaac Israeli that ‘in the language of the Hebrews among the Tiberians there were (the sounds of) ḍāʾ and ḍād’ should be interpreted in this light. A single emphatic sound was no doubt intended, presumably the emphatic interdental ḍ [ð], given the fact that the author in the passage states that these two emphatic Arabic letters resemble dalet rafe.

Abū al-Faraj Hārūn in his al-Kitāb al-Kāfī refers to the pharyngealization of dalet in the words פָטָע פָדָנ (Dan. 11.45) and פָטָה פָדַה ‘topaz’ (Exod. 28.17):

‘Indeed, in Arabic there are letters that are pronounced with sounds that are not found in Hebrew, such as jīm, ḍād and others. Some teachers, however, when reading פָטָא לַי א פ דְנַו (Dan. 11.45) and פָטָה פָדַה ‘the tents of his palace’ (Dan. 11.45) and פָטָא פָדַה ‘sardius, topaz’ (Exod. 28.17) pronounce the dalet in them like Arabic ḍād or צā’ and these words sound like פָטָא פָדַה and פָטָא פָדַה’.

46 See the discussion by Wagner (2010, 28–32).
Consonants

This, however, does not increase the number of letters, since the *dalet* has the same form, although the reading of it differs.\(^{47}\)

In some modern reading traditions, *dalet* is pharyngealized when in contact with an emphatic consonant. In the Moroccan reading tradition, for example, this is documented by Akun (2010) as occurring after emphatic \([r^\text{r}]\), e.g.

\[
\text{jar}^\text{ן} \text{d}^\text{ע} \ (\text{Akun 2010, 72 | L [BHS]: מַרְדְּוֹ} \text{, Exod. 15.5 ‘they went down’})
\]

### 1.1.5. **HE אֵל (ה)**

Glottal fricative \([h]\)

The name of the letter is normally spelt אֵל or הי, vocalized with ṣere, in the Masoretic treatises.

A dot in a final *he* indicates that the letter was to be pronounced as a consonant and was not merely a vowel letter (*mater lectionis*) for a final vowel, e.g. הֵ֜ל [הל] ‘to her’, but מַלְכָּ֣ה [מלכה] ‘queen’. This dot is known as *mappiq* (מספק), meaning literally ‘bringing out, pronouncing’. In medieval sources, such as the Masoretic treatises, the term sometimes is vocalized as *mappeq* (מספק),\(^{48}\) which is an Aramaic *haf’el* participle from

\(^{47}\) Ed. Khan, Gallego and Olszowy-Schlanger (2003, §I.24.2):

\(^{48}\) E.g. CUL T-S D1.2.
the root *n-p-q* ‘to come out’. This is the earlier form of the term, *mappiq* being a later Hebraization. Some manuscripts of Masoretic treatises vocalize the term *mappaq* (מָפָאָק).\(^{49}\) In *Hidāyat al-Qāri*\(^{2}\) the consonantal pronunciation of *he* was referred to as ‘appearance’ (דִּינְוּר).\(^{50}\)

The *mappiq* is in principle marked in consonantal *he* only at the end of a word since in vocalized texts it is only in this context that there would be ambiguity of reading, e.g. לָ֖יְכֶ֥ר [jalˈdɔːɔ] ‘her child’ as opposed to לָ֖יְכֶ֥ר [jalˈdɔːː] ‘girl’. At the beginning or in the middle of a word, a consonantal pronunciation in the onset of a syllable is indicated by a vowel sign on the letter or a following vowel letter, e.g. מָרְוֶ֤ [mrɔːwɔː] ‘the light’ (Gen. 1.3), מָרְוֶ֤ [mrɔːwɔː] ‘it will go’ (Psa. 85.14), מָרְוֶ֤ [mrɔːwɔː] ‘his giving birth to’ (Gen. 5.4) or by a *shewa* sign in a syllable coda, e.g. פֶּדֶהֶֽאָל [pʰɔːdəˈʔeːl] ‘Pedahel’ (Num. 34.28). A word-medial *he* that does not have a vocalization sign or is not followed by a vowel letter must be read as a vowel letter, e.g. פֶּדֶהֶֽאָל [pʰaðɔːˈʔeːl] ‘Pedahzur’ (Num. 1.10; despite the normal English spelling of the latter, the *he* is not pronounced according to the Tiberian reading tradition).\(^{51}\)

In some manuscripts, however, consonantal *he* is marked with *mappiq* within a word. This is found in particular in words of unusual form in which consonantal *he* is pointed with *shewa*, e.g. לָ֖שׁ מָהִָ֖֙בָהְּ [bɔhʃamˈmɔː] ‘when it lies desolate’ (Lev. 26.43), סָ֖לָה [salə] ‘Shelah’ (Num. 34.28).

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51 Ofer (2013).
[pʰaðahʔeːel] ‘Pedahel’ (Num. 34.28). In such contexts, the consonantal *he* was evidently felt to be at particular risk of being read incorrectly.

In the manuscript A the dot of the *mappiq* in word-final *he* is often placed low in the letter, as in Prov. 5.19 shown below, and is occasionally written under the letter:

\[
\begin{align*}
\text{A:} & \quad \text{L:} & \quad \text{BHS: יְהַבְתָּ} & \quad \text{‘with her love’} \\
& \quad \text{T-S A11.1, Blapp 2017, 51} & \quad \text{L [BHS]: יִנְשָׁיִה} & \quad \text{Job 39.16} \\
& \quad \text{‘her labour’} & \quad \text{L [BHS]: יִנְשָׁיִה} & \quad \text{Job 39.16} \\
& \quad \text{‘to her’} & \quad \text{L [BHS]: יִנְשָׁיִה} & \quad \text{Job 40.2} \\
& \quad \text{‘god’} & \quad \text{L [BHS]: יִנְשָׁיִה} & \quad \text{Job 40.2} \\
\end{align*}
\]

*Mappiq* is frequently written under final consonantal *he* in manuscripts with Non-Standard Tiberian (Non-Standard Tiberian) vocalization, e.g.

Genizah manuscripts

In Non-Standard Tiberian manuscripts from the Genizah, the *mappiq* is occasionally written in the lower half of the letter (Blapp 2017, 112, 128).

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53 Yeivin (1968, 49–50).
European manuscripts

מרבה (Codex Reuchlinianus | L [BHS]: מְרַבְּרָה Isa. 19.14 ‘within her’)

מרבה (Codex Reuchlinianus | L [BHS]: מְרַבְּרָה Isa. 19.17 ‘her [obj.]’)

מרבה (Codex Reuchlinianus | L [BHS]: מְרַבְּרָה Isa. 19.19 ‘its boundary’)

מרבה (BL Add 21161 | L [BHS]: מְרַבְּרָה Amos 2.9 ‘like the height’)

Mappiq in the form of a dot under a final consonantal he is also found in some manuscripts with Palestinian vocalization, e.g.

מרבה וְסָב (T-S 12.197, Kahle 1927, II, 80; Revell 1970a, 95 | L [BHS]: מְרַבְּרָה וְסָב Jer. 2.7 ‘its fruits and its good things’)

In Non-Standard Tiberian manuscripts, a mappiq is occasionally written on a word-internal or even a word-initial consonantal he with a vocalization sign. In such cases, it is written within the letter, e.g.

Genizah manuscripts

מרבה (T-S A13.35, Blapp 2017, 191 | L [BHS]: מְרַבְּרָה Psa. 74.15 ‘streams’)

מרבה וַתַּלָּק (T-S A5.12, Arrant 2020 | L [BHS]: מְרַבְּרָה וַתַּלָּק Deut. 22.4 ‘and you ignore’)

רֶה (CUL Or 1080.A4.18, Arrant 2020 | L [BHS]: רֶה Num. 28.19 ‘they shall be’)

Mappiq in the form of a dot under a final consonantal he is also found in some manuscripts with Palestinian vocalization, e.g.

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Genizah manuscripts

מרבה (T-S A13.35, Blapp 2017, 191 | L [BHS]: מְרַבְּרָה Psa. 74.15 ‘streams’)

מרבה וַתַּלָּק (T-S A5.12, Arrant 2020 | L [BHS]: מְרַבְּרָה וַתַּלָּק Deut. 22.4 ‘and you ignore’)

רֶה (CUL Or 1080.A4.18, Arrant 2020 | L [BHS]: רֶה Num. 28.19 ‘they shall be’)

Mappiq in the form of a dot under a final consonantal he is also found in some manuscripts with Palestinian vocalization, e.g.

מרבה וְסָב (T-S 12.197, Kahle 1927, II, 80; Revell 1970a, 95 | L [BHS]: מְרַבְּרָה וְסָב Jer. 2.7 ‘its fruits and its good things’)

In Non-Standard Tiberian manuscripts, a mappiq is occasionally written on a word-internal or even a word-initial consonantal he with a vocalization sign. In such cases, it is written within the letter, e.g.

Genizah manuscripts

מרבה (T-S A13.35, Blapp 2017, 191 | L [BHS]: מְרַבְּרָה Psa. 74.15 ‘streams’)

מרבה וַתַּלָּק (T-S A5.12, Arrant 2020 | L [BHS]: מְרַבְּרָה וַתַּלָּק Deut. 22.4 ‘and you ignore’)

רֶה (CUL Or 1080.A4.18, Arrant 2020 | L [BHS]: רֶה Num. 28.19 ‘they shall be’)
Consonants

European manuscripts

*Mappiq* in Non-Standard Tiberian manuscripts is sporadically marked even where the *he* has the function of a *mater lectionis*.

It is significant that in *A* and in Non-Standard Tiberian manuscripts that mark *mappiq* under the *he*, when a dot is marked within consonantal *ʾalef*, it is, by contrast, always written within the letter. Moreover, whereas the Masora refers to the dot in *ʾalef* in the four canonical places (§I.I.1.1.) as *dagesh*, the term *dagesh* is never used to refer to the *mappiq*. The Masoretic notes and treatises generally refer to cases of *mappiq* in statements containing the participle *mappeq* ‘to pronounce’ such as

‘Unique words in which one pronounces *he*’ (Ginsburg 1880, §36)

This demonstrates that the *mappiq* does not represent gemination. Moreover, *he* is not geminated in any other context.
On some occasions in Non-Standard Tiberian manuscripts, a final consonantal he is marked with a shewa sign, e.g.

Genizah manuscripts

ָ֖זַ֑וְל (T-S A11.1, Blapp 2017, 47 | L [BHS]: הָ֖זַלְוְל Job 39.17 ‘God’)

ָ֖גַ֑יְו (T-S A11.1, Blapp 2017, 48 | L [BHS]: הָ֖גַיְו Job 39.27 ‘it mounts’)

European manuscripts

ָ֖כַ֑יִּע (Codex Reuchlinianus | L [BHS]: הָ֖כַיִּי Isa. 13.10 ‘[does not] give light’)

When word-final he acts as a vowel letter, it is sometimes, though not regularly, marked with rafe in the model Tiberian manuscripts, e.g.

L: הָ֖כְַָל ‘she was not able’ (Exod. 2.3)

L: הָ֖חַָז ‘he saw’ (Isa. 1.1)

L: הָ֖כְַָס ‘apostasy’ (Isa. 1.5)

Rafe is written more regularly in some Non-Standard Tiberian manuscripts, e.g.

Genizah manuscripts:

ָ֖זַ֑וְע (T-S A11.1, Blapp 2017, 56 | L [BHS]: הָ֖זַוְע Job 39.23 ‘quiver’)

ָ֖מַ֑לְח (T-S A11.1, Blapp 2017, 59 | L [BHS]: הָ֖מַלְח Job 39.25 ‘battle’)

Consonants

הָדָרֶה (T-S A11.1, Blapp 2017, 59 | L [BHS]: הָדָרֶה Job 40.20 ‘the field’)

European manuscripts

הלֶמֶל (Codex Reuchlinianus | L [BHS]: הלֶמֶל 1 Sam. 23.8 ‘to war’)

כַּעַלְק (Codex Reuchlinianus | L [BHS]: כַּעַלְק 1 Sam. 23.8 ‘Keilah’)

גֶּשים (BL Add 21161 | L [BHS]: גֶּשים Amos 2.10 ‘year’)

Some Non-Standard Tiberian manuscripts mark a *rafe* sign on *he* in contexts where it is consonantal in the Standard Tiberian tradition, e.g.

ָ֖הוֹ (T-S A13.20, Blapp 2017, 174 | L [BHS]: ָ֖הוֹ Psa. 68.36 ‘he’)

ָ֖הוֹשָׁע (T-S A13.20, Blapp 2017, 174 | L [BHS]: ָ֖הוֹשָׁע Psa. 69.2 ‘save me!’)

ָ֖בַּמְּכֵה (T-S A13.20, Blapp 2017, 175 | L [BHS]: ָ֖בַּמְּכֵה Psa. 68.27 ‘in the congregation’)

ָ֖יְוָדָה (T-S A13.20, Blapp 2017, 175 | L [BHS]: ָ֖יְוָדָה Psa. 68.28 ‘Judah’)

Here the *rafe* should, it seems, be interpreted as signalling that the letter is consonantal but not geminated.

The Masora identifies a number of cases where a word-final *he* that would be expected to be consonantal is not pronounced:

חַדְּ מָו יִוָיָא לָמְנָפְאָהֵה יָבָא וָבָא הָבָa h
'One of eighteen cases in which *he* is not pronounced at the end of the word' (Ginsburg 1880, §37)

This list includes cases where the *he* has the meaning of a 3fs suffix. In some cases, a *rafe* is marked over the *he* in L, e.g.

L: וֹ תָחְמֵהֶר ‘and she daubed it (fs)’ (Exod. 2.3)

L: הָפְּסֵכִי ‘its being founded’ (Exod. 9.18)

L: הָעֲוֺנָ ‘its (fs) iniquity’ (Num. 15.31)

L: צַדִּ ‘its (fs) side’ (1 Sam. 20.20)

Another Masoretic note lists pairs of words ending in *he*, in one member of which it is pronounced consonantal and in the other it is not:

וד מָא זָֽנַנְיָ חַמְּךָ ‘One of eleven pairs, in one of which *he* is pronounced and the other *he* is not pronounced at the end of the word’ (Ginsburg 1880, §38)

Some words in this list exhibit what are clearly variant realizations of the 3fs suffix. In some cases where the *he* is a vowel letter a *rafe* is marked over the *he* in L, e.g.

L: וֹשׁעָר ‘and its (fs) hair’ (Lev. 13.20)

L: וֹשׁעָר ‘and its (fs) hair’ (Lev. 13.4)

L: אַטְנְנֶ ‘and her hire’ (Isa. 23.18)

L: לַאְתְנֶ ‘to her hire’ (Isa. 23.17)

Examples of such 3fs suffixes without consonantal realization could be interpreted as the phonetic weakening of a final consonantal *he* that has become fixed in the reading tradition.
Alternatively, it may be morphological variation, reflecting different dialectal forms at an earlier period, which has become fixed.

There is ample evidence from the Dead Sea scrolls of the vulnerability of consonantal he to weakening in the Second Temple period. The cases of weakening that are discernible in the orthography are between vowels, e.g.\(^{54}\)

- אֲחַרְּהֵם (4Q6 f1.10 | L [BHS]: after them’)
- אלהים (8Q4 f1.35 | L [BHS]: gods’)
- לְהַעֲלַ֣וֹת 1 Sam 10.8 ‘to offer [sacrifices]’
- מַטָּה (1QIsa\(^a\) 10.11 | L [BHS]: his staff’)
- מְשֶׁהָרִים (1QIsa\(^a\) 22.26 | L [BHS]: [is too short] to stretch out’)
- מַתָּח (1QIsa\(^a\) 24.18 | L [BHS]: illusions’)
- לְשֵׁם (1QIsa\(^a\) 47.26 | L [BHS]: to make heard’)
- בְּתַהֲמוֹת (1QIsa\(^a\) 51.9 | L [BHS]: through the depths’)

Weakening of consonantal he occurs also in modern reading traditions. This includes the weakening of final he written with mappiq in the vocalized text, e.g.

\(^{54}\) Data supplied by Aaron Hornkohl.
Aleppo

ˌleβadˈdaˑ (Katz 1981, 13 | L [BHS]: לְבַדָּא Exod. 22.26 ‘by itself [fs.]’)

missobˈʕa (Katz 1981, 13 | L [BHS]: מַשָּׁבֶּא Ruth 2.18 ‘from her satisfaction’)

Morocco

saraˈta (Akun 2010, 67 | L [BHS]: שַׁרְתָּא 1 Sam. 1.6, ‘her rival wife’)

ʕaluˈta (Akun 2010, 67 | L [BHS]: עֲלוֹתָה 1 Sam. 1.7 ‘her going up’)

Kerala

haʃaˈba: (Forsström 2013, 461 | L [BHS]: חֲשָׁבָה Gen. 50.20 ‘he meant it [fs.]’)

In the Babylonian reading tradition, a mappiq occurs in a 3fs verbal object suffix attached to a 3fs suffix conjugation form and after an energetic nun (Yeivin 1985, 336). In both these contexts the suffix is regularly non-consonantal in the Tiberian tradition. The Babylonian mappiq is a small superscribed he:55

וְשְׁכַלְתָּה [wʃikkʰalˈlaːttʰɔːh] (וְשׁ כְלִָ֑תָה Ezek. 14.15 ‘and you will make it (f) childless’)

וְכֵעָסְתָּה [wɔʃeʔasˈsaːttʰɔːh] (וְכֵעָסְתָּה 1 Sam 1.6 ‘and she provoked her’)

55 Data supplied by Shai Heijmans.
This is most easily interpreted as reflecting the fact that the Babylonian and Tiberian traditions here have different morphological forms of the 3fs suffix. The occasional occurrence of a non-consonantal variant of the 3fs suffix in the Tiberian tradition in other contexts, therefore, could also be the result of morphological variation.

I.1.6. וַּ (ח)

Labio-dental [v] and labio-velar semi-vowel [w]

In *Hidāyat al-Qāri* the name of this letter is spelt וא, which represents, it seems, the corresponding Arabic name (wāw).\(^{56}\)

According to *Hidāyat al-Qāri*, the place of articulation was the lips.\(^{57}\) This could be referring to a bilabial [w] or labio-dental [v] pronunciation. It is, however, explicitly stated by David ben Abraham al-Fāsī (tenth century C.E.), the Palestinian Karaite lexicographer, that in Palestine consonantal vav both with and without dagesh was pronounced as a labio-dental. He makes this observation in the entry in his dictionary, *Kitāb Jāmiʿ al-ʾAlfāẓ* (‘The book of the collection of words’) on the name פֻוָה:

פֻוָה תָּתוֹלִ (Gen. 46.13): name of a man. The accent is on the vav and it is read rafe. The pronunciation of the vav in it is like the way the Palestinians (pronounce the letter in words) such as הוה ‘be!’ (Gen. 27.29), דוה ‘ill’ [fs.] (Lev.

\(^{56}\) E.g. short version, edition in vol. 2 of this book, §II.S.2.2.

\(^{57}\) Long version, edition in vol. 2 of this book, §II.L.1.3.9.
20.18, etc.), 'it watered' (Isa. 55.10). Some of the teachers have made a mistake by reading it (like the vav in) זֶרֶוֹחַ 'spirit' and נְחֹחַ 'soothing'. This is because whenever the accent is on the letter before a vav, its pronunciation is light, between the lips, as in רֹֽוּחַ 'spirit' and נְחֹחַ 'soothing', יְהוֹשֻׁ֤ע 'Joshua', לָנ וּע 'to sway' (Jud. 9.9, etc.), שָׁמֹע 'to hear', יָד ע 'to know', נ ח 'Noah', מ ח 'brain'. Its pronunciation (i.e. the vav of פֻוָ ה, like every (consonantal) vav in our (reading tradition), both light (i.e with rafe) and with dagesh, is between the upper teeth and the lower lip. Examples with dagesh are: ק וַאָ֔יְצָא 'their speech went out' (Psa. 19.5), צ וָּם 'he commanded them' (Gen. 50.12, etc.), צ וִכּ 'as he commanded' (Gen. 7.9, etc.), צ וֶאָשֶׁר 'that he commands' (Gen. 18.19, etc.). Examples with light (vav) are: הָ֖וָס 'disaster upon disaster' (Ezek. 7.26), הָ֖ו (you) be for them a king’ (Neh. 6.6), וָּֽה 'and Saul was refreshed’ (1 Sam. 16.23), וָּֽה 'those who wait for me will not be put to shame’ (Isa. 49.23).

Now, תוחל יפוה (Gen. 46.13) is like this. 58

Al-Fāsī makes the point here that consonantal vav in all contexts is pronounced as a labio-dental [v]. The only exception is constituted by words that contain a vav followed by a guttural

with a furtive *pataḥ* such as יָנוּחַ and וְרָחַ, where it is pronounced ‘light, between the lips’. This must be referring to a bilabial glide between the vowel and the following *pataḥ* [ˈʁ̟uːwaḥ], [ni:`ho:waḥ].

It is stated in the Masoretic treatises that consonantal *vav* had the same pronunciation as *bet rafe*, e.g.

Every *vav* at the end of a word is pronounced according to the Palestinians as a *bet rafe*. (*Hidāyat al-Qāriʾ*)

Know that every *vav* that is prefixed to the beginning of a word and has *shewa* is read with (the pronunciation of) *bet*.

... I mean it is pronounced as if it were the letter *bet*, as in

... *ואָ֖וְךָ֖* ‘and he shall say.’ (*Treatise on the Shewa*)

Al-Fāsī indicates that the *vav* in the name הָ֖פֻוָ (Gen. 46.13) was pronounced like other cases of consonantal *vav*, i.e. as labiodental [v]. He says, however, that some teachers mistakenly read it as a bilabial [w]. This implies that there were different traditions of pronouncing the *vav* in this context. Misha’el ben ʿUzzi’el (tenth-eleventh century) makes the following observation about the pronunciation of *vav* in this word in his Kitāb al-Khilaf:

As for the word הָ֖פֻוָ (Gen. 46.13), there is a consensus that it has a *vav* that (is pronounced) in the way it is read in

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60 אֵעֵלָ֖תָ֖ו תְּפַ֖יָּ֖א (ed. Levy 1936, כו).
Iraq, not like *bet rafe*, as in words such as עֲנָו ים ‘poor’ and so forth (in the pronunciation) of the Palestinians.  

The consensus referred to here is between the foremost Tiberian Masoretic authorities Ben Asher and Ben Naftali. They pronounced the *vav* in this word in the Babylonian fashion, i.e. as a bilabial [w], not like the labio-dental pronunciation of a *bet rafe*. This was presumably conditioned by the preceding [uː] vowel: [fuːwɔː].

In Non-Standard Tiberian manuscripts, there are sporadic cases of fricative *bet* being written where Standard Tiberian orthography has a consonantal *vav*, which reflects their identical phonetic realization, e.g.

- וֹוּבְגָא בָת (T-S A5.7, Arrant 2020 | L [BHS]: וֹוּבְגָא בָת Deut. 33.26 ‘and in his majesty’)
- הָֽחֲו ילַָ֔ה (T-S A21.125, Arrant 2020 | L [BHS]: הָֽחֲו ילַָ֔ה Gen. 2.11 ‘Havilah’)
- שָׁב (T-S AS 44.35, Outhwaite 2020 | L [BHS]: שָׁב Lam. 2.15 ‘emptiness’)

In Karaite transcriptions into Arabic script, a *vav* is generally transcribed by Arabic *wāw*. It is sometimes, however, transcribed by the Arabic letter *bāʾ*. Arabic *bāʾ* is used elsewhere to transcribe both plosive *bet* [b] and fricative *bet* [v]. The occa-

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sional use of bā' to transcribe vav indicates that scribes were confusing the labio-dental realization [v] of vav with that of bet rafe. It is attested as a transcription of medial and final vav, e.g.

(Genizah MS 1, Khan 1990a, 45 | L [BHS]: Num. 20.3 ‘we had expired’)

(Genizah MS 1, Khan 1990a, 45 | L [BHS]: Num. 15.22 ‘the commandments’)

(BL Or 2548 fol. 42r, 3 | L [BHS]: Isa. 40.31 ‘those who are hoping for’)

(Genizah MS 1, Khan 1990a, 45 | L [BHS]: Num. 19.19 ‘his clothes’)

Examples are attested in manuscripts of the transcription of consonantal vav with bā' when preceded by long [uː], e.g.

[vaʃiʃiʊˈvaːːʃi] (BL Or 2551 fol. 67r, 9 | L [BHS]: Psa. 102.10 ‘and my drinks’)

This corresponds to al-Fāsī’s description of the vav in this context in the word פָּה as a labio-dental [fuːˈvɔː], but not the bilabial pronunciation [fuːˈwɔː] that is ascribed by Misha’el ben ʿUzzi’el to Ben Asher and Ben Naftali.

There is even one documented case of bā' transcribing a glide before a furtive pataḥ:
The Tiberian Pronunciation Tradition of Biblical Hebrew

نوبع [ˈnoːvaʕ] (Genizah MS 13, Khan 1990a, 155 | L [BHS]: פָּנָשׁ Psa. 109.10 ‘and wander’)

This does not correspond to al-Fāsī’s description of a bilabial [w] in this context.

The medieval sources, therefore, reflect a variety of different distributions of the labio-dental [v] pronunciation of consonant vav. These are summarized below:

<table>
<thead>
<tr>
<th></th>
<th>Default</th>
<th>After pretonic [u:]</th>
<th>Glide after [u:] /[o:]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misha’el</td>
<td>[v]</td>
<td>[w]</td>
<td>?</td>
</tr>
<tr>
<td>al-Fāsī</td>
<td>[v]</td>
<td>[v]</td>
<td>[w]</td>
</tr>
<tr>
<td>Transcriptions</td>
<td>[v]</td>
<td>[v]</td>
<td>[v]</td>
</tr>
</tbody>
</table>

It should be pointed out that the transcription in which the form نوبع [ˈnoːvaʕ] is attested is a liturgical florilegium of biblical verses and exhibits several other deviations from Standard Tiberian reading.

We learn from the passage in the Treatise on the Shewa cited above that an initial conjunctive vav with a shewa was pronounced as a labio-dental like bet rafe, e.g. וּאָמְרָו [vɔʔɔːˈmaːrɔ] ‘and he will say’. How was conjunctive vav pronounced when it has the form Ꜳ, i.e. before the labial consonants ב and פ or before a silent shewa? This is described in a further passage from the Treatise on the Shewa:

When the vav is next to these three letters, namely בָּמֶר, it should not be pronounced in this way (i.e. like bet) and it is not pointed with shewa, but rather with one point in the
body of the vav, as in וּבָנִָ֞ה ‘and he will build’ (Josh. 6.26, etc.), וּבָרַָ֣א ‘and he will create’ (Isa. 4.5), וּבָרַָ֣א ‘and the discernment of’ (Isa. 29.14), וּבָרַָ֣א ‘and clean’ (Job 11.4), וּבָרַָ֣א ‘and lest’ (Deut. 4.9, etc.), וּפֶן ‘and he will turn’ (Deut. 31.20, etc.), וּפֶן ‘and he will turn’ (Deut. 31.20, etc.), וּפֶן ‘and and beans’ (2 Sam. 17.28), וּפֶן ‘and breathe’ (Ezek. 37.9), וּפֶן ‘and king’ (Gen. 14.2, etc.), וּפֶן ‘her royal office’ Esther 1.19), וּפֶן ‘and the ruler’ (Gen. 45.8, etc.), וּפֶן ‘and his staff’ (Hos. 4.12), וּפֶן ‘and from upon’ (1 Sam. 6.5, etc.), וּפֶן ‘and he acted treacherously’ (cf. Josh. 22.20). Nothing of this category is found that is pointed or read וּבָנִָ֞ה, וּבָרַָ֣א, or וּפֶן, because these three letters are different from the other letters in this respect. When they read them (i.e. these words), it is not pronounced bet; I mean, the vav in them is not pronounced bet, as the aforementioned cases that have shewa. Rather, you read their vavs as if you are pronouncing או, as if you are saying או, או, או. You should read all of them in this way. You need not read with a pure alef, for an alef does not appear in them, but I have only compared it (to alef) by way of approximation. ... And if the second letter of the words has shewa, then it is always pointed and read with a point in the body of the vav and it is not read as bet, I mean with shewa, rather it is read as a pure vav, as in וּפֶן ‘and regarding Levi’ (Deut. 33.8), וּפֶן ‘and hear’ (Exod. 23.21, etc.), וּפֶן ‘and the matter of’ (Num. 23.3),
‘and call’ (Ruth 4.11, etc.), רַעְשָׁו ‘and have dominion over’ (Gen. 1.28, etc.), and other cases.\(^{62}\)

According to this passage, the onset of the syllable represented by conjunction מ was not ‘alef. It would be inappropriate, therefore, to transcribe it as [ʔuː]. This, moreover, would be a heavy CVV syllable, with a consonantal onset and long vowel in the rhyme. This would be an unexpected syllabic structure for a particle that has shewa in other contexts, when compared to the syllable structure of particles such as ב and ל. These latter particles have a short vowel in an open syllable, represented by shewa (i.e. [ba], [la], see §I.2.5.1.) or a short vowel in a closed syllable when followed by a silent shewa, e.g. לְשׁוֹםאָל [lišmuʔe:el] ‘to Samuel’. It would be more appropriate to interpret the syllable structure of conjunctive מ as [wu], with a voiced labio-velar approximant [w] as onset. Such a voiced onset would resemble the vowel nucleus [u] in acoustic and articulatory properties, and therefore would be difficult to distinguish from a long [uː].

\(^{62}\) See on this passage Posegay (2019).
The Karaite transcriptions, indeed, represent the conjunction \( \text{וּ} \) with an initial Arabic wāw and not an Arabic ‘alif. In some transcriptions, word-initial \( \text{וּ} \) is represented by Arabic wāw vocalized with a Hebrew qibbuṣ, e.g.

(.BL Or 2539 MS A, fol. 65r, 3 | L [BHS]: \( \text{וּלְנֶכְד} \text{י} \))

Gen. 21.23 ‘to my posterity’)

(.BL Or 2539 MS B, fol. 124v, 9 | L [BHS]: \( \text{וּתְכֶל} \))

Num. 17.25 ‘so that you may make an end’

Elsewhere in the manuscripts long [u:] is transcribed with a shureq point in wāw, e.g.

(.BL Or 2539 MS A, fol. 77r, 7 | L [BHS]: \( \text{וּאֲחַנְנֵן} \))

Gen. 24.60 ‘our sister’)

(.BL Or 2539 MS A, fol. 113v, 5 | L [BHS]: \( \text{כִּֽהֵשׁ} \))

Deut. 23.11 ‘from outside’)

(.BL Or 2539 MS B, fol. 122v, 11 | L [BHS]: \( \text{וּתֶג} \))

Num. 16.26 ‘you touch’)

This applies even to cases where the orthography in the Hebrew ketiv is defective and the Tiberian codices have a qibbuṣ, e.g.

(.BL Or 2539 MS A, fol. 63r, 2 | L [BHS]: \( \text{לְרֵכֹנָאש} \))

Gen. 21.7 ‘in his old age’
This suggests that the vocalization with qibbuṣ reflects a consonantal + short vowel [wu]. In one manuscript an Arabic ḍammā vowel is written on the wāw rather than a qibbuṣ, e.g.

In one manuscript, an initial conjunctive • is transcribed by Arabic wāw vocalized with a Hebrew shewa. This most likely represents a consonantal onset followed by a short vowel, e.g.
This reflects a variant reading tradition in which the conjunctive vav is read [va] even before a labial. This may be what the vocalization with shewa in the manuscript BL Or 2539 MS A was intended to represent. In Standard Tiberian pronunciation [wu] reflects the shift of the short vowel to a rounded quality by assimilation to the labial environment. One may compare traditions of reading such as [vami:] (L [BHS]: וּמַי) to cases in Origen’s Hexapla such as the following, where the Greek transcription has οὐα or οὐε where the Standard Tiberian tradition has וּ.

οὐαδοῦ (Ambrosiana Palimpsest | L [BHS]: οὐαδοῦ Psa. 46.11 ‘and know! (mp)’)

οὐαλσων (Ambrosiana Palimpsest | L [BHS]: οὐαλσων Psa. 35.28 ‘and my tongue’)

οὐαρημ (Ambrosiana Palimpsest | L [BHS]: οὐαρημ Psa. 28.9 ‘and shepherd (ms) them!’)

οὐεβροβ (Ambrosiana Palimpsest | L [BHS]: οὐεβροβ Psa. 49.7 ‘and in the multitude of (cstr.)’)

Similar forms are occasionally found in the Babylonian tradition, e.g.:

ובכימי (Yeivin 1985, 1152 | L [BHS]: ובכימי Mal. 2.6 ‘and in uprightness’)

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63 Data supplied by Ben Kantor.
64 Data supplied by Shai Heijmans.
The normal vocalization of vav in the Babylonian tradition in such contexts, however, is with hireq, e.g.

(Prov. 15.16 ‘and trouble’)

and for your transgressions’)

and with skill’)

There is an exceptional case of hireq in L after conjunctive vav in this context, where v is expected:

(L [BHS]:  [Gen. 32.18 ‘and he will ask you’ | S: ]

When word-initial conjunctive v is followed by a consonant with silent shewa, it sometimes takes minor ga’ya in the Tiberian tradition. Minor ga’ya lengthened the duration of a short vowel in a closed syllable slightly (represented in IPA as a half-long vowel, cf. §I.2.8.2.2.). When this is the case, some transcriptions represent the lengthened syllable with two Arabic wāws. This must be interpreted as representing a consonantal onset followed by a lengthened vowel [uˑ] vowel, i.e. [wuˑ], e.g.

(Exod. 3.8 ‘and to bring him up’)

(Num. 32.11 ‘and to Jacob’)
The same transcription is found when a word-initial conjunctive ٌ is lengthened by a phonetic gaʿya (§I.I.2.5.8.4.), which causes a following shewa to be read as vocalic, e.g.

In some model Tiberian codices a vav before a following [uː] is written with a dot. This could be interpreted as an attempt to represent a labio-velar onset [w] rather than [v], e.g.65

In some manuscripts, consonantal vav, before [uː] and also in other contexts, is marked with a rafe, e.g.66

In manuscripts with Non-Standard Tiberian vocalization, these two strategies for marking consonantal vav have been extended to other contexts. The placement of a dot in consonantal

vav is found in such manuscripts in word-initial, word-medial and word-final position, e.g.

Genizah manuscripts

אִָ֑רֶץ (T-S A13.20, Blapp 2017, 162 | L [BHS]: יָאִּ֑רֶץ Psa. 69.35 ‘and earth’)

עָ֣ם (T-S A13.20, Blapp 2017, 162 | L [BHS]: יָעִּׁ֑ם Psa. 69.29 ‘and with’)

יתִּקְוָָּת (T-S A13.20, Blapp 2017, 162 | L [BHS]: יָיתִּקְוָָּת Psa. 71.5 ‘my hope’).

לָ֛י (T-S A11.1, Blapp 2017, 51 | L [BHS]: יָלֶ֣מֶל Job 39.23 ‘upon him’)

European manuscripts

אָלָּל (ASCNON B.I.1v, Pilocane 2004, 27 | L [BHS]: יָלֶ֣מֶל Num. 27.11 ‘to him’)

In such contexts, the vav would have been pronounced as a labio-dental according to the Standard Tiberian tradition. Moreover, in some cases, a vowel sign is written under it, which shows it must be consonantal, e.g. יָאִּ֑רֶץ. Comparison with the strategies for marking consonantal vav in the Babylonian and Palestinian traditions, however, suggest that the dot in the vav should be interpreted as a shureq vowel sign. Its purpose in the Non-Standard Tiberian manuscripts was to ensure that the letter was read as a separate segment from the adjacent vowel, although it was only an approximating representation of its pronunciation, i.e. presumably a labio-dental.
In Babylonian vocalization, consonantal vav is sometimes vocalized with a sign that can only be interpreted as a *shureq* vowel, e.g.\(^{67}\)

\[\text{בָּא} \text{(OB, Yeivin 1985, 267 | L [BHS]: אָב יו Deut. 27.16 ‘his father’)}\]

\[\text{לְפָנַי} \text{(LB, Yeivin 1985, 267 | L [BHS]: וַ֝לְפָנַָ֗יו Job 21.33 ‘and before him’)}\]

\[\text{לְגָּו} \text{(OB, Yeivin 1985, 267 | L [BHS]: לְג ַ֣ו Prov. 26.3 ‘for the back’)}\]

According to the Misha’el ben ‘Uzzi’el in the passage cited above, the Iraqis, i.e. the Jews of Babylonia, pronounced consonantal vav as a bilabial, so a *shureq* was more appropriate as a representation of its pronunciation than in the Tiberian tradition.

In manuscripts with Palestinian vocalization, the vowel sign of *holem* occasionally represents consonantal vav, e.g.

\[\text{שְׁתָּחַה} \text{(Bod. Heb. d 44, ff. 1-4, Dietrich 1968, 25* | L [BHS]: וֹו י שְׁת חֲווּـל 2 Kings 2.15 ‘and they bowed before him’)}\]

\[\text{וּעְתַי} \text{(T-S 20. 53, Murtonen 1958, ד, Allony and Díez Macho 1958, 259 | L [BHS]: שׁ וּ ִ֥עְת י Psa. 30.3 ‘I cried’)}\]

The *holem* sign here, as with the Tiberian *shureq*, must be regarded as an approximating representation of the labio-dental pronunciation of Palestinian consonantal vav.

In Gen. 46.13 L has a dot in the second vav of הָוָה. Some early codices do not have the dot, e.g. S: הָוָה. In B a dot appears

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\(^{67}\) Data supplied by Shai Heijmans.
to have been written and then erased. The name occurs also in Num. 26.23 where L and other early codices have לְפֻוֵָ֕ה without the dot. It is likely that the dot in the vocalization of L in Gen. 46.13 should be identified as shureq to mark the consonantal pronunciation of the letter rather than a dagesh and the reading [fuːˈwɔː] was intended, as in other manuscripts. The Babylonian vocalization of וּפֻוָָה (L, Gen. 46.13) is וּפֻוָָה (Yeivin 1985, 764), with a shureq over the vav and no vocalization on the pe. This could be compared to Tiberian vocalizations such as וְגוֹר, which al-Fāsī claims contained a bilabial glide: [ɾuːwah]. Babylonian וּפֻוָָה is likely to have been intended to represent [fuːˈwɔː].

In Non-Standard Tiberian manuscripts, rafe is marked on consonantal vav in a wider range of contexts than in the Standard Tiberian codices. It is found on vav in word-initial and word-medial position, e.g.

וְגָם (T-S A12.1, Blapp 2017, 99 | L [BHS]: וְגָם Ruth 1.12 ‘and also’)

וֵהָּ֖ת (T-S A12.1, Blapp 2017, 99 | L [BHS]: וֵהָּ֖ת Prov. 29.20 ‘hope’)

וֵגוֹר (T-S A12.1, Blapp 2017, 99 | L [BHS]: וֵגוֹר Prov. 29.23 ‘pride’)

68 A trace of dot is visible and the parchment has been scraped.

69 In later sources the dot in the word is referred to as a dagesh. Jedidiah Norzi (seventeenth century) in his work Minḥat Shai (Mantua, 1742–44 ad loc. Gen. 46.13) refers to it as dagesh and notes that there were differences of opinion about its presence in the name in Gen. 46.13 in the sources available to him.
The function of the *rafe* here is to mark the letter as consonantal but ungeminated.

Occasionally a *rafe* sign is used to mark consonantal ungeminated *vav* in Palestinian vocalization, e.g.

לֶו (T-S 12.195, Kahle 1930, 83 | L [BHS]: לֶו Psa. 53.2 ‘iniquity’)

In Non-Standard Tiberian manuscripts, a consonantal *vav* is indicated by a *shewa* sign, often written within the letter. The *shewa* makes it clear that the letter closes a syllable and so is to be read as a consonant, e.g.

**Genizah manuscripts**

לָיו (T-S A13.18, Blapp 2017, 125 | L [BHS]: לָיו Psa. 89.46 ‘on him’)

כָּיו (T-S A13.18, Blapp 2017, 125 | L [BHS]: כָּיו Psa. 91.4 ‘his wings’)

**European manuscripts**

תָּיו (Codex Reuchlinianus, Morag 1959, 219 | L [BHS]: תָּיו Isa. 6.1 ‘and his train’)

הָיוֹתָיו (BL Add 21161 | L [BHS]: הָיוֹתָיו Hos. 14.1 ‘and his pregnant women’)

The distinction in the Middle Ages between the pronunciation of *vav* as a labio-dental in Palestine and its pronunciation as bilabial in Iraq is continued in modern reading traditions. In reading traditions of the Levant, such as Aleppo, consonantal *vav* is pronounced as a labio-dental, e.g.
The Tiberian Pronunciation Tradition of Biblical Hebrew

hajˈjav (Aleppo, Katz 1981,4 | L [BHS]: יָֽיְהָ֖ תֶּ֖נֶֽג Gen. 47.28 ‘his life’)

ˌveɣamˈhuˑ jiɣˈdal (Aleppo, Katz 1981,9 | L [BHS]: אַּ֖֥נְסָֽהָ֖ יָֽיְהָ֖֔ תֶּ֖֥נֶֽג Gen. 48.19 ‘and he also will be great’)

In the Samaritan reading tradition, consonantal vav has shifted to [b] (except in the case of conjunctive vav), reflecting its merger with fricative bet [v] and the consequent shift of fricative bet [v] to plosive bet [b] (Ben-Ḥayyim 2000, 33–34), e.g.70

bāḇiyyima (Samaritan, Ben-Ḥayyim 2000, 33-34 | L [BHS]: בּוֹבַּיָּ֑וּם Exod. 26.32 ‘their hooks’)

iššāḇ (Samaritan, Ben-Ḥayyim 2000, 33-34 | L [BHS]: יָּֽוֹשָּׁ֖וּב Gen. 25.25 ‘Esau’)

The occurrence of pe in place of consonantal vav in a biblical manuscript from Qumran could be taken as evidence that the labio-dental pronunciation already existed in the Second Temple period:71

צָּ֖֥פַה יָּֽוֹדֵהּ לִּֽיַּ֖֥נְכֶֽב (4Q111 3.8 | L [BHS]: צָּ֖֥פַה יָּֽוֹדֵהּ לִּֽיַּ֖֥נְכֶֽב Lam. 1.17 ‘The Lord commanded Jacob’)

The pre-Masoretic transcriptions into Greek and Latin, however, reflect a pronunciation of the consonantal vav as a bilabial [w]. In Greek this is represented by ο̆ or υ and in Latin by u, e.g.72

70 Here and elsewhere the transcription system of Ben-Ḥayyim is used for the Samaritan tradition.
71 Data supplied by Aaron Hornkohl.
72 Data supplied by Ben Kantor.
Septuagint (third century B.C.E.)

Οὐκάν (Göttingen Septuagint | L [BHS]: וּכָאָנ Gen. 36.27 ‘Akan’)

Εὕαν (Göttingen Septuagint | L [BHS]: וּעָאָנ Gen. 4.1 ‘Eve’)

Hexapla of Origen (c. 185–254 C.E.)

ουαδωρ (Ambrosiana Palimpsest | L [BHS]: וָדוֹר Psa. 49.12 ‘and generation’)

βγηουαθω (Ambrosiana Palimpsest | L [BHS]: וֹבֵג אוֹת Psa. 46.4 ‘at its swelling’)

Jerome (346-420 C.E.)

uaiomer (Jerome, Epistula LXXIII.55.18, ed. Hilberg | L [BHS]: וַאמֶר Gen. 4.15 ‘and he said’)

illaue (Jerome, Hebraicae Quaestiones in Libro Geneseos, ed. de Lagarde et al., 6.5, 6, 12 | L [BHS]: וַּלְּאָה Gen. 29.34 ‘[my husband] will join himself [to me]’)

In medieval Greek transcriptions, on the other hand, consonantal vav is represented by β, which reflects [v], e.g.

Nikolaos of Otranto (1155/60–1235)

βεέθ (Kantor forthcoming | L [BHS]: וֶאֶת Gen. 1.1 ‘and (direct object marker)’)

βιγιομερου (Kantor forthcoming | L [BHS]: וּבֵיֶמְרֶו Ex. 32.4 ‘and they said’)

In modern Iraqi reading traditions, such as Baghdad (Morag 1977, 8) and Kurdistan (Sabar 2013), vav is pronounced as a bilabial [w]. The same applies to the Yemenite reading tradition,
which was closely related historically with Babylonia in the Middle Ages (Morag 1963; Ya’akov 2015), e.g.

\[\text{wējid'gu (Baghdad, Morag 1977,8 | L [BHS]: \text{וְיָדְג} Gen. 48.16 ‘and let them increase’)}\]

\[\text{wāfṣafāt (Yemen, Morag 1963,42 | L [BHS]: \text{וְשָׁפֵט} Isa. 2.4 ‘and He will judge’)}\]

I.1.7. **ZAYIN з (ז)**

Voiced alveolar sibilant [z]

According to *Hidāyat al-Qāri*, the Tiberians called this letter zāy (זデザイン), which is the name of the corresponding Arabic letter. A shortened form of the name, zay, was also used in Jewish Palestinian Aramaic (Sokoloff 1992, 175) and Syriac (Payne Smith 1879, 1116).

*Hidāyat al-Qāri* states that the place of the articulation of the letter is the teeth. This evidently refers to the movement of the teeth accompanying the pronunciation of the sibilants. The author does not mention the action of the tongue, which was the main articulator. The *Sefer Yeṣīra* describes zayin as being articulated between the teeth with a ‘resting tongue’, or a ‘flat

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tongue’ according to some versions.\textsuperscript{76} In both these passages, the intention may have been that the tongue tip was not engaged in the articulation of the letter, i.e. it was articulated with the blade.

*Hidāyat al-Qāri*\textsuperscript{7} mentions that there is a variant form of *zayin* which is called *zāy makrūkh*, but the author says he knows nothing about it.

It is said that there are some who attribute a particular feature to *zayin* and call it *zāy makrūkh*. I have not, however, been able to identify their purpose in using the term *makrūkh*, so that I could have described it.\textsuperscript{77}

It has been stated previously that I do not know anything that I can report about the *zāy makrūkh*. I have only mentioned it so that it be known that letters have different attributes.\textsuperscript{78}

The term *makrūkh* was used to refer to an emphatic, i.e. pharyngealized, form of *resh* (§I.1.20.). It appears, therefore, that


\textsuperscript{77} Long version, edition in vol. 2 of this book, §II.L.1.2.

\textsuperscript{78} Long version, edition in vol. 2 of this book, §II.L.1.9.8. Cf. also Eldar (1984a, 32). The Yemenite orthoepic treatise known as the Hebrew *Maḥberet ha-Tījān*, which was based on the long version of the *Hidāya*, contains a similar statement: ‘זין יש לאלים וъ נקר או מברך ואופי ויין אפילון They (i.e. the Jews of Palestine) have a *zayin* called *makrūkh*, but it is unfamiliar to us (i.e. the Jews of Yemen)’ (ed. J. Derenbourg 1871, 81); cf. Morag (1960, 210, n. 45).
The zāy makrūkh was an emphatic [zˁ], though its distribution is unknown.

An anonymous Masoretic treatise refers to two variant forms of the letter şade in the Tiberian Hebrew reading tradition:

There is another letter (with two realizations), which the people of Palestine never utter (in their vernacular speech). This is şade and (variant) şade. It is, however, familiar to the inhabitants of the lands (of the diaspora) due to their living in close proximity to other peoples and their using other languages and languages of other nations.79

It is possible that this is referring to a voiced variant of şade, i.e. [zˁ]. Ibn Khaldūn (North Africa, d. 1406), indeed, refers to a voiced allophone of şade [zˁ] in the pronunciation of the name אֲמַצְיָה, i.e. [ʔamazˁjoːhu:].80

Sībawayhi describes the existence of an emphatic [zˁ] sound in Arabic, which arose through partial assimilation of the letter şād to an adjacent voiced consonant. With regard to the pronunciation of the şād in the word maṣdar ‘source’ he states:

79 Ed. Allony (1973, 102, lines 29-32 [Allony’s reading has been corrected in places]): ḥerṣ āḥer la ḥoklu ḥat al-šams baḥa ṣā na ḫa ṣā ḫa. Ibn al-Ḥaṭim al-Maṣḥūf attributed this text to ‘Ali ben Yehudah ha-Nazir, but this attribution has been disputed by Eldar (1984a, 33, n.54, 1986, 59–61).

80 He describes the şade as al-şād al-mušamma bi-l-zāʾ ‘şād flavoured with zā’; cf. Schreiner (1886, 254).
They make it (the šād) similar to the homorganic letter that is most like dāl, i.e. zāy, since it is unaspirated and not emphatic, but they do not change it into pure zāy, lest the emphatic quality of the letter be removed.\(^{81}\)

An emphatic Arabic zāy was recognized as an additional Arabic letter in some medieval works on the correct recitation of the Qurʾān (tajwīd), where a voiced variant of an Arabic šād is intended.\(^{82}\) The Tiberian terminology may have been influenced by this tradition in the Arabic tajwīd literature.

The statement in Hidāyat al-Qāri’ concerning the zāy makrūkh implies that it is a variant of the written letter zayin (‘there are some who attribute a particular feature to zayin’). The foregoing discussion, however, suggests that the term is referring to the voiced oral reading of the šāde.

### I.1.8. ḤET (ח)

Unvoiced pharyngeal fricative [h]

This letter is transcribed by Arabic ḥāʾ (unvoiced pharyngeal fricative) in the Karaite transcriptions, e.g.

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\(^{81}\) Makkī ibn ʾAbī Ṭālib al-Qaysī (d. 437/1045), for example, refers to šād allatī yukāliṭu lafṣuḥā lafṣa al-zāy ‘A šād whose pronunciation is mixed with that of zāy’, as in قزد (الزراط) وقزد (الصراط), al-Riʿāya li-Tajwīd al-Qirā’a wa-Taḥqiq Lafz al-Tilāwa (ed. Farḥāt 1996, 107).
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According to *Hidāyat al-Qāriʾ*, the pharyngeals and the laryngeals had the same place of articulation:

The letters הָיְחַחְעַ have a single place of articulation. This is the throat and the root of the tongue. The Tiberians call it the ‘root of the tongue’ and ‘place of swallowing’.\(^\text{83}\)

It is possible that the division of this place of articulation into the ‘root of the tongue’ and ‘place of swallowing’ was intended to refer to the production of the pharyngeals and laryngeals respectively. Some medieval grammarians state that הֵט and its voiced counterpart יָאֵיֶּנ were articulated less deep in the throat than ’אָלֵפ and הֵו.\(^\text{84}\)

In the Standard Tiberian tradition, הֵט does not take dagesh. According to *Hidāyat al-Qāriʾ*, the letter הֵט could not be made

\(^\text{83}\) Long version, edition in vol. 2 of this book, §II.I.1.3.2.

‘heavy’ with *dagesh*,\(^{85}\) i.e. it could not be pronounced with different degrees of muscular pressure.

In Non-Standard Tiberian vocalization, the distribution of *dagesh* is different from that of the Standard Tiberian tradition. The distribution of *dagesh* characteristic of the בגדכפת consonants is extended to most other consonants, with the result that, like the בגדכפת consonants, they take *dagesh* after a silent *shewa* or at the beginning of a word when not preceded by a word ending in a vowel and a conjunctive accent (Morag 1959; Blapp 2018). The *dagesh* in these consonants represented gemination (Yeivin 1983; Khan 2017). Further details of this system of marking *dagesh* will be given in §I.3.3. What is significant here is that the extension of *dagesh* to consonants other than בגדכפת in Non-Standard Tiberian manuscripts does not include the pharyngeals, which in the vast majority of cases do not take *dagesh*. This reflects the difficulty of geminating these consonants. A *dagesh* is found only very sporadically marked on *ḥet* in Non-Standard Tiberian manuscripts, e.g.

Genizah manuscripts

ח י יִ֑ם (T-S A13.20, Blapp 2017, 163; 2018, 143 | L [BHS]: ח י ִ֑ים Psa. 69.29 ‘the living’).

European manuscripts

ךתמהת (Codex Reuchlinianus, Morag 1959, 219 | L [BHS]: כתמתה 2 Sam. 11.25 ‘your fighting’)

\(^{85}\) Long version, edition in vol. 2 of this book, §II.L.1.3.5.
This may have been a strategy for ensuring that the letter was read correctly and did not lose its consonantal pronunciation, rather than marking gemination. The *rafe* sign is occasionally used with a similar function in Non-Standard Tiberian manuscripts. As in some other contexts in Non-Standard Tiberian manuscripts, the *rafe* here marks the letter as consonantal but not geminated, e.g.

יָדֹ (Blapp 2017, 175 | L [BHS]: יָדֹ Psa. 69.6 ‘they are [not] hidden’)

Both of these strategies for ensuring that the letter is read and not weakened are found in Palestinian vocalization, e.g.

*Dagesh*

חיה (Fassberg 1987, 84 | L [BHS]: חיה Lam. 1.2 ‘her cheek’)

*Rafe*

יאלא (T-S 12.195, Kahle 1930, 82-84 | L [BHS]: יאלא Psa. 53.4 ‘they have become corrupt’)

The potential vulnerability of *het* to weakening is reflected in Non-Standard Tiberian manuscripts by the practice of marking a *shewa* sign under the letter in word-final position. The purpose of this was to draw attention to the fact that they are consonants closing a syllable and are not to be weakened and read as vowel letters, e.g.

Genizah manuscripts

חשתב (T-S A11.1, Blapp 2017, 48 | L [BHS]: חשתב Job 39.14 ‘and she forgot’)

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Consonants

European manuscripts

Within the Standard Tiberian reading tradition a het was prevented from potential weakening in some contexts by lengthening the vowel before it (§I.2.10.), e.g. מְחַיֵּה [mufθəˈχjə] ‘and Pethahiah’ (Neh. 11.24), מְחַיֵּה [mɪθχə] ‘reviving’ (Ezra 9.8). Another strategy to protect the consonantal pronunciation of het at the end of a word-internal syllable was to place a dagesh in the following letter (§I.3.1.11.2.). This is found in some early manuscripts (Yeivin 1980, 295; Ginsburg 1897, 133), e.g.

There is clear evidence from the Dead Sea scrolls of the weakening of het in some biblical reading traditions in the Second Temple period, especially that of 1QIṣa. This is reflected by the occurrence of he or ʾalef where the Masoretic tradition has het, e.g.⁸⁶

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⁸⁶ Data supplied by Aaron Hornkohl. Cf. also Reymond (2014, 92).
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In the modern Samaritan reading tradition *het* has weakened in most contexts to *’alef* or zero (Ben-Ḥayyim 2000, 38–39), e.g.87

*’esad (L [BHS]: חֵסֶד Gen. 24.14 ‘grace’)

*‘amrā‘ēfāt (L [BHS]: מְרָחֶפֶת Gen. 1.2 ‘was hovering’)

ruwwi (L [BHS]: רְוּחַ Gen. 6.3 ‘my spirit’)

mār (L [BHS]: מָר Gen. 30.33 ‘tomorrow’)

wrū (L [BHS]: רְוּחַ Gen. 1.2 ‘and the spirit of’)

The weakening of the pharyngeals reflected in the Dead Sea scrolls and the Samaritan tradition had its roots in the contact of Hebrew with non-Semitic languages, in particular Greek, in the pre-Islamic period. The measures taken to ensure the correct reading of the *het* in the medieval manuscripts described above show that a special effort had to be made to avoid its being weakened in the transmission of the Masoretic biblical reading traditions still in the Middle Ages. Indeed, in the medieval period there is evidence for the weakening of the pharyngeals in Palestinian liturgical poetry (§I.0.9.).

87 Data supplied by Aaron Hornkohl.
I.1.9. ʾṬET (תט)

Emphatic (i.e. pharyngealized, with retracted tongue root and increased muscular pressure) unvoiced alveolar plosive [tʰ]

According to *Hidāyat al-Qāriʾ*, it was articulated with the tongue tip and the gums.\(^88\) In the Karaite transcriptions, it is represented by Arabic ṭāʾ, which was a pharyngealized [tʰ], e.g.

\[
\text{מְתָּטָבָתָה} \quad (\text{BL Or 2539 MS B, fol. 131v, 11 | L [BHS]})
\]

Num. 24.5 ‘how fair are [your tents]’

\[
\text{מְיִהוֹט} \quad (\text{BL Or 2539 MS A, fol. 57r, 8 | L [BHS]})
\]

Gen. 14.23 ‘from a thread’

\[
\text{כּמְטָחֵי} \quad (\text{BL Or 2539 MS A, fol. 64r, 3 | L [BHS]})
\]

Gen. 21.16 ‘like the shots of’

In Greek transcriptions from the pre-Masoretic period, ṭet is represented by Greek ταῦ, which was an unaspirated stop [t]. In Latin transcriptions from the pre-Masoretic period it is represented by Latin t, which likewise represented an unaspirated stop [t]. These reflected the unaspirated realization of the ṭet, which is also a feature of Arabic ṭāʾ. Examples:\(^89\)

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\(^{89}\) Data supplied by Ben Kantor.
Septuagint (third century B.C.E.)

Φουτιήλ (Göttingen Septuagint | L [BHS]: Ὠφυτιήλ Ex. 6.25 ‘Putiel’)

Ἰεκτάν (Göttingen Septuagint | L [BHS]: Ἰκταν Gen. 10.25 ‘Joktan’)

Λώτ (Göttingen Septuagint | L [BHS]: Λωτ Gen. 11.27 ‘Lot’)

Hexapla of Origen (c. 185–254 C.E.)

βατε (Ambrosiana Palimpsest | L [BHS]: וְתֵּב Psa. 28.7 ‘[my heart] trusted’)

εμματ (Ambrosiana Palimpsest | L [BHS]: וְמִּת Psa. 30.7 ‘I [will not] be moved’)

φελλετηνι (Ambrosiana Palimpsest | L [BHS]: פֶלְלֶהֶט Psa. 31.2 ‘rescue me! (ms)’)

Jerome (346-420 C.E.)

phut (Jerome, Commentary on Ezekiel, ed. Glorie, VIII.27.935 | L [BHS]: וּט Ezek. 27.10 ‘Put’)

atemoth (Jerome, Commentary on Ezekiel, ed. Glorie, XII.40.517–518 | L [BHS]: וַתַּמֹּת Ezek. 40.16 ‘narrowing (fp)’)

bete (Jerome, Hebraicae Quaestiones in Libro Geneseos, ed. de Lagarde et al., 54.5 | L [BHS]: בֵּט Gen. 34.25 ‘security’)

mesphat (Jerome, Commentary on Isaiah, ed. Gryson, II.42.6 | L [BHS]: מִשְׁפָּט Isa. 5.7 ‘judgment’)

phaleta (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Joel, II, p. 197, line 783 | L [BHS]: פְל יטַָ֗ה Joel 3.5 ‘I will pour’)

I.1.10. YOD ד (י)

Palatal unrounded semi-vowel [j]; voiced palatal stop [j] when geminated

Saadya states that the Tiberians pronounced *yod* with *dagesh* like Arabic *jīm*:

> As for *jīm*, it is in between *gimel* and *yod*. This is why the Tiberians pronounce it [i.e. *jīm*] when (reading) *yod* with *dagesh*.  

According to the early Arabic grammarians Sībawayhi and al-Khalīl (eighth century C.E.), *jīm* was realized as a voiced palatal stop [j], which had the same place of articulation as the Arabic *yāʾ* (the semi-vowel [j]), so presumably Saadya is referring to the realization of *yod* with *dagesh* as [j], e.g. ייִשְׁנָא [vajjaʃˈmeːd] ‘and he destroyed’ (1 Kings 16.12), which resulted from the strengthening of the articulation of [j] to a stop.  

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90 In some of the early Arabic dialects geminated *yāʾ* was pronounced like *jīm*; cf. Roman (1983, 101–6, 218). Ibn Sīnā in the eleventh century describes *jīm* as pronounced slightly further forward (Roman 1983, 243–46).
In many Non-Standard Tiberian manuscripts, a word-final consonantal yod is marked by a lower dot, which can be identified as a *ḥireq* vowel. Occasionally the yod is also marked with a *rafe* sign, e.g.

**Genizah manuscripts**

ָ֖ יָ֖ הָ֖ל ָ֖ אֱּ (T-S A12.1, Blapp 2017, 84 | L [BHS]: יָ֖ הָ֖ אֱּ Prov. 30.9 ‘my God’)

ָ֖ יָ֖ וַָ֖ ש ְ (T-S A13.18, Blapp 2017, 130 | L [BHS]: וַָ֖ ש Psa. 89.35 ‘my lips’)

**European manuscripts**

ָ֖ יָ֖ צָרַָ֖ מ (Codex Reuchlinianus, Morag 1959, 220 | L [BHS]: צָרַָ֖ מ Isa. 1.24 ‘from my enemies’)

ָ֖ יָ֖ נ (BL Add 21161 | L [BHS]: וָ֖ נ Joel 1.6 ‘nation’)

In Babylonian vocalization, a *ḥireq* is marked not only on word-final consonantal yod but also on consonantal yod that occurs within a word, e.g.92

ָ֖ נָ (OB, Yeivin 1985, 277 | L [BHS]: נָ Psa. 102.12 ‘bent’)

ָ֖ נָ (OB, Yeivin 1985, 277 | L [BHS]: נָ Jer. 18.8 ‘the nation’)

ָ֖ נָ (OB, Yeivin 1985, 275 | L [BHS]: נָ Ezek. 17.6 ‘and it became’)

ָ֖ נָ (MB, Yeivin 1985, 275 | L [BHS]: נָ Prov. 31.10 ‘virtue’)

92 Data supplied by Shai Heijmans.
Another strategy for marking word-final consonantal *yod* that is sporadically found in Non-Standard Tiberian is to write a dot within the body of the letter, which can be identified as a *mappiq* sign, e.g.

לְפָנִי (T-S A11.1, Blapp 2017, 51 | L [BHS]: לְפָנִי Job 41.2 ‘before me’)

These strategies for marking word-final consonantal *yod* reflect the perception that the letter was a weak consonant and was vulnerable to being slurred over.

There is some sporadic evidence in various Greek transcriptions from the pre-Masoretic period of the weakening and contraction of *yod* where it is consonantal in the Masoretic tradition, e.g.\(^ {93}\)

Hexapla of Origen (c. 185–254 C.E.)

Final *ay* represented by *eta* possibly reflecting contraction to ē (Kantor 2017, 234):

omega (Ambrosiana Palimpsest | L [BHS]: ωέβη Psa. 35.19 ‘my enemies’)

sigma (Ambrosiana Palimpsest | L [BHS]: σωνη Psa. 35.19 ‘those who hate me’)

Septuagint (third century B.C.E.)

Zero representation where consonantal *yod* appears in the Masoretic tradition:

\(^ {93}\) Data supplied by Ben Kantor.
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Ἀληλί (Göttingen Septuagint | L [BHS]: יִחְלְאֵל Num. 26.26 ‘Jahleelite’)

Ἀσηλί (Göttingen Septuagint | L [BHS]: יִחְצְאֵל Num. 26.48 ‘Jahzeelite’)

Ἐτεβάθα (Göttingen Septuagint | L [BHS]: בְיָטְבָּתָה Num. 33.33 ‘Jotbathah’)

In some of the biblical Dead Sea scrolls, an ‘alef occasionally appears where there is consonantal yod in the Masoretic tradition, which reflects weakening, e.g. 94

גואים (1QIsa a 18.8 | L [BHS]: גוֹי Num. 23.3 ‘nations’)

In some of the biblical Dead Sea scrolls, an ‘alef occasionally appears where there is consonantal yod in the Masoretic tradition, which reflects weakening, e.g. 94

A kaf without dagesh is frequently, but not regularly, marked by the rafe sign in the model Standard Tiberian codices.

94 Data supplied by Aaron Hornkohl.
According to *Hidāyat al-Qâri‘*, *kaf* with *dagesh* was articulated with ‘the middle of the tongue.’\(^{95}\) *Kaf* without *dagesh*, on the other hand, was articulated further back, on the posterior ‘third of the tongue, which is adjacent to the pharynx, opposite the (soft) palate.’\(^{96}\) In the Karaite transcriptions fricative *kaf* is represented by Arabic *khā‘*, which was pronounced as an unvoiced uvular fricative,\(^{97}\) e.g.

(CN 2539 MS A, fol. 74r, 2 | L [BHS]: לֶאֱכָל Gen. 24.33 ‘to eat’)

(BL Or 2539 MS A, fol. 68r, 3 | L [BHS]: בָּסָב Gen. 22.13 ‘in the thicket’)

(BL Or 2539 MS A, fol. 63v, 2 | L [BHS]: בְּעִינֵיכֶּנ Gen. 21.12 ‘in your (ms) eyes’)

Greek transcriptions from the pre-Masoretic period represent plosive *kaf* with the letter χ, which represented an aspirated voiceless velar stop [kʰ] until the Byzantine period, rather than ς, which represented an unaspirated [k].


\(^{97}\) Roman (1983, 218).
demonstrates that plosive kaf at the time of these transcriptions was aspirated, e.g.\textsuperscript{98}

**Septuagint (third century B.C.E.)**

\textit{Χαναναῖοι} (Göttingen Septuagint | L [BHS]: וְהַכְנַעֲנִי Gen. 12.6 ‘Canaanite’)

\textit{Χάσαδ} (Göttingen Septuagint | L [BHS]: כֶַ֣שֶד Gen. 22.22 ‘Chesed’)

\textit{Χαλèβ} (Göttingen Septuagint | L [BHS]: כָלִּ֣ב Num. 13.6 ‘Caleb’)

\textit{'Ασχανάζ} (Göttingen Septuagint | L [BHS]: אַשְׁכְּנַז Gen. 10.3 ‘Ashkenaz’)

**Hexapla of Origen (c. 185–254 C.E.)**

\textit{χααφαρ} (Ambrosiana Palimpsest | L [BHS]: כָעַפִּר Psa. 18.43 ‘like dust’)

\textit{χαμμα} (Ambrosiana Palimpsest | L [BHS]: כָמָה Psa. 35.17 ‘how long/much ...?’)

\textit{χελλωθαμ} (Ambrosiana Palimpsest | L [BHS]: כֵלָּוַתָם Psa. 18.38 ‘wiping them out’)

\textit{δερχω} (Ambrosiana Palimpsest | L [BHS]: דֶ֫רְכָּו Psa. 18.31 ‘his way’)

Likewise, in the Tiberian pronunciation tradition, plosive kaf was almost certainly aspirated. In the Karaite transcriptions,

\textsuperscript{98} Data supplied by Ben Kantor.
Plosive kaf with dagesh is represented by Arabic kāf, which was an aspirated stop.  

*Hidāyat al-Qāri’* describes the stop [kʰ] as primary (ʾaṣl) and the fricative [χ] as secondary (farʾ).  

### I.1.12. LAMED (לֶמֶד)

Voiced alveolar lateral continuant [l]

In *Hidāyat al-Qāri’* the name of this letter is spelt לֶמֶד, which appears to reflect a different pronunciation from that of the normal Hebrew form of the name למד, with stress on the final syllable.

According to *Hidāyat al-Qāri’*, the articulation of this letter involved the contact of the tongue tip with the gums.

### I.1.13. MEM (מ, מֶמֶט)

Voiced bi-labial nasal [m]

In *Hidāyat al-Qāri’* the name of this letter is spelt מ.מ.

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I.1.14. **NUN** נ (ג, ה)

Voiced alveolar nasal [n]

According to *Hidāyat al-Qāriʾ*, it was articulated with the end of the tongue and the gums.\(^{102}\)

I.1.15. **SAMEKH** סָמֶ (ס)

Unvoiced alveolar sibilant [s]

In *Hidāyat al-Qāriʾ* the name of this letter is spelt סָמֶ, which appears to reflect a different pronunciation from that of the normal Hebrew form of the name סָמֶ, with stress on the final syllable.

According to the medieval sources, it was articulated in the same place as the letter zayin,\(^{103}\) apparently with the blade of the tongue rather than the tip (see the description of zayin §I.1.7.).

In some medieval Muslim sources, the samekh in the name פְּנֵהס (Phinehas) is transcribed by sād [sˁ]: פנִסח (Schreiner 1886, 254). This apparently reflects its pharyngealization after the pharyngeal ḫet.

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Sporadic examples of the pharyngealization of *samekh* in the environment of pharyngeals is attested in the Dead Sea scrolls, e.g.\(^{104}\)

(4Q76 4.12 | L [BHS]: הָעַותָה Mal 3.21 ‘and you [pl] will trample’)

I.1.16. *Ayin* (ע)

Voiced pharyngeal fricative [ʕ]

This letter is transcribed by Arabic ‘ayn (voiced pharyngeal fricative) in the Karaite transcriptions, e.g.

(BL Or 2539 MS A, fol. 64v, 3 | L [BHS]: עֵינִיהָ Gen. 21.19 ‘her eyes’)

(BL Or 2539 MS A, fol. 63r, 3 | L [BHS]: רוֹעַש Gen. 21.8 ‘and he made’)

(BL Or 2539 MS A, fol. 63v, 3 | L [BHS]: שְׁמַע Gen. 21.12 ‘hear!’)

*Hidāyat al-Qārī* does not distinguish between the place of articulation of the laryngeals and that of the pharyngeals. Some medieval grammarians, however, state that ḥet and its voiced counterpart ‘ayin were articulated less deep in the throat than ‘alef and he (see §I.1.8.).

In the Standard Tiberian tradition, ‘ayin does not take *dagesh*. According to *Hidāyat al-Qārī*, the letter ‘ayin could not be

\(^{104}\) Data supplied by Aaron Hornkohl.
made ‘heavy’ by *dagesh*, i.e. the consonant could not be pronounced with different degrees of muscular pressure. Also in Non-Standard Tiberian manuscripts, where the use of *dagesh* has been extended, ‘*ayin* does not take *dagesh*.

In Palestinian vocalization *dagesh* is sporadically marked on ‘*ayin*, it seems as a measure to ensure that it was pronounced correctly and not weakened, e.g.

(ת") (T-S NS 249.6, Dietrich 1968, 74* | L [BHS]: ית 1 Chron. 2.35 ‘Attai’)

(ת") (T-S A43.1, Kahle 1930, 94 | L [BHS]: יר Jer. 25.19 ‘Pharaoh’)

In Non-Standard Tiberian manuscripts, ‘*ayin* is occasionally marked with a *rafe* sign, marking the letter as consonantal but not geminated, e.g.

(ת") (T-S A13.18, Blapp 2017, 140 | L [BHS]: יאר Psa. 89.7 ‘is comparable’)

(ת") (T-S A13.20, Blapp 2017, 177 | L [BHS]: ילע Psa. 68.36 ‘to the people’)

The *rafe* sign is occasionally found on ‘*ayin* also in Palestinian vocalization, e.g.

(ת") (T-S NS 249.3, Dietrich 1968, 128 | L [BHS]: יעור Psa. 77.5 ‘my eyes’)

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In many Non-Standard Tiberian manuscripts a word-final ʿayin is marked with shewa, indicating that it was a consonant that closed a syllable, e.g.

**Genizah manuscripts**

רְשִׁיעַ (T-S A13.18, Blapp 2017, 127 | L [BHS]: רְשִׁיעַ Psa. 90.12 ‘teach!’)

חָשׁ בָּ (T-S A13.20, Blapp 2017, 156 | L [BHS]: חָשׁ Psa. 71.4 ‘wicked’)

**European manuscripts**

רְשִׁיעַ (Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: רְשִׁיעַ 2 Sam. 22.7 ‘and he heard’)

רְשִׁיעַ (ACAMO 28 2v, Pilocane 2004, 29 | L [BHS]: רְשִׁיעַ ‘evil’ 1 Kings 16.25)

The use of dagesh, rafe and shewa in the manuscripts with Non-Standard Tiberian and Palestinian vocalization reflect the perceived vulnerability to weakening of the ʿayin. Similar strategies of vocalization were also used for other gutturals in these manuscripts (§I.1.1, §I.1.5., §I.1.8.).

Within the Standard Tiberian reading tradition a ʿayin was prevented from potential weakening in some contexts by lengthening the vowel before it (§I.2.10.), e.g. שְׁמֵעָיָה [ʃaˈmaˑʕˈa] ‘Shemaiah (2 Chron. 11.2), שָׁמֵעַ [ʃaˈmaˑʕ] ‘listen’ (1 Sam. 28.22). Another strategy to protect the consonantal pronunciation of ʿayin at the end of a word-internal syllable was to place a dagesh in the following letter (§I.3.1.11.2.). This is found in some early manuscripts (Yeivin 1980, 295; Ginsburg 1897, 133), e.g.
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C: יִשְׁכָּב (L [BHS]: יִשְׁכָּב, 'he supplants' Jer. 9.3)

There is clear evidence from the Dead Sea scrolls of the weakening of ʿayin in some biblical reading traditions in the Second Temple period, especially that of 1QIsa. This is reflected, for example, by the omission of ʿayin where it occurs in the Standard Tiberian Masoretic Text, or its replacement by ʾalef or he, e.g. 106

106 Data supplied by Aaron Hornkohl. Cf. also Reymond (2014, 92).

In the modern Samaritan reading tradition ʿayin has weakened in most contexts to ʾalef or zero (Ben-Ḥayyim 2000, 38–39), e.g. 107

107 Data supplied by Aaron Hornkohl.
yišmāʿu (L [BHS]: יָשְׁמָע Gen. 11.7 ‘they will (not) understand’)

miyyūlām (L [BHS]: מִיֶּעְלָם Gen. 6.4 ‘of old’)

šār (L [BHS]: שָׁר Gen. 25.25 ‘hair’)

šū (L [BHS]: שֻׁע Gen. 38.2 ‘Shua’)

The measures taken to ensure the correct reading of the ‘ayin in the medieval manuscripts described above show that a special effort had to be made to avoid its being weakened in the transmission of the Masoretic biblical reading traditions still in the Middle Ages.

I.1.17. PE י♬ (ם, נ)

Pe with dagesh (ם): unvoiced aspirated bi-labial stop [pʰ]

Pe without dagesh (ם): unvoiced labio-dental fricative [f]

A pe without dagesh is frequently, but not regularly, marked by the rafe sign in the model Standard Tiberian codices.

In Masoretic treatises the name of this letter is sometimes spelt י♬ or י♬.¹⁰⁸

According to Hidāyat al-Qāriʾ, pe with dagesh was pronounced by closing the lips firmly and pe without dagesh was pronounced by closing the lips lightly.¹⁰⁹ Taken by itself, this could be a description of a bilabial articulation [φ]. This appears,


however, to be only a partial description of the sound, as is the case with the description of *bet* without *dagesh* (see §I.1.2.). The light closure of the lips would have accompanied a labio-dental articulation [f] and no doubt it is this secondary feature that the author refers to.\(^{110}\)

We know from Greek and Latin transcriptions that in the pre-Masoretic period plosive *pe* was aspirated.\(^{111}\) This is shown by the fact that it is represented in Greek by φ, which in the periods in question represented an aspirated stop [pʰ], and in Latin by the digraph *ph*, the h reflecting aspiration [pʰ]. Greek π and Latin *p* represented unaspirated [p]. Examples:\(^{112}\)

Septuagint (third century B.C.E.):

Φαλτιὴλ (Göttingen Septuagint | L [BHS]: פַלְתִיָּא Num. 34.26 ‘Paltiel’)

Ἀρφαξὰδ (Göttingen Septuagint | L [BHS]: אַרְפָכְשָד Gen. 10.22 ‘Arpachshad’)

Ζέλφα (Göttingen Septuagint | L [BHS]: זֶלֶפָה Gen. 30.12 ‘Zilpah’)

Hexapla of Origen (c. 185–254 C.E.)

φααδ (Ambrosiana Palimpsest | L [BHS]: דִּרֶפ Psa. 36.2 ‘fear of (cstr.’)

\(^{110}\) Cf. the commentary to this passage by Eldar (1980, n.75.).

\(^{111}\) Kutscher (1965, 24–35).

\(^{112}\) Data supplied by Ben Kantor.
φαθ (Ambrosiana Palimpsest | L [BHS]: פָד יתָה Psa. 31.6 ‘you redeemed’)

φαלָה (Ambrosiana Palimpsest | L [BHS]: פָלֹה Psa. 32.7 ‘deliverance’)

αρφαθ (Ambrosiana Palimpsest | L [BHS]: חֶרְפֹת Psa. 89.51 ‘the reproach of (cstr.’)

λαμεσφατι (Ambrosiana Palimpsest | L [BHS]: לְמ שְׁפָט Psa. 35.23 ‘to my judgment’)

Jerome (346-420 C.E.)

pharis (Jerome, Commentary on Ezekiel, ed. Glorie, VI.18.504 | L [BHS]: פַרְי Ezek. 18.10 ‘violent one’)

phacud (Jerome, Commentary on Ezekiel, ed. Glorie, VII.23.1001 | L [BHS]: פְקֹוד Ezek. 23.23 ‘Pekod’)

iesphicu (Jerome, Commentary on Isaiah, ed. Gryson, I.52.4 | L [BHS]: יִשְפּוֹק Isa. 2.6 ‘[they] clap’)

mesphat (Jerome, Commentary on Isaiah, ed. Gryson, II.42.6 | L [BHS]: לְמ שְׁפָט Isa. 5.7 ‘judgment’)

Saadya refers to the existence of a ‘hard pe’ (al-fā’ al-sulba) in the hapax legomenon פָרְדָּב ‘his palace’ (Dan. 11.45), which he describes as ‘between bet and pe with dagesh’.113 This appears to be referring to an unaspirated, fortis realization of [p]. One may infer from this that the normal unvoiced stop pe was aspirated also in the Middle Ages. Dunash ibn Tamim reports that the

113 פיָ֖מאָ֖ביןָ֖אלביָ֖ואל нагрузк (ed. Lambert 1891, 42).
scholar Isaac Israeli (ninth-tenth centuries), who was ‘an expert in the reading of the Tiberians’, pronounced the dalet in this word like an Arabic ǧā’, i.e. as emphatic (pharyngealized). This implies that the ‘hard’ pe was also emphatic, the dalet being pronounced emphatic by assimilation (Steiner 1993).

The word ʾāpadāna is a loanword from Old Persian. The source word in Old Persian is reconstructed by Iranists as apadāna, āpadāna or appadāna ‘palace, audience chamber’. The p in Old Persian was unaspirated. The lack of aspiration was preserved when the word was loaned into Hebrew and this was transmitted in the Tiberian oral tradition down to the Middle Ages. There is no consensus among Iranists about the length of the initial vowel in the Old Persian word and whether the p was geminate or not (Ciancaglini 2008, 113–14). According to Henning (1944, 110 n.1), the p was originally geminated but the gemination of the Old Persian p was lost in Middle Persian (Old Persian appadān > Middle Persian *āpadan). In the Tiberian tradition, the pe is geminated, which could, therefore, be an ancient feature. The antiquity of the gemination is shown, moreover, by the fact that the Old Persian word appears as a loanword in an Akkadian text datable to the Late Babylonian period where the p is represented as geminated: ap-pa-da-an (appadān).115

114 Dunash ibn Tamim, Commentary on Sefer Yeṣira (ed. Mann 1931, 1:670, n.106). For this passage see §I.1.4.

There is evidence for the unaspirated pronunciation of the *pe* in this word in Greek and Latin transcriptions in the pre-Masoretic period, e.g.\(^{116}\)

\[\text{Απαδανω} \quad \text{(Theodoretus, fifth century C.E., *Commentarius in Visiones Danielis Prophetae*, e.g. Migne, 81.1532)}\]

\[\text{apedno} \quad \text{(Jerome, fourth century C.E., *Commentarii in Danielem*, ed. Glorie, IV.11)}\]

In these transcriptions the *pe* is represented by Greek \(\pi\) and Latin \(p\) without following \(h\), both of which represented unaspirated [p]. Jerome (*Commentarii in Danielem*, IV, 11–12) comments on the *pe* in this word as follows:

> Notandum autem quod cum pe littera hebraeus sermo non habeat, sed pro ipsa utatur phe cuius uim graecum \(\phi\) sonat, in isto tantum loco apud Hebraeos scribatur quidem phe sed legatur pe.

But it should be noted that while Hebrew speech does not have the letter *pe* (i.e. Latin \(p\) [p]), but instead of it uses *phe*, the force of which is approximated by the sound of Greek \(\phi\) (i.e. [ph]), in that particular place (i.e. Dan. 11.45) among the Hebrews *phe* (i.e. 팥 [ph]) indeed is written but it is read as *pe* (i.e., Latin \(p\) [p]).

It should be noted, however, that some Greek transcriptions are extant that represent the *pe* in the word by \(\phi\), reflecting an aspirated pronunciation, e.g.

\[\varepsilon\phi\alpha\delta\alpha\nu\omega \quad \text{(Theodotion, second century C.E.)}\]

\(^{116}\) Data supplied by Ben Kantor.
εφαδανω/αφαδανω (Polychronios, fifth century C.E., Commentarii in Danielem, ed. Moutsoulas, 11.45)

This suggests that there were variant traditions of reading the pe, some preserving the unaspirated pe others pronouncing the pe as aspirated.

Another feature of all the Greek and Latin transcriptions cited above is that they represent the pe as ungeminated, whereas it is geminated in Tiberian tradition.

The word appears in various dialects of Aramaic, including Syriac, Jewish Babylonian Aramaic and the Aramaic of Targum Jonathan (Sokoloff 2009, 81, 2002, 154). In Syriac, where there is a reliable tradition of vocalization, the pe is ungeminated: ܐܦܕܢ (ʾāpadhnā). There are, however, variant vocalizations of the word in the sources (Payne Smith 1879, 329–30). In some manuscripts, the pe is marked with a diacritic that is used elsewhere to represent the pe corresponding to an unaspirated π in Greek loanwords (J. B. Segal 1989, 489). The word appears in Arabic as fadan ‘palace’.

The pe in מִפְּדָנָה in the Tiberian reading tradition was pronounced not only unaspirated but also pharyngealized. Elsewhere in the sound system of Tiberian Hebrew unaspirated unvoiced stops were pharyngealized, i.e. tet and qof. The feature of lack of aspiration did not exist in unvoiced stops without pharyngealization. Pharyngealization was, therefore, perceived to be the closest equivalent in the sound system of Tiberian Hebrew to the feature of lack of aspiration of the pe. This also applied to the sound system of the spoken language of the tradents of the reading tradition. At the time of Saadya and Isaac
Israeli, who report this feature, the spoken language was Arabic, in which unvoiced unaspirated stops were pharyngealized (i.e. the ٹāʾ and the qāf). It is not clear whether the pharyngealization of the pe in וֹאֶפֶּדֶנָא existed in the reading tradition in the pre-Islamic period. Greek unaspirated τ and χ, likewise, were perceived to correspond most closely to Hebrew emphatic ٹet and qof, as shown by Greek transcriptions of Hebrew, e.g. Λῶτ (Septuagint, لوط Gen. 11.27 ‘Lot’), Ἐνάκ (Septuagint, עֲנָּֽאֵק Deut. 9.2 ‘Anak’) and by Greek loanwords in Hebrew, e.g. περίστυλον ‘colonnade’ < περίστυλον (Copper Scroll 3Q15), κήθος (κτιβ ketiv קתרוס) ‘zither’ < κίθαρος (Dan. 3.5, 7, 10, 15) (Heijmans 2013a).

A Masoretic note to Dan. 3.21 in L reads as follows:

The meaning of this is not fully clear. One possible interpretation is as follows:

There are three cases where pe is pronounced differently by the reader, namely פֶסָנְתִּיר, ‘stringed instrument’ (Dan. 3.5, 3.7, 3.10, 3.15), פֶסָנְתִּי, ‘their tunics’ (ketiv פֶסָנְתִּי, ketiv פֶסָנְתִּי) and פֶסָנְתִּיר, ‘his palace’ (Dan. 11.45).

This suggests that the pe also of the words פֶסָנְתִּי and פֶסָנְתִּי, which occur in the Aramaic section of the Bible, were pronounced unaspirated. The word פֶסָנְתִּיר is a loan from Greek ψαλτήριον, so the pe would correspond to the unaspirated segment in the affricate ψ [ps]. The word פֶסָנְתִּי is of uncertain etymology, but it has been suggested by Nyberg (1931, 187) that the source is Old Persian *patuš ‘garment’, in which case the pe would correspond to an Old Persian unaspirated p. The tet in the word would, moreover, reflect the Old Persian unaspirated t.
It should be noted that there are a number of other Old Persian loanwords in Biblical Hebrew in which a Hebrew pe corresponds to an unaspirated p in the Old Persian source word but which were pronounced aspirated in the Tiberian Hebrew reading tradition, e.g. אֲח שְׁד רְפְנ ים ‘satrap’ ( < Old Persian xšaθrapāwan) (Esther 3.12, 8.9, 9.3; Ezra 8.36), פִּיתֶגָם ‘message’ ( < Old Persian *patiy-gama) (Ecc. 8.11; Esther 1.20), פִּיתְשֶגֶן ‘a copy’ ( < Old Persian *patiy-caγniya or *patiy-caγna) (Esther 3.14, 4.8, 8.13) (Gindin 2013). It would appear that in such cases the original unaspirated p was adapted to the sound system of Hebrew. Greek transcriptions such as εφαδανω (Theodotion, second century C.E.) and εφαδανω/αφαδανω (Polychronios, fifth century C.E.), cited above, would reflect a similar adaption of the pe also in the word נָפַם in some reading traditions.

I.1.18. ᵃⁿᵈᵉ (א, י)

Unvoiced emphatic (pharyngealized) alveolar sibilant [sˁ]

The name of the letter is vocalized י in a Masoretic treatise (ed. Allony and Yeivin 1985, 102), with shewa in the initial syllable, reflecting a pronunciation with stress on the final syllable.

According to the medieval sources, it was articulated in the same place as the letters zayin and samekh,117 apparently with the blade of the tongue rather than the tip (see the description of zayin §I.1.7). In the Karaite transcriptions, it is represented by

Arabic ṣād, which was an unvoiced pharyngealized alveolar sibilant \( [sˁ] \), e.g.

(\( \text{BL Or 2539 MS A, fol. 64v, 9 | L [BHS]}: \) ZXBP. Gen. 21.22 ‘his host’\))

(\( \text{BL Or 2539 MS A, fol. 92r, 6 | L [BHS]}: \) Zinc. Deut. 7.18 ‘Egypt’\))

In §I.1.7. references are given to what appears to have been a voiced emphatic variant of ṣade \( [zˁ] \).

A Karaite transcription is extant in which Arabic sīn is written where the Masoretic Text has ṣade, reflecting the weakening of the emphatic pronunciation:

(\( \text{BL Or 2555 fol. 111v, 3 | L [BHS]}: \) OFR. Ecc. 10.8 ‘and he who breaks’\))

I.1.19. **QOF (ק)⁷²⁹**

Unvoiced advanced uvular unaspirated plosive \( [q] \)

According to Hidāyat al-Qāri’, qof was articulated with the ‘middle of the tongue’, and so further forward than fricative gimel and kaf, which were pronounced with the ‘back third of the tongue’. This suggests an advanced uvular point of articulation.

In the Karaite transcriptions, this letter is represented by Arabic qāf, e.g.

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(BL Or 2539 MS A, fol. 85v, 4 | L [BHS]: חָלֵּק Deut. 4.19 ‘he divided’)

(BL Or 2539 MS A, fol. 74r, 5 | L [BHS]: בִּבְקָר Gen. 24.35 ‘and cattle’)

(BL Or 2539 MS A, fol. 63r, 2 | L [BHS]: בָּקָר Gen. 21.7 ‘in his old age’)

According to the medieval Arabic grammarians, qāf was unaspirated and articulated between the velar stop kāf and the uvular fricatives khāʾ and ghayn (Roman 1983, 110), i.e. in advanced uvular position. It is the emphatic counterpart of the dorsal velar stop kāf (Jakobson 1978; Watson 2007, 43–44).

The lack of aspiration of qof is reflected by Greek and Latin transcriptions from the first half of the first millennium C.E. In these the letter is transcribed by Greek κ and Latin c or g, which represented unaspirated stops, e.g.,

Septuagint (third century B.C.E.)

Κεδαμώθ (Göttingen Septuagint | L [BHS]: קֶדֶמֹת Deut. 2.26 ‘Kedemoth’)

Ἐνάκ (Göttingen Septuagint | L [BHS]: עֲנָּק Deut. 9.2 ‘Anak’)

Hexapla of Origen (c. 185–254 C.E.)

κοῦμ (Ambrosiana Palimpsest | L [BHS]: קֻם Psa. 18.39 ‘to rise’)

Data supplied by Ben Kantor.
Consonants

ουακισα (Ambrosiana Palimpsest | L [BHS]: הָקִי וְְּ֭הוּ Psa. 35.23 ‘awake! (ms)’)

Jerome (346-420 C.E.)

cira (Jerome, Commentary on the Minor Prophets, Amos, ed. Adriaen, I.1, 217 | L [BHS]: קִירָה Amos 1.5 ‘Kir’)

boger (Jerome, Commentary on the Minor Prophets, Amos, ed. Adriaen, III.7, 324 | L [BHS]: בֹּקֵר Amos 7.14 ‘herdsman’)

I.1.20. **RESH ר (ר)**

(i) Voiced advanced uvular trill [ʁ] or advanced uvular frictionless continuant [ʁ̟] and (ii) pharyngealized apico-alveolar trill [ᵣ̟]

According to *Hidāyat al-Qāri*’, the Tiberians pronounced *resh* in two different ways, as was the case with the letters בֹּקֵר.

Its basic articulation was with ‘the middle third of the tongue’, as was the case with *qof* and plosive *kaf*, suggesting an advanced uvular position. It is not made clear whether it was a trill [ʁ] or frictionless continuant [ʁ̟]. In what follows, it will be transcribed as an advanced uvular trill [ʁ][120]

The secondary pronunciation of *resh* is said in the medieval sources to occur in the environment of the alveolar consonants דזצתטסלן and can be inferred to be an apical alveolar trill. It is described by *Hidāyat al-Qāri*’ as being intermediate in status

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(manzila bayna manzilatayn ‘grade between two grades’), i.e. intermediate between the simple primary resh, which is described as ‘light’ (khaifif), and geminated resh marked with the dagesh sign in the Tiberian vocalization, which is termed ‘major resh’ (al-resh al-kabīr). When contrasting it with the primary resh, Hidāyat al-Qāri’ describes the secondary resh as having the feature of ‘heaviness’ (thiqal) whereas the simple resh has the feature of ‘lightness’ (khiffa). The intermediate status of the secondary resh, therefore, can be identified as being an intermediate degree of muscular tension, between the light advanced uvular resh and the maximal degree of muscular tension brought about by the gemination of the resh. The instances of geminated resh marked with dagesh in the Standard Tiberian reading tradition appear to have lengthened forms of the primary resh, i.e. advanced uvular trills. They do not occur in the contexts that are said to condition the secondary alveolar resh. So geminated resh ר may be transcribed [רה], e.g. הּ ִ֑רְע מָ[ה]ְעִ֥יֵּה ’to irritate her’ (1 Sam. 1.6).


122 Hidāyat al-Qāri’, Long version, edition in vol. 2 of this book, §II.L.1.9.5., §II.L.1.9.7. The Hebrew Mahberet ha-Tījān (ed. J. Derenbourg 1871, 81) states that the Tiberians pronounced this resh strongly (מחזקים). An anonymous Masoretic treatise preserved in the Genizah fragment CUL T-S NS 311.113 states that the Tiberians pronounced the resh with dagesh (רדבשא), but ‘in our country we do not know (this pronunciation)’. This is presumably referring to the Tiberain secondary resh.
We know from various sources that the Hebrew letter resh had two different types of pronunciation in the Middle Ages. The earliest text referring to this is Sefer Yeṣira:

There are seven double letters, ב‑ג‑ד‑כ‑פר‑ת. These are pronounced in two ways, which are two opposites—soft and hard, a strong structure as opposed to a weak one.\(^\text{123}\)

In his commentary on Sefer Yeṣira, Saadya discusses the double pronunciation of the Hebrew resh. He states that the letters ב‑ג‑ד‑כ‑פר‑ת are called double (muḍāʿafa) ‘because each of the letters is pronounced with two pronunciations, a hard pronunciation and a soft pronunciation’.\(^\text{124}\) He refers to a difference between the Tiberian and Babylonian pronunciations of resh:

As for the double nature of the resh, the Tiberians have it in their reading of the Bible, whereas the Iraqis have it in their speech but not in their reading of the Bible. They call one type resh makrūkh and the other ghayr makrūkh ('not makrūkh'). As for the customs of the Iraqis in this matter, we have examined them but have found no principle uniting them. As for the customs of the Tiberians, we shall mention them in the commentary on the fourth part of this book.\(^\text{125}\)


\(^\text{124}\) ולא כ כל ח ר ח מ נ ח ג ב ח נ ח ש הו ש ו ש ו ח ל י (ed. Lambert 1891, 29).

\(^\text{125}\) ואמר חכמיו שלישראל פואנט פלטבראני פיאלקארמה, ולﾏ,’’フィיאלמאוקוס בן אלמאוקוס לא פי פיאלקארמה, ויקולהذهירנברוךורירהזרד tableView

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Elsewhere in his commentary on *Sefer Yešira* Saadya refers to the ‘hard’ *resh* as *resh dagesh* and the ‘soft’ *resh* as *resh rafe*.\(^{126}\)

The word *makrūkh*, which is used by Saadya in the passage cited above, has been interpreted by scholars in various ways.\(^{127}\) The most satisfactory interpretation is that it is an Arabicized form of the Hebrew word כְּוָכָר ‘wrapped up, closed up’, analogous to the forms *madgūsh* ‘with *dagesh*’ and *marfī* ‘with *rafe*’, which are widely attested Arabicizations of the Hebrew terms שׁוּדָג and רָפוּי. The term כְּוָכָר is found in Masoretic sources in reference to closed syllables, as in the following passage from *Diqduqe ha-TeV’amin*:

\begin{quote}
asm lešoḇ birc ha-qem mishav boh ha-samah ha-tamah lašula ha or ḥatah kom

הוחצאברב ו... ואם על ב’ות תעמוה יפתחṯ נאמะ בולשון יעמוקミニ ע çalıştıב
\end{quote}

\(^{126}\) Ed. Lambert (1891, 79). In some medieval sources describing the two different types of Tiberian *resh* the terms *dagesh* and *rafe* are confused. This is the case, for example, in *Diqduqe ha-TeV’amin* (ed. Baer and Strack 1879, §7) and the Hebrew *Maḥberet al-Tījān* (ed. J. Derenbourg 1871, 138). According to Revell (1981, 133) this confusion arose from the fact that in the few cases where the *dagesh* sign is marked in the *resh* in the Tiberian text, the *resh* is not preceded by the letters דזצתטסלן nor is it followed by לן. A *resh* that did occur in the environment of these letters was, therefore, considered to be *rafe*. Such sources, or the versions that have come down to us, must have been written by scribes who had no direct knowledge of the Tiberian pronunciation tradition.

\(^{127}\) Morag (1960, 217–19).
If a form of the root בַּרְךָ has a bet with a vowel and the accent falls on it (i.e. the bet), it is always pronounced ‘closed up’ as in וּבִוָֹוְי תְבִָ֥רְכ תְּבִָ֥רְכֶַ֔יךָ֖ו אֲבָּֽרֲכָה (and I will bless those who bless you) (Gen. 12.3) … Except for one word, which is unique in the Bible, for its accent falls on the kaf but it is not opened up in speech: וּבָרְכָּתְוּלְע לָּאָהִיְתַ֔וּבָ֖עֲל יָוּמְנְדְע י (and my reason returned to me and I blessed the Most High) (Dan. 4.31).  

In this passage, the term כָּרָךְ is used to describe forms in which a shewa is silent, i.e. the shewa coincides with the closure of the syllable. The opposite of כָּרָךְ is when מְבָרֲכֶּךָ֖ו אֲבָּֽרֲכָה, which literally means ‘it is opened up in speech’. This refers to the fact that the shewa is vocalic.

In the phrase resh makrūkh, the term is a calque of the Arabic phonetic term muṭbaq (literally ‘closed, covered’), which was used in the medieval Arabic grammatical tradition to refer to emphatic consonants, i.e. pharyngealized consonants. A non-emphatic letter was referred to in the Arabic grammatical tradition by the term munfatiḥ ‘open’. The description of the Arabic emphatic letters by the grammarian Sībawayhi (eighth century C.E.) is as follows:

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129 For details see Khan (1995).
When you position your tongue in the places of articulation of these four (emphatic) letters, your tongue forms a cover/closure extending from their place of articulation until the palate. You raise the back of the tongue towards the palate and when you have positioned your tongue thus, the sound is compressed between the tongue and the palate up to the place of articulation of the letters.130

The terminological opposition between öffat hawwām in the passage from Diqduqe ha-Ṭe‘amim above would, therefore, be directly parallel to the contrasting pair of terms muṭbaq vs. munfatih, which designated emphatic vs. non-emphatic consonants.

This variant of resh, therefore, was pronounced pharyngealized. Evidence for such an interpretation is found in the report by Dunash ibn Tamim that his teacher Isaac Israeli (tenth century), ‘an expert in the Tiberian reading tradition’, pronounced the dalet in the word וּוַיְדִרֻהִים ‘and they bent’ (Jer. 9.2) like the pharyngealized Arabic letter Ḍād ( 있지伝 אאות לשון), by which he meant a pharyngealized voiced interdental [ðˁ]. This must have arisen by the spreading the pharyngealization of the contiguous resh.131

In a fragment of a Masoretic treatise datable to the tenth century, it is stated that this variant of resh ‘is pronounced with a turning of the tongue’ (yuqāl bi-taqallub al-lisân).132 This seems

130 هذه الحروف الأربعة إذا وضعت لسانك في مواضعين انطبق لسانك من مواضعه إلى ما حاذى الحنك الأعلى من اللسان ترفعه إلى الحنك فإذا وضعت لسانك فالصوت محصور في ما بين اللسان والحنك إلى موضع الحروف, al-Kitāb, ed. Derenbourg (1889, 455).
131 For this passage see §I.1.4.
132 Allony (1973, 102, text line 28).
to be referring to the retroflection of the tongue tip (Khan 1995, 79). Retroflection of the tongue tip is a feature often associated with pharyngealized alveolar r in modern spoken Semitic languages.\(^{133}\)

The references to the ‘heavy’ or ‘hard’ pronunciation of the secondary *resh* and its association with the term *dagesh* (e.g. Saadya *resh dagesh*), can be correlated with the fact that pharyngealized *r* was pronounced with greater muscular tension.

According to *Hidāyat al-Qāriʾ* and other medieval sources, this apico-alveolar pharyngealized *resh* occurred when it is preceded by the consonants דזכרטסלן or followed by לן and when either *resh* or one of these consonants has *shewa*.\(^{134}\) This can be reformulated as the rule that alveolar *resh* occurs when one of the following conditions holds:

(i) *Resh* is in immediate contact with a preceding alveolar, e.g. בְּמ זְרֶ ה [bamizˈrˁɛː] ‘with a pitchfork’ (Jer. 15.7), מ צְר ַ֣ף [mɑsˁˈrˁeːef] ‘crucible’ (Prov. 17.3).

(ii) *Resh* is in the same syllable, or at least the same foot, as a preceding alveolar, e.g. וֹ ד רְכ [dɑrˁˈkʰoː] ‘his way’ (Gen. 24.21), ט רְפ ֹ֤וי [tˁɑrˁˈpʰeː] ‘the leaves’ (Ezek. 17.9). The condition applies also to a *resh* in word-final position that is in the same syllable or at least the same foot as an alveolar,

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\(^{133}\) E.g. in Neo-Aramaic dialects (Khan 2008, 32).

although the *resh* is not marked with a *shewa* in such cases, e.g. לְמִ֥ס [savr] ‘commander of’ (1 Sam. 18.13), [lim’ta:arv] ‘by the rain’ (Deut. 11.11).\(^{135}\) A consonant with vocalic *shewa* is treated as belonging to the same foot as the following *resh* in the metrical structure of the phonetic realization of the word (§I.2.5.2.), e.g. צְרוּפַָ֔ה [savruf] ‘refined’ (2 Sam. 22.31), where feet are enclosed in round brackets and syllable boundaries are marked by dots. Likewise, as can be seen from the transcription [lim’ta:arv], a closed syllable containing a long vowel has an epenthetic vowel of the same quality following the long vowel. It will be argued, however, that it is nevertheless in the same prosodic foot, viz. [(lim.)’(t:arv)] (§I.2.4.). On the phonetic level, therefore, the *resh* is strictly not in the same syllable as the alveolar in forms such as צְרוּפַָ֔ה [savruf] and לְמִ֥ס [lim’ta:arv]. The conditioning factor for the emphatic allophone of the *resh* is that it occurs in the same foot as a preceding alveolar.

(iii) *Resh* is in immediate contact with or in the same syllable, or at least in the same foot, as a following מ or נ, e.g. מְלֵ֥ב [marile:le:ev] ‘uncircumcised in heart’ (Jer. 9.25), נְבִּי [naribi] ‘my threshing-floor’ (Isa. 21.10), מְנַנֵּ֣נ [rannanu:] ‘rejoice!’ (Psa. 33.1), מְנַנֵּ֣נ [rannanu:] ‘joyful cry’ (Job 3.7).

Elsewhere *resh* had an advanced uvular realization, e.g. רֶַ֣כֶב [rɪ:xev] ‘chariotry’ (Exod. 14.9), מְרַאֵּ֣ה [marie:] ‘appearance’

\(^{135}\) These last two examples are cited by Saadya, *Commentary on Sefer Yeṣira* (ed. Lambert 1891, 79).
As can be seen in (ii) above, Saadya cites the example [saɾt] with sin. The letter sin (ש), therefore, also conditioned the occurrence of the pharyngealized resh in the appropriate contexts, although it is not explicitly mentioned in the list of conditioning consonants in the medieval sources, which includes only浊音群。The letters sin and samekh had the same realization [s]. The written letter sin was considered to have samekh as its qere (§I.0.8.).

Pharyngealized resh is not unknown in modern reading traditions, e.g. in the tradition of Morocco (with the exception of Tetouan) resh may be realized as an emphatic alveolar trill [ɾ̩], generally in the environment of a or u or an emphatic consonant [ʔúr̩] (Akun 2010, 49 | L [BHS]: אּֽוֹרָ֖/אִ֑וֹר Gen. 1.3 ‘light’)

This pharyngealization, moreover, may spread to adjacent consonants, e.g.

isˁrˁɑˈil (Akun 2010, 72 | L [BHS]: יְשֵׁרַֽל Exod. 15.1 ‘Israel’)  
jarˁdˁu (Akun 2010, 72 | L [BHS]: יְרֵדֵו Exod. 15.5 ‘they went down’)

In Jewish Palestinian Aramaic sources from the pre-Masoretic period, an a or i vowel sometimes shifts to a rounded vowel represented by vav in the orthography. This occurs in particular in a syllable closed by a labial consonant or resh, e.g. נבארא (< *gavrā), ‘man’, והמשה (< *ramšā) ‘evening’, והשע (< *tarʿā) ‘door’, והרדנה (< *yardenā) ‘Jordan’ (Dalman 1894, 65). A similar
vowel shift is attested in Christian Palestinian Aramaic, Samaritan Aramaic and also Palestinian Rabbinic Hebrew (Ben-Ḥayyim 1946, 194–96; Kutscher 1979, 496–97; Mishor 1998). Rounding of a vowel in the environment of labials is a natural development. The motivation for the rounding and backing in the environment of resh is not so clear, but could reflect a pharyngealized pronunciation of resh. Pharyngealized consonants involve the retraction of the tongue and consequent lip-rounding. In Palestinian Aramaic and Rabbinic Hebrew, the vav before resh is not restricted to the environments that induced the pharyngealized resh in Tiberian Hebrew, but it may be interpreted as evidence that a pharyngealized resh existed in the spoken language of the Jews of Palestine in the pre-Islamic period.

In the passage from his commentary on the Sefer Yeṣira that is cited above, Saadya states that the Tiberians have a double resh in their reading of the Bible, whereas the Iraqis (i.e. Babylonians) have it in their speech but not in their reading of the Bible.

Saadya does not specify which type of Tiberian resh resembles the resh in the Babylonian biblical reading tradition. Sefer Yeṣira classifies resh among the consonants pronounced at the front of the mouth ‘between the teeth and with a resting tongue’. According to Morag (1960, 233), this reflects the

For labialization associated with pharyngealized consonants in modern spoken Arabic dialects see Bellem (2007) and for this feature in Neo-Aramaic see Khan (2016, vol. 1, 50).

pronunciation of the Babylonian Jews. This was no doubt similar to the pronunciation of *resh* in the modern reading tradition of the Jews of Baghdad, in which it is realized as an alveolar trill (Morag 1977, 6). It is significant to note that in the modern Arabic dialect of the Jews of Baghdad there are two reflexes of Classical Arabic *rāʾ*, viz. (i) a back velar or uvular fricative ([ɣ], [ʁ]) or (ii) an alveolar trill [r] (Blanc 1964, 20–25; Mansour 1974, vol. 1, 25-31, 34-35). This two-fold pronunciation in the Arabic vernacular may be the double *resh* of the speech of the Iraqis described by Saadya. So, the comparison by Saadya of the Tiberian *resh* with the Iraqi vernacular *resh* can be taken as evidence supporting the proposal to identify the two types of Tiberian *resh* as apical and advanced uvular.

Saadya does not refer to the speech of the Tiberians, but other sources indicate that the distinction between different types of *resh* in the Tiberian reading is also found in the local vernacular speech. The author of one extant Masoretic Treatise datable to the tenth century states that he undertook fieldwork in the streets of Tiberias to verify his analysis of the *resh* of the Tiberian reading, on the grounds that *resh* had the same pronunciation in the local speech of the (Jewish) inhabitants of Tiberias:

‘I spent a long time sitting in the squares of Tiberias and its streets listening to the speech of the common people, investigating the language and its principles, seeing whether anything that I had established was overturned or any of my opinions proved to be false, in what was uttered with regard to Hebrew and Aramaic, etc., that is the
language of the Targum, for it resembles Hebrew ... and it turned out to be correct and accurate.\textsuperscript{138}

The interpretation of this is not completely clear. The Aramaic mentioned by the author could have been vernacular Aramaic that was still spoken in Tiberias at the period. The Hebrew must have been the recitation of Hebrew liturgy or the occurrence of a ‘Hebrew component’ (Hebrew words and phrases) within vernacular speech. The reference to the two types of 
\textit{resh} is found also in a Hebrew treatise in the corpus published by Baer and Strack,\textsuperscript{139} in which, likewise, it is stated that this pronunciation existed in the conversational speech of the common people.

\textbf{I.1.21. \textit{Sin} (ש)}

Unvoiced alveolar sibilant [s]

This had the same pronunciation as \textit{samekh} in the Tiberian tradition. It is not distinguished from \textit{samekh} in \textit{Hidāyat al-Qāri’}. When it is stated in this work that ‘The fourth place of articulation is the teeth, from which are heard four letters, namely \textit{(zayin, samekh, sade and shin),}\textsuperscript{140} the letter \( \text{s} \) is intended to refer to both \textit{samekh} and \textit{sin}. As discussed in the

\textsuperscript{138} Jacob Ashtor (1968, 83) stated that this pronunciation was found in the works of the 19th century.\textsuperscript{139} Baer and Strack (1879, §7).

\textsuperscript{140} Long version, edition in vol. 2 of this book, §II.L.1.3.8.
Introduction (§I.0.8.), the written letter *sin* was considered to have *samekh* as its *qere*.

In the Karaite transcriptions, the diacritical dot of Hebrew *sin* is sometimes written over the left side of Arabic *sīn* when it transcribes *samekh*, e.g.

\[ \text{חֲס ידֶּֽיך} \] (BL Or 2551 fol. 10r, 8 | L [BHS]: יַחֵּץ ידֶּֽיךְ Psa. 52.11 ‘your saints’)

\[ \text{מ סְת ת ִ֥ר} \] (BL Or 2551 fol. 13v, 7 | L [BHS]: מָסְתִּיר Psa. 54.2 ‘he who hides’)

\[ \text{כ חֶָ֜סֶד} \] (BL Or 2539 MS A, fol. 65r, 3 | L [BHS]: כָּחַסְדִּי Gen. 21.23 ‘like the kindness’)

As remarked in the Introduction (§I.0.8.), *samekh* and *sin* sometimes interchange in the same word or root in the fixed orthography of the Masoretic Text, e.g.

\[ \text{וְס כְר ָּ֧ים} \] (Ezra 4.5: וְסָכְרֵיכֶם ‘and they hire’ vs. 2 Chron. 24.12)

In the biblical manuscripts from Qumran, there are many cases of *sin* occurring in place of Masoretic *samekh* and vice versa, which is additional evidence that the equivalence in pronunciation existed already in the Second Temple Period, e.g.\(^\text{141}\)

\[ \text{פֶס ח} \] (4Q136 f1.8 | L [BHS]: פֶסח Exod. 12.48 ‘Passover’)

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\(^{141}\) Data supplied by Aaron Hornkohl.
Ibn Janāḥ (Spain, eleventh century) states that the *dagesh* in the *sin* of ‘herbage’ (Prov. 27.25) has the purpose of ensuring that it is not interchanged with *zayin*.\(^{142}\) This suggests that *sin* in contact with voiced consonants was susceptible of being read as voiced.

In some medieval Muslim sources, *sin* is represented by *ṣād* \([s^s]\) in the name עִשּׁוּ עָשָּׁב (Schreiner 1886, 254). This apparently reflects its pharyngealization after the pharyngeal ‘ayin.

The pharyngealization of *sin* in the environment of emphatic consonants is attested in some modern reading traditions, e.g.

Yemen

\[\text{wajjīs}^{\text{f}}\text{t}^{\text{a}:\text{m}}\] (Morag 1963, 37-38 | L [BHS]: יָשְׁנָה Gen. 27.41 ‘and [Esau] hated’)

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\(^{142}\) *Kitāb al-Luma*’ (ed. Derenbourg 1886, 240), Schreiner (1886, 241).
I.1.22. **SHIN שׁ (ש)**

Unvoiced palato-alveolar fricative [ʃ]

According to the medieval sources, its place of articulation was the same as that of the sibilants zayin and samekh, namely the teeth.\(^{143}\) As was pointed out above in the section on zayin (§I.1.7.), this did not necessarily imply that the teeth were one of the primary articulators. It is described by Ibn Janāḥ as a ‘spreading letter’,\(^{144}\) which no doubt referred to its palatalized articulation. In the Karaite transcriptions, it is represented by Arabic shīn, which, according to the Arabic grammarians, was a palatal fricative [ç], a pre-palatal fricative [ç⁺] or an alveolo-palatal [ç].\(^{145}\) Tiberian shin was not primarily palatal, since it was not included by *Hidāyat al-Qārī* among the letters that are pronounced with the middle of the tongue.

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I.1.23. **TAV ת (ת)**

*Tav* with *dagesh* (ד): unvoiced aspirated alveolar stop [tʰ]

*Tav* without *dagesh* (ת): unvoiced alveolar fricative [θ]

A *tav* without *dagesh* is frequently, but not regularly, marked by the *rafe* sign in the model Standard Tiberian codices.

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In some manuscripts of *Hidāyat al-Qāriʾ*, the name of this letter is spelt ינד or ינדא.\(^{146}\)

According to *Hidāyat al-Qāriʾ*, tav was articulated with ‘the end of the tongue and the flesh of the teeth’, i.e. the gums or alveolar ridge.\(^{147}\) Likewise, Saadya describes the place of articulation of tav as being adjacent to the inside of the upper teeth.\(^{148}\) When the letter had *dagesh*, the tongue was pressed firmly against the gums. When it was without *dagesh*, the tongue was pressed lightly against the gums. Both forms of the letter were articulated in the same place according to the medieval sources. It appears to have been pronounced with the tip of the tongue rather than the blade (see the description of dalet §I.1.4.).

*Hidāyat al-Qāriʾ* describes the stop \(t^h\) as primary (ʾašl) and the fricative \(θ\) as secondary (farʾ).\(^{149}\)

We know from Greek transcriptions that in the first half of the first millennium C.E. plosive tav was pronounced with aspiration.\(^{150}\) In Greek transcriptions from the pre-Masoretic period, plosive tav is represented by Greek *theta*, which was an aspirated stop \(t^h\). In Latin transcriptions from the pre-Masoretic

\(^{146}\) E.g. short version, edition in vol. 2 of this book, §II.S.3.0., §5.1.


\(^{148}\) Commentary on Sefer Yeṣira (ed. Lambert 1891, 75).


\(^{150}\) Kutscher (1965, 24–35).
period, it is represented by the Latin digraph $th$, which likewise represented an aspirated stop [$t^h$]. Examples:\footnote{Data supplied by Ben Kantor.}

Septuagint (third century B.C.E.)

Θάρα (Göttingen Septuagint | L [BHS]: תורה Gen. 11.24 ‘Terah’)

Νεφθαλί (Göttingen Septuagint | L [BHS]: נפתלי Gen. 30.8 ‘Naphtali’)

Hexapla of Origen (c. 185–254 C.E.)

θαμυ (Ambrosiana Palimpsest | L [BHS]: θαμυ Psa. 18.26 ‘blameless’)

αμαρθι (Ambrosiana Palimpsest | L [BHS]: ισρη Y Psa. 30.7 ‘I said’)

Jerome (346-420 C.E.)

tharsis (Jerome, Commentary on Ezekiel, ed. Gorie, III.10.763 | L [BHS]: תרשיש Ezek. 10.9 ‘Tarshish’)

machthab (Jerome, Commentary on Isaiah, ed. Gryson, XI.14.6 | L [BHS]: מכתב Isa. 38.9 ‘writing’)

This aspirated realization of plosive $tav$ continued in the Tiberian reading tradition. In the Karaite transcriptions, plosive $tav$ with $dagesh$ is represented by Arabic $tā'$, which was aspirated according to the medieval Arabic grammarians.\footnote{Roman (1983, 55).}
## I.1.24. CONSONANT PHONEMES

The inventory of consonant phonemes in the Tiberian reading tradition can be reconstructed as follows:153

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Allophones</th>
<th>Orthography</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ʔ/</td>
<td>[ʔ]</td>
<td>א</td>
<td></td>
</tr>
<tr>
<td>/b/</td>
<td>[b]</td>
<td>ב</td>
<td></td>
</tr>
<tr>
<td>/v/</td>
<td>[v]</td>
<td>ב</td>
<td>See §I.1.25. below</td>
</tr>
<tr>
<td>/g/</td>
<td>[g]</td>
<td>ג</td>
<td></td>
</tr>
<tr>
<td>/ʁ/</td>
<td>[ʁ]</td>
<td>ג</td>
<td>See §I.1.25. below</td>
</tr>
<tr>
<td>/d/</td>
<td>[d]</td>
<td>ד</td>
<td>See §I.1.25. below</td>
</tr>
<tr>
<td>/ð/</td>
<td>[ð]</td>
<td>ד</td>
<td></td>
</tr>
<tr>
<td>/h/</td>
<td>[h]</td>
<td>ה</td>
<td></td>
</tr>
<tr>
<td>/v/</td>
<td>[v], [w]</td>
<td>ו</td>
<td>There are variations in the realization of the al- lophones across differ- ent sub-traditions of reading (§I.1.6.).</td>
</tr>
<tr>
<td>/z/</td>
<td>[z]</td>
<td>ז</td>
<td></td>
</tr>
<tr>
<td>/h/</td>
<td>[h]</td>
<td>ח</td>
<td></td>
</tr>
<tr>
<td>/tˁ/</td>
<td>[tˁ]</td>
<td>ט</td>
<td></td>
</tr>
<tr>
<td>/j/</td>
<td>[j], [ɟ]</td>
<td>י</td>
<td>The stop allophone [j] occurs only when the consonant is gemi- nated.</td>
</tr>
</tbody>
</table>

153 The inventory of consonant phonemes presented here corresponds to that proposed by Schramm (1964, 63) on the basis of the graphemes of Tiberian Hebrew, although he did not have access to the original phonetic realizations.
<table>
<thead>
<tr>
<th>Consonant</th>
<th>Phoneme</th>
<th>Hebrew</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>/kʰ/</td>
<td>[kʰ]</td>
<td>כ, כּ</td>
<td>See §I.1.25. below</td>
</tr>
<tr>
<td>/χ/</td>
<td>[χ]</td>
<td>ג, גּ</td>
<td></td>
</tr>
<tr>
<td>/l/</td>
<td>[l]</td>
<td>ל</td>
<td></td>
</tr>
<tr>
<td>/m/</td>
<td>[m]</td>
<td>מ, מּ</td>
<td></td>
</tr>
<tr>
<td>/n/</td>
<td>[n]</td>
<td>נ, נּ</td>
<td></td>
</tr>
<tr>
<td>/s/</td>
<td>[s]</td>
<td>ס, ש</td>
<td>These were equivalent in the oral reading tradition. The distinction in orthography is an archaism (§I.0.8.).</td>
</tr>
<tr>
<td>/ʕ/</td>
<td>[ʕ]</td>
<td>ע</td>
<td></td>
</tr>
<tr>
<td>/pʰ/</td>
<td>[pʰ]</td>
<td>פ</td>
<td></td>
</tr>
<tr>
<td>/pˁ/</td>
<td>[pˁ]</td>
<td>פ</td>
<td>This is attested only in 'his palace' (Dan. 11.45), where its occurrence is not conditioned by the phonetic environment, so it should be identified as a phoneme (§I.1.17.).</td>
</tr>
<tr>
<td>/f/</td>
<td>[f]</td>
<td>פ</td>
<td>See §I.1.25. below</td>
</tr>
<tr>
<td>/sˁ/</td>
<td>[sˁ], [zˁ]</td>
<td>צ</td>
<td>For the voiced variant see §I.1.7.</td>
</tr>
<tr>
<td>/q̟/</td>
<td>[q̟], [r̟]</td>
<td>ק</td>
<td></td>
</tr>
<tr>
<td>/r/</td>
<td>[r], [r̟]</td>
<td>ר</td>
<td>The two variant realizations are conditioned by the phonetic environment and so should be identified as allophones (§I.1.20.).</td>
</tr>
</tbody>
</table>
I.1.25. DISTRIBUTION OF THE VARIANTS OF נָכַבּוֹת

In general, the fricative variants of the נָכַבּוֹת letters (i.e. the forms written without a dagesh sign: [v], [ʁ], [θ], [χ], [f] and [θ], respectively) occur after a vowel when the letter is not geminated, e.g. רַ֣ב [ˈʀ̟aːˈav] ‘much’ (Gen. 24.25), שְׁכְב [ʃˈkʰaˈvuː] ‘they will lie’ (Isa. 43.17). In principle, therefore, the stop and fricative variants appear to be allophones conditioned by the environment. In many cases, however, the preceding vowel had been elided in some previous stage of the language, but the consonant nevertheless remained a fricative, e.g.

בָּכַטְבוּ [bayχɔθˈvoː] ‘when he had written’ (Jer. 45.1) < *
bakutubô

מִלְקִיבָּר [malˈχeːˈvoː] ‘kings of’ (Gen. 17.16) < *
malakē

In a few such cases, a plosive and a fricative are in free variation, e.g.

רַשִּׁפְּי [rɪʃˈfeː] (Psa. 76.4), רַשִׁפְּבֵּו [rɪʃpʰeː] (Cant. 8.6) ‘flames’

The distribution of the plosive and fricative allophones, therefore, is not completely predictable from the phonetic context in Tiberian Hebrew. Consequently, the plosive and fricative variants of the letters should be distinguished in a synchronic phonological representation, e.g.
In the corpus of the Hebrew Bible, however, there is no certain minimal pair arising from the phonemicization of the variants of the בגדכפת consonants, though such oppositions could hypothetically occur in Tiberian Hebrew. Such minimal pairs are found in Aramaic, where the בגדכפת consonants were likewise phonemized (Khan 2005, 84–87).
I.2. VOWELS AND SYLLABLE STRUCTURE

I.2.1. BASIC VOWEL SIGNS

I.2.1.1. The Qualities of the Vowels

The basic vowel signs in the standard Tiberian vocalization system indicated distinctions in vowel quality rather than distinctions in length. The qualities of the various vowels can be reconstructed as follows from the sources that are discussed below (the signs are added to the letter א):

<table>
<thead>
<tr>
<th>Vowel Sign</th>
<th>Symbol</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pataḥ</td>
<td>אַַ</td>
<td>Open, unrounded front [a] or back [ɑ]</td>
</tr>
<tr>
<td>Qames</td>
<td>אַָּ</td>
<td>Back, open-mid rounded [ɔ]</td>
</tr>
<tr>
<td>Segol</td>
<td>אֶַ</td>
<td>Front, open-mid unrounded [ɛ]</td>
</tr>
<tr>
<td>Şere</td>
<td>אֵֵַ</td>
<td>Front, close-mid unrounded [e]</td>
</tr>
<tr>
<td>Hireq</td>
<td>אֵַ</td>
<td>Front, close, unrounded [i]</td>
</tr>
<tr>
<td>Holem</td>
<td>וּאֹ</td>
<td>Back, close-mid rounded [o]</td>
</tr>
<tr>
<td>Shureq</td>
<td>וּא</td>
<td>Back, close, rounded [u]</td>
</tr>
<tr>
<td>Qibbuṣ</td>
<td>הוּא</td>
<td></td>
</tr>
</tbody>
</table>

These qualities correspond to the eight primary cardinal vowels, which are represented diagrammatically according to their position of articulation below:
I.2.1.2. The Terms *Pataḥ* and *Qamesḥ*

The terms *pataḥ* and *qamesḥ* are found in the early Masoretic and grammatical sources. They are in origin Aramaic active participles and are vocalized as such in some manuscripts, viz. פָּתַח and קָּמֵץ. In some Masoretic treatises forms with a final he are used, viz. פתחה and קמצה. The suffix may be the Aramaic definite article or the feminine ending. In Arabic sources such as *Hidāyat al-Qāriʿ* equivalent Arabic feminine participles are used, viz. فَاتِحَة and قَمِيشَا. The terms referred to the distinct lip positions of the two vowels, *pataḥ* ‘opening’, *qamesḥ* ‘closing, contracting’, indicating that the *pataḥ* was pronounced

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1 For examples in early Karaite grammatical texts (Khan 2000a, 28).
2 For the sources see Steiner (2009).
3 Eldar (1994, 123–24)
4 In Jewish Palestinian Aramaic the verb קָּמֵץ is used in the sense of ‘closing (eye, mouth), e.g. ‘because (the sleeping deer) opens one (eye) and closes the other’ (Palestinian Talmud, *Shabbat* 14b) (Sokoloff 1992, 496).
with open, spread lips whereas the \textit{qames} was pronounced with a smaller aperture of the mouth on account of some degree of lip-rounding. The fact that the terms are Aramaic in origin indicates that they must have been created in the early Masoretic period, before the tenth century, when Aramaic was in productive use by the Masoretes. By the tenth century, Masoretic treatises were written in Hebrew or Arabic (§I.0.13.1.). The names of these vowels came to receive a variety of different vocalizations in later sources. The practice developed of vocalizing the first syllable of the names of vowels symbolically with the vowel it designated, so \textit{patah} came to be vocalized as \textit{פתך}. This type of vocalization, which according to Dotan was used from the eleventh century onwards,\(^5\) is the vocalization used, for example, by Elias Levita (1469-1549). Subsequently, the vowel of the second syllable of the names of vowels was also given a similar symbolic vocalization. These often reflect pronunciation traditions that did not distinguish between the pronunciation of the two vowels and one finds vocalizations such as \textit{קָּמַץ}, \textit{פורט} and \textit{פַתַח}.\(^6\)

\textbf{I.2.1.3. More on the Quality of Patah and Qames}

Saadya and \textit{Hidāyat al-Qāri}\(^3\) give details of the articulatory distinction between the vowels within the oral cavity. Their descriptions are based on a theory of the production of vowels, which can be traced to the Muslim physician Ibn Sīnā (980–1037 C.E.), that involves both the position of buccal organs and the

\(^5\) Dotan (2007, 634).

\(^6\) For details see Steiner (2009).
direction of the dynamic flow of air.\textsuperscript{7} The \textit{Hidāya} states that the place of articulation of \textit{pataḥ} is the ‘surface of the tongue at the bottom (of the mouth)’.\textsuperscript{8} Saadya similarly states that ‘its strength (i.e. dynamic realization by airflow) goes over the surface of the tongue moving downwards.’\textsuperscript{9} With regard to \textit{qameṣ} the \textit{Hidāya} indicates that its place of articulation is ‘slightly above the root of the tongue, that is the (back) third of the tongue, and its movement is towards the (place) above the palate.’\textsuperscript{10} Saadya indicates that the place of articulation of \textit{qameṣ} is next to that of \textit{ḥolem}:

‘If one wants to move the vowel from this place (of \textit{ḥolem}) and then articulate it, the strength (i.e. realization) of \textit{qameṣ} comes about, and its movement (i.e. direction of airflow) is towards the place above the palate in particular.’\textsuperscript{11}

According to the theory of the realization of vowels by dynamic airflow, the realization of \textit{pataḥ} took place through the free flow of air across the surface of the tongue in a low position,

\textsuperscript{7} For details see Eldar (1983).

\textsuperscript{8} סחי אללמסן מ נ אספלי, סחי אללמסן מ נ אספלי, long version, edition in vol. 2 of this book, §II.L.2.15.3.; Eldar (1994, 130).

\textsuperscript{9} קותה האסאירה על' סחי אללמסן מנהרה אל' אללמסו (Dotan 1997, 445).

\textsuperscript{10} מוכ אצלי אללמס קליילעו וה תלת אללמסו והרבחתו אל' מוכ אלתננ (Dotan 1997, 445).

\textsuperscript{11} זוו שאו והנאו בהא הוה אללמסו וה פצלאנה customizable กודעליקמן ומאנה הרבחת (Dotan 1997, 445).
whereas in the realization of qameṣ there was some obstruction that directed the air upwards towards the palate.\textsuperscript{12}

From the vowel names and the aforementioned descriptions of articulation, it can be determined that Tiberian pataḥ was an open, unrounded vowel in the region of [a] or [ɑ] whereas qameṣ was a back half-open rounded vowel below ḥolem in the region of [ɔ].

As indicated, it is likely that pataḥ had both an open front quality [a] and an open back quality [ɑ]. The back quality [ɑ] would have been induced in particular by the environment of consonants involving retraction of the tongue root, especially pharyngeals and pharyngealized consonants. Indirect evidence for this is found in the modern reading traditions of Middle Eastern communities, in which the front open vowels have back open variants in particular when adjacent to pharyngeal or pharyngealized consonants. This is the case in the Sefardi type traditions, in which pataḥ and qameṣ have a default quality of [a], e.g.

Baghdad

[a] quality:

‘jaʕaˈbod (Morag 1977, 53 | L [BHS]: יַעֲבֹֹ֑וד Exod. 21.2 ‘he will work’)

šaˈnaː (Morag 1977, 56 | L [BHS]: נָֹּ֑והשַָּׁ Gen. 47.28 ‘year’)

\textsuperscript{12} For this interpretation see Eldar (1983, 47).
[ɑ] quality:

wajji’ṭab’ (Morag 1977, 54 | L [BHS]: יישוב Esther 1.21 ‘and [the matter] was good’)

‘ba:ʃa,ra (Morag 1977, 56 | L [BHS]: בַּרְתִּי Esther 1.12 ‘[his anger] burned’)

Aleppo

[a] quality:

jaːa'qːob (Katz 1981, 45 | L [BHS]: יְשִׁבָּה Gen. 47.28 ‘Jacob’)

ja'nim (Katz 1981, 45 | L [BHS]: שִׁנְיֵש Gen. 47.28 ‘years’)

[ɑ] quality:

lezar'ɑːxa (Katz 1981, 46 | L [BHS]: לְזַרְעֲךָ Gen. 48.4 ‘to your (ms) seed’)

Jerba

[a] quality:

'wenafale (Katz 1977, 82 | L [BHS]: וְנַפְלִי Exod. 21.18 ‘and he falls’)

jo'mar (Katz 1977, 83 | L [BHS]: יָמָר Exod. 21.5 ‘[the slave] will say’)

hiʃ'ja (Katz 1977, 83 | L [BHS]: חֶשְׁנָה Exod. 21.3 ‘woman’)

[ɑ] quality:

'jiqqqāh (Katz 1977, 84 | L [BHS]: יִקְּחֵם Exod. 21.10 ‘he will take’)

weʃaʃi'ha (Katz 1977, 75 | L [BHS]: חָאוֹתִּי Exod. 21.3 ‘[his wife] will leave’)

In the Karaite transcriptions long *pataḥ* and *qames* are generally represented by *mater lectionis ‘alif*, e.g.

[vajiggɔ́̀ːˈmaːəl] (BL Or 2539 MS A, fol. 63r, 2 | L [BHS]: יִגָּמַֹ֑֑ל Gen. 21.8 ‘and he was weaned’)

The qualities of *pataḥ* [a] and [ɑ] would have been allophones of Arabic long /ā/, the latter in pharyngealized environments (known as *tafkhim*). The choice of ‘alif in the Karaite transcriptions for the rounded *qames* [ɔ] was due to its proximity to the normal range of allophones of Arabic /ā/.

The back rounded open-mid quality of *qames* and its distinctness from *pataḥ* is reflected by some of the medieval Karaite transcriptions. The vowel is, for example, sporadically represented by Arabic *wāw*, e.g.

[waːsəːf] (Genizah MS 12, Khan 1990a, 151 | L [BHS]: יָ認め (Num. 19.9 ‘and he will gather up’)

[ʁɔːˈħaːɑːsˤ] (Genizah MS 12, Khan 1990a, 151 | L [BHS]: פָּ الأمن Num. 19.8 ‘and he will bathe’)

[χɔːʔaːˈhaːθ] (II Firkovitch Arab.-Evr. 1, Harviainen 1994, 36 | L [BHS]: הָּ אַחַת Gen. 4.19 ‘the one’)

[ʃisrˁɔːˈʔeːəl] (II Firkovitch Arab.-Evr. 1, Harviainen 1994, 36 | L [BHS]: יִשְׂרָאֵל ‘Israel’)

In the British Library manuscript Or 2554, the qualitative distinction between the open vowel *pataḥ* and the open-mid back round vowel *qames* is reflected by the fact that syllables with
patah are marked by the Arabic vowel fatḥa, but fatḥa is not marked on syllables with qames, e.g.

\[\text{ناْثَاْن} \] (BL Or 2554 fol. 38v, 1 | L [BHS]: נָתַָ֥ן Cant. 1.12 ‘it gave’)

\[\text{יَلاذَاثْخا} \] (BL Or 2554 fol. 87r, 9 | L [BHS]: יְלָּדַּתְךָ Cant. 8.5 ‘she gave birth to you’)

I.2.1.4. The Quality of Qames in Other Traditions

The medieval Babylonian pronunciation tradition also had a qualitative distinction between open patah and rounded qames. This is reflected by Babylonian terminology for the vowels, viz. miftah pumma (‘opening of the mouth’, which corresponds to the Tiberian term patah, and miqpaṣ pumma (‘contraction (i.e., rounding) of the mouth’, which corresponds to the Tiberian term qames. The roundedness of Babylonian qames and its proximity in the vowel space to holem is reflected also by the representation of the vowel with wāw in medieval Arabic transcriptions written by Muslims in the eastern region of the Islamic world where Babylonian Hebrew pronunciation was used, e.g. al-Bīrūnī, Chronology of Nations (Khan 2013d): حمو, اوب, Av’ (‘the daily offering’), بتولو, ‘Virgo’). In Hebrew words in incantation bowls from Babylonian datable to the pre-Islamic period of the first millennium C.E. there are some occurrences of vav that corresponds to qames, e.g. ברוך ‘blessed’ (Tiberian ברוֹךְ, ברוֹכָּה, ‘blessed’).

The roundedness of qameṣ and its proximity in the vowel space to holem is reflected by numerous occurrences of vav in biblical texts from Qumran where the Tiberian tradition has qameṣ. Several of these are in the environment of labial consonants, which could have conditioned the rounding of the vowel, e.g.¹³

חנום (11Q5 13.13 | L [BHS]: חִנָֹם Psa. 119.161 ‘without cause’)

אביו (4Q27 f6–10.12 | L [BHS]: וַאֲבִירָם Num. 16.1 ‘and Abiram’)

מימס (4Q57 f9ii + 11 + 12i + 52.40 | L [BHS]: מִיָּם Isa. 24.14 ‘from the sea’)

In many cases, however, it is likely that the vav reflects a different morphological form or exegesis from that of the Tiberian tradition (Kutscher 1979, 247, 473–74), e.g.

כבשים (1QIsa 5.3 | L [BHS]: כְבָּשִׂים Isa. 5.17 ‘sheep’)

בניך (1QIsa 41.16 | L [BHS]: בְּנֵיכֶם Isa. 49.17 ‘your [fs] children’)

קדמותה (1QIsa 18.11 | L [BHS]: קַדְמָתָה Isa. 23.7 ‘its former time’)

חוש (4Q59 f4–10.2 | L [BHS]: חָשַׁש Isa. 8.3 ‘Hash’)

כצור (1QIsa 5.17 | L [BHS]: כַצֹּר Isa. 5.28 ‘like flint’)

¹³ Data supplied by Aaron Hornkohl.
In the ancient Greek transcriptions of Hebrew, long qames is generally represented by α. There are a few sporadic cases where ω or ο correspond to Tiberian long qames. Most of these, however, are likely to reflect different morphological patterns or have some other explanation rather than reflecting a back rounded quality, e.g. 14.

Septuagint (third century B.C.E.)

Ἰωυὰν (Göttingen Septuagint | L [BHS]: וָּיוּן Gen. 10.2 ‘Javan’)

Ἰωβέλ (Göttingen Septuagint | L [BHS]: יָּבָֹל Gen. 4.20 ‘Jabal’)

Γαυλὼν (Göttingen Septuagint | L [BHS]: גְּוַלָּן Deut. 4.43 ‘Golan’)

The exceptional case Ιωυὰν may be explained as an imitation of the Greek word with a similar meaning, Ἰων. The examples Ιωβέλ and Γαυλὼν probably reflect different patterns (Knobloch 1995, 181, 314, 394-395).

14 Data supplied by Ben Kantor.
Hexapla of Origen (c. 185–254 C.E.)

\[\text{ουεσοκημ} \text{ (Ambrosiana Palimpsest | L [BHS]: } \text{וְ אֶשְׁחָּקֵֵ֗ם } \text{Psa. 18.43 ‘and I crush them’) }\]

\[\text{εμωσημ} \text{ (Ambrosiana Palimpsest | L [BHS]: } \text{אֶ֭מְחָּצֵם } \text{Psa. 18.39 ‘I strike them’) }\]

\[\text{σφωθαϊ} \text{ (Ambrosiana Palimpsest | L [BHS]: } \text{שְְ֝פָּתֵַ֗י } \text{Psa. 89.35 ‘my lips’) }\]

\[\text{ολδ} \text{ (Ambrosiana Palimpsest | L [BHS]: } \text{חָּ לֶד } \text{Psa. 49.2 ‘(the) world’) }\]

The first two forms most likely reflect an /o/ theme vowel (rather than an /a/ theme vowel) in these verbs. The final two forms are likely to reflect variant morphological patterns.\(^{15}\)

In the writings of Jerome (346-420 C.E.), there are a few cases where the vowel o occurs corresponding to Tiberian long qames, e.g.

\[\text{zochor (Jerome, } \text{Commentary on Isaiah, ed. Gryson, VIII.23.56 | L [BHS]: } \text{זָּכָּר } \text{Isa. 26.14 ‘male’) }\]

\[\text{chauonim (Jerome, } \text{Commentary on Jeremiah, ed. Reiter, 100.21–22 | L [BHS]: } \text{כַוָּּנִָ֜ים } \text{Jer. 7.18 ‘cakes’) }\]

\[\text{gob (Jerome, } \text{Commentary on Ezekiel, ed. Glorie, V.16.85 | L [BHS]: } \text{גֶֹ֑ב } \text{Ezek. 16.24 ‘pit’) }\]

\[\text{bosor (Jerome, } \text{Commentary on Isaiah, ed. Gryson, X.14.82–84 | L [BHS]: } \text{בָּּשָּר } \text{Isa. 34.6 ‘flesh’) }\]

\(^{15}\) Yuditsky compares σφωθαϊ to forms like בשפאותיכה and שפות in the Dead Sea Scrolls (Yuditsky 2017).
In most cases, however, Jerome represents the vowel corresponding to Tiberian long qames by a, e.g.

enach (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Amos, III.7, p. 318, line 178 | L [BHS]: רָאָת אָמָס 7.7 ‘plumbline’)

hissa (Jerome, *Hebraicae Quaestiones in Libro Geneseos*, ed. de Lagarde et al., 45.1 | L [BHS]: נָשָׁה גנ. 2.23 ‘woman’)

ethan (Jerome, *Commentary on Jeremiah*, ed. Reiter, 72.14 | L [BHS]: נָחַי יר. 5.15 ‘enduring’)

aiala (Jerome, *Hebraicae Quaestiones in Libro Geneseos*, ed. de Lagarde et al., 70.20 | L [BHS]: נָיאָל גנ. 49.21 ‘doe’)

emsa (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Zechariah, III.12, p. 863, line 132 | L [BHS]: נָמס Zech. 12.5 ‘strength’)

There are also some cases where the vowel corresponding to long qames is e, e.g.

besor (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Zechariah, III.11, p. 849, line 25 | L [BHS]: רָבֶזָר [לֶגֶז רַבָּצִיר] יר. 11.2 ‘thick (ms)’)

ciceion (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Jonah, IV, p. 414, line 126 | L [BHS]: נָיקָר Jonah 4.6 ‘gourd/plant’)

The cases of o corresponding to long qames are, therefore, marginal and it is likely that they either reflect morphological patterns that are different from the Tiberian tradition or are conditioned by the consonantal environment (Harviainen 1977,
104–6). This applies, for example, to *zochor* and *bosor*, in which the *o* may have been conditioned by the *r*. In Palestinian Aramaic dialects and Rabbinic Hebrew *resh* often brings about such a vowel shift.¹⁶

The fact that long *qamesh* had a back rounded quality in both the Tiberian and Babylonian traditions of pronunciation could, nevertheless, be proposed as an argument for this to be a shared feature that the two traditions have retained from a proto-Masoretic tradition of reading in Second Temple Palestine.

The open-mid back rounded quality [ɔ] of *qamesh*, distinct from the open quality of *patah*, has been preserved in the modern traditions of pronunciation of most Yemenite communities, which have their roots in the Babylonian tradition, e.g.

מִדְבָּר: (Morag 1963, 100 | L [BHS]: מִדְבָּר) Is. 16.1 ‘in the desert’

### I.2.1.5. *Segol* and *Šere*

In the early Tiberian Masoretic sources the terms *patah* and *qamesh* were used not only for the vowels represented by the signs *patah* and *qamesh* in the Tiberian vocalization, but also for the vowels *segol* and *šere* respectively. This early terminology appears to have developed before the creation of the vowel signs and indicated broad differences in lip-position of the vowels, as a guide to instruct readers how to distinguish between the various

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¹⁶ See §I.1.20 and Ben-Ḥayyīm (1946, 194–96), Kutscher (1979, 496–97) and Mishor (1998).
vowel qualities.\textsuperscript{17} The vowels \textit{pataḥ} and \textit{segol} were pronounced with spread, open lips, whereas there was some degree of closure of the lips in the pronunciation of \textit{qameṣ} and \textit{ṣere}. In a later version of this terminology, \textit{segol} was referred to as \textit{pataḥ qaṭan} ‘small \textit{pataḥ}’ and \textit{ṣere} as \textit{qameṣ qaṭan} ‘small \textit{qameṣ}’ with Hebrew adjectives qualifying the originally Aramaic term.\textsuperscript{18}

The term \textit{segol} comes from Aramaic סְגוֹל ‘cluster of grapes’, referring to the graphic appearance of the vowel sign rather than its phonetic production. Its vocalization with \textit{shewa} under the \textit{samekh} is attested in some early Masoretic treatises.\textsuperscript{19} In \textit{Hidāyat al-Qāriʾ} it has the form סְגוֹלָה with a feminine ending.

The term \textit{ṣere} is from the Aramaic verb צְרָּא ‘to split’. Since these terms are Aramaic, they are likely to have been created in the early Masoretic period and they indeed appear in early sources, such as the grammar book of Saadya.\textsuperscript{20} It is not clear

\textsuperscript{17} Bacher (1974, 15), Steiner (2005b, 374, 377–78), Posegay (2020).

\textsuperscript{18} Baer and Strack (1879, §10), Dotan (2007, 634). The attribute \textit{qaṭan} ‘small’ reflects the concept that the [ɛ] and [e] qualities were in some way more attenuated and more closed than the [a] and [ɔ] qualities respectively. This theory of vowels can be traced back to Syriac grammatical sources where the Syriac term \textit{qaṭṭīn} ‘narrow’ is used to describe the higher front vowels (Posegay 2020). An Arabic version of this terminology is found in the Masoretic treatise \textit{Kitāb al-Muṣawwitāt} (ed. Allony 1963, 140–42): \textit{al-qamṣa al-kabīra} ‘big \textit{qames}’ (= \textit{qames}), \textit{al-qamṣa al-ṣaghīra} ‘small \textit{qameṣ}’ (= \textit{ṣere}), \textit{al-patḥa al-kabīra} ‘big \textit{pataḥ}’ (= \textit{pataḥ}), \textit{al-patḥa al-ṣaghīra} ‘small \textit{pataḥ}’ (= \textit{segol}).

\textsuperscript{19} E.g. Allony and Yeivin eds. (1985, 96).

\textsuperscript{20} Dotan (1997, 113; 2007, 634).
what the original form of the name šere was. The author of Hidāyat al-Qāri’ states that it means ‘splitting’ (ṣāqq) (through the lips),\(^{21}\) suggesting that he read it as a participle צָּרֵי. In some manuscripts of Hidāyat al-Qāri’, however, it is vocalized צֵרִי.\(^{22}\) It is sometimes spelt, moreover, צָּרֵי both in Hidāyat al-Qāri’ and in Saadya’s work, with mater lections yod after the šade, and this is vocalized צֵירִי in some places.\(^{23}\) In a Masoretic treatise published by Allony and Yeivin (1985, 96) it has the form איַרְצִי. It is likely that the term is related to the Jewish Babylonian Aramaic word צִירְיָא ‘split, fissure.’\(^{24}\) The name refers to the contraction of the lips to the extent that there is only a small aperture between them. In later sources the practice developed of vocalizing the first syllable with the vowels that the terms designated, i.e. סֶגוֹל, צֵירֵי and eventually also changing the quality of the second syllable in symbolic representation of the pronunciation of the vowel, resulting in forms such as סֶגֶל.\(^{25}\)

In some Masoretic treatises and early grammatical texts, segol and šere are referred to by the phrases ‘three dots’ (שלשת נקודות, thalāth nuqat) and ‘two dots’ ( שתי נקודות, nuqṭatāni).

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\(^{24}\) Eldar (1994, 124).

\(^{25}\) Steiner (2009, 496). For other vocalizations of the vowels see Dotan (2007, 634).
respectively.\textsuperscript{26} This is probably a relic from a period in which only the names pataḥ and qames were in existence.

\textit{Hidāyat al-Qāri\textsuperscript{2}} describes the articulation of segol as being on ‘the lower surface of the mouth,’\textsuperscript{27} as is the case with pataḥ, but with ‘contraction of the sides of the mouth’.\textsuperscript{28} Saadya states that the segol is articulated in the same position as pataḥ when the speaker ‘fills the lower sides of the mouth with it.’\textsuperscript{29} This can be interpreted as referring to a smaller degree of opening of the mouth in the pronunciation of the vowel and a consequential protuberance of the cheeks. The smaller aperture is reflected also in the term ‘small pataḥ’ (فتحة كيس) in some Masoretic sources.\textsuperscript{30} The result is an open-mid unrounded [ɛ].

In the Karaite transcriptions, long segol is represented by \textit{mater lectionis ʿalif}, e.g.

\textsuperscript{26} Cf. Dotan (2007, 634), e.g. Baer and Strack (1879, 34–36), the treatise on the shewa published by Levy (1936), the Masoretic fragments published by Mann (1969, 2:44), the \textit{Diqduq} of Ibn Nūḥ (ed. Khan 2000, 28).

\textsuperscript{27} عليַסטחַאלפםַאלספלאני, long version, edition in vol. 2 of this book, §II.L.2.15.4., Eldar (1994, 132).


\textsuperscript{29}ימלאַמנהאַגאנביַפמהַאלספליין (Dotan 1997, 445).

\textsuperscript{30} This interpretation of פתחַקטן is in the Yemenite redaction of \textit{Hidāyat al-Qāri\textsuperscript{2}} known as the Arabic \textit{Mahberet ha-Tijān} (J. Derenbourg 1871, 16; Eldar 1994, 123).
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[bar'zeel] (BL Or 2549 fol. 145r, 4 | L [BHS]: בַּרְזֵל
Ezek. 4.3 ‘iron’)

The quality [ɛ] was an allophone of Arabic long /ā/, due to a process known by the medieval grammarians as ’imāla ‘inclining’, i.e. inclining towards the vowel /i/.

Hidāyat al-Qārī² presents the articulation of the vowels șere and ḥireq as involving similar gestures. The place of articulation of șere is ‘the teeth, without closure, because it breaks through them’³¹ whereas the articulation of ḥireq involves ‘the closure of the teeth tightly.’³² Saadya likewise links the articulation of the two vowels:

If the end of the tongue approaches the teeth but does not cover them, șere is produced, but if it covers them, ḥireq is produced.³³

The Masoretic term ‘small qames’ (קמץ קטן) for șere would refer to the lesser degree of closure of the lips than in the articulation of qames.

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³¹ מחלַאלצריַוהוַאלאסנאןַבלאַאטבאקַלאנהַישקַבינהאַשקא, long version, edition in vol. 2 of this book, §II.L.2.15.5.
³³ קרב טרפַאללסאןַאליַאסנאנהַלםַיטבקהא (Dotan 1997, 445–47). A similar description of ḥireq is given by Dunash ibn Tamīm in his commentary on Sefer Yeṣirah: ‘They articulate it with the tip of the tongue with the help of (= in conjunction with) the incisors’ (Grossberg 1902, 20–21; Eldar 1994, 133).
I.2.1.6. Ḥireq

The original vocalization of the name ḥireq is uncertain. The name is spelt חירך in the manuscript of Saadya’s grammar book. The vocalization as a segolate form חירך is found in some manuscripts of Ḥidāyat al-Qāri’ and medieval sources, or חֶרֶק. In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form חֵרֶק. The form חירך reflects the later development of vocalizing the first syllable with the vowel the name designates. In Jewish Palestinian Aramaic, the verbal root ḥrq in the peʿal and paʿel has the meaning of ‘to gnash (one’s teeth)’, which is likely to refer to the tight closure of the teeth in the articulation of the vowel referred to in the Ḥidāya. The vowel is also referred to in some early sources as ‘one dot’ (נקודה או נקודה, nuqṭa wāḥida). Abraham ibn Ezra (1089–c. 1167) used the Hebrew term שבר ‘breaking’ to refer to this vowel (Lambert 1889, 124–25).

In the Karaite transcriptions, both long ẓere and ḥireq are normally represented by Arabic mater lectionis yā‘, e.g.

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35 E.g. Ḥidāyat al-Qāri’, short version, edition in vol. 2 of this book, §II.S.6.0, MS S18, fol. 7r. MS S14, fol. 3r.

36 Haupt (1901, 15) proposes that the name is related etymologically to Arabic kharq ‘rent, fissure’ (cf. Rabbinic Hebrew הירך ‘to cut a gap’) referring to the narrow opening of the lips.

The choice of mater lectionis yā’ to represented the quality [e:] of ʿere was no doubt due to its being perceived as approximating more closely to the prototypical quality of Arabic /ī/ than to that of Arabic /ā/.

I.2.1.7. Ḥolem, Shureq and Qibbuṣ

According to Hidāyat al-Qāri’, the meaning of name holem מלא is ‘fullness’ since the vowel ‘fills the mouth’. In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form חלמא. An alternative name for the vowel in some Masoretic sources is מְלֹאַפוּם ‘filling the mouth’. This is presented in opposition to קִבּוּצַפוּם ‘contraction of the mouth’ (also called קיבוץ פומא) which refers in these sources to the /u/ vowel of shureq and qibbuṣ. This terminology relates to the smaller rounding of the lips in the production of the shureq quality. A few medieval

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38 מלא, short version, edition in vol. 2 of this book, §II.S.6.0, Eldar (1994, 120). Cf. the Hebrew root חלם ‘to be healthy (i.e. whole in health)’.

39 לאנהאַתמלאַאלפם, ibid.

sources vocalize the name holem as a segolate חֶלֶם or חֵלֶם.\textsuperscript{41} Some early sources refer to holem by the description the ‘upper dot’ (נקודות עליונות, al-nuqta al-fawqâniyya) or similar phrases.\textsuperscript{42}

Hidâyat al-Qâri’ states that the place of articulation of the holem is the root of the tongue and the ‘place of swallowing’, i.e. the pharynx\textsuperscript{43} and that the ‘movement of the vowel (i.e. the airflow in its realization) is across the whole area of the mouth’.\textsuperscript{44} According to Saadya’s description, holem is the vowel that is articulated furthest back in the mouth and its ‘strength (i.e. dynamic airflow in its realization) moves forward without deviating upwards or downwards.’\textsuperscript{45}

The Hidâya interprets the name shureq as ‘whistling’, because it ‘gathers the lips together’,\textsuperscript{46} i.e. the lips are rounded in the position they have when one whistles. The Hidâya uses this as a general term to refer to the vowel quality /u/, including what was later called specifically qibbus (i.e. the sign א senza a vowel

\textsuperscript{41} Ben Yehuda (1980, vol. 3, 1466-67). The manuscript of Saadya’s grammar book has חֶלֶם (Dotan 1997, 447). This vocalization is also found in the Genizah fragment of a Masoretic treatise CUL T-S NS 301.69.

\textsuperscript{42} Dotan (2007, 634), Khan (2000, 28).

\textsuperscript{43} מתל אלחלמ עקר הלשון biệt הצחיות, long version, edition in vol. 2 of this book, ¶II.L.2.15.1.; (Eldar 1994, 129).

\textsuperscript{44} وماשיה עלי טсад אלפים כלם, long version, edition in vol. 2 of this book, ¶II.L.2.15.1.; Eldar (1994, 129).

\textsuperscript{45} וקוהה וכלב אמאמה גור והאדוה אלפ ולא אלפים (Dotan 1997, 445).

\textsuperscript{46} והגדנה אליפותא (Eldar (1994, 125).
letter). It occasionally refers to the sign ꞌ, however, by the term *al-zujj* (literally: ‘the arrow-head’). The term *qibbuṣ* was introduced by Joseph Qimḥi, who categorized them as two separate vowels, the former long and the latter short.

In some medieval sources, including manuscripts of the *Hidāya*, the name *shureq* is vocalized as a segolate שֶׁרֶק. In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form שֶׁרֶק. According to the *Hidāya*, the place of its articulation was ‘the lips (when) gathered together like (for) whistling.’ Likewise, Saadya states that it is pronounced ‘between the teeth and the lips’.

In the Karaite transcriptions, long *ḥolem* and long *shureq/qibbuṣ* are normally represented by Arabic *mater lectionis wāw*, e.g.

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47 In some manuscripts with Non-standard Tiberian vocalization the sign is written reversed, with the three dots sloping up from left-to-right; see Outhwaite (2020).

48 E.g. long version, edition in vol. 2 of this book, §II.L.2.12.1.6. This term is also used by the author of the *Treatise on the Shewa* (ed. Levy 1936, ט).


50 Dotan (2007, 634).


52 מַלְמַא בֵּית אֶלְשֶׁבֶתֶו אֶלְלֶצֶפֶו (Dotan 1997, 447).
Vowels and Syllable Structure

Sporadically mater lectionis ʾalif represents holem in the transcriptions, e.g.

Such a transcription could be an attempt to represented the lower quality of holem compared to that of shureq/qibbus rather than a fronted quality of holem. This is demonstrated by a transcription of Hebrew liturgical poetry in the Genizah manuscript T-S Ar.37.89, which represents holem by ʾalif, e.g: 

In this text, the glide between holem and a following furtive pataḥ is transcribed by wāw, demonstrating that the holem was pronounced as a back [oː].

I.2.1.8. Medieval Classifications of Vowels

In some sources, the seven Tiberian vowels are classified into the three groups (i) pataḥ, segol, qames, (ii) sere, hireq and (iii) shureq/qibbus, holem by associating them with three prototype vowels. Saadya, for example, associates each of these groups with the Arabic case vowels a (naṣb ‘holding steady’), i (khafḍ

53 The text was published by Razhaby (1983).
\'lowering\') and \(u\) ('raising\') respectively. He classifies them further within these categories according to the notion of degree of height of the airflow in their production,\(^{54}\) viz.

\[
\begin{align*}
\text{al-raf} & \quad \text{al-kabir} \quad \text{\textquoteleft big raf\textquoteright} = \text{ḥolem} \\
\text{al-raf} & \quad \text{al-\textasciitilde{a}sghar} \quad \text{\textquoteleft smaller raising\textquoteright} = \text{shureq} \\
\text{al-na\textasciitilde{s}b} & \quad \text{al-\textasciitilde{a}sghar} \quad \text{\textquoteleft greater na\textasciitilde{s}b\textquoteright} = \text{qames} \\
\text{al-na\textasciitilde{s}b} & \quad \text{al-\textasciitilde{a}wsat} \quad \text{\textquoteleft intermediate na\textasciitilde{s}b\textquoteright} = \text{patah} \\
\text{al-na\textasciitilde{s}b} & \quad \text{al-\textasciitilde{a}sghar} \quad \text{\textquoteleft smaller na\textasciitilde{s}b\textquoteright} = \text{segol} \\
\text{al-khaf\textasciitilde{d}} & \quad \text{al-\textasciitilde{a}sghar} \quad \text{\textquoteleft smaller kha\textasciitilde{f}d\textquoteright} = \text{ṣere} \\
\text{al-khaf\textasciitilde{d}} & \quad \text{al-\textasciitilde{a}kbar} \quad \text{\textquoteleft greater kha\textasciitilde{f}d\textquoteright} = \text{ḥireq}\(^{55}\)
\end{align*}
\]

Hidāyat al-Qāri\' makes a similar classification, using both the names of Arabic case vowels (\textasciitilde{s}b, kha\textasciitilde{f}d, raf\textasciitilde{c}) and also the generic names of Arabic vowels (fatha, kasra, ḍamma). The Hebrew vowels patah, segol and qames, for example, are identified as variant types of fatha, which are termed \textquoteleft big fatha\textquoteright, \textquoteleft medium fatha\textquoteright and \textquoteleft small fatha\textquoteright respectively. This does not correspond to Saadya\’s classification of degrees of height but rather relates to varying degrees of lip-spreading. The vowel patah was pronounced with the maximal degree of lip-spreading and qames


\(^{55}\) Dotan notes that the terms al-khaf\textasciitilde{d} al-\textasciitilde{a}sghar and al-khaf\textasciitilde{d} al-\textasciitilde{a}kbar appear to be referring to a reference point in the middle of the mouth, from which ḥireq would constitute a greater lowering than ṣere. The other terms have a reference point at the top of the mouth.
with the lowest degree, with segol exhibiting an intermediate lip position.\textsuperscript{56}

The basic Arabic vowel qualities \(a\), \(i\) and \(u\) are also associated with the Arabic vowel letters ‘\(\text{ʾalif}\), \(\text{yāʾ}\) and \(\text{wāw}\). Any other qualities of Arabic vowels were variations (\(\text{furūʿ}\)) of these basic qualities, e.g. \([ɛ]\) was termed ‘\(\text{ʾalif mumāla}\) ‘inclining \(\text{ʾalif}\)’ (i.e. inclining towards \(i\)) and \([ɑ\) or \([ɔ]\) ‘\(\text{ʾalif al-tafkhīm}\) ‘\(\text{ʾalif of thickness}\’.\textsuperscript{57} The three-way classification of Tiberian vowel qualities also corresponds to the three Arabic matres lectionis ‘\(\text{ʾalif}\), \(\text{yāʾ}\) and \(\text{wāw}\) that are the normal transcription of the vowels of these three categories respectively in the Karaite transcriptions, viz. ‘\(\text{ʾalif} = \text{pataḥ}, \text{qames}, \text{segol}, \text{yāʾ} = \text{sere}, \text{ḥireq}\) and \(\text{wāw} = \text{shureq/qibbus, ḥolem}\).

\textit{Hidāyat al-Qāri’} correlates these groups of vowels with the Hebrew vowel letters (i) ‘\(\text{ʾalef/he}\), (ii) \(\text{yod}\) and (iii) \(\text{vav}\) when the vowels were pronounced long.\textsuperscript{58} This reflects the theory that long vowels were the result of ‘soft letters’ (\(\text{ḥurūf al-līn}\)), i.e. vowel letters. This theory was borrowed from the Arabic grammatical tradition and developed more systematically by the Hebrew grammarian Ḥayyūj (Spain, early eleventh century). Unlike in Arabic, these vowel letters were sometimes elided in the orthography, especially those of group (i).\textsuperscript{59}

\textsuperscript{56} \textit{Hidāyat al-Qāri’}, long version, edition in vol. 2 of this book, §II.L.2.3.–§II.L.2.8.


\textsuperscript{58} See \textit{Hidāyat al-Qāri’}, short version, edition in vol. 2 of this book, §II.S.4.2.

\textsuperscript{59} Eldar (1994, 102–5).
I.2.2. **Vowel Length**

I.2.2.1. **General Principles**

The length of vowels represented by the basic vowel signs (i.e. vowel signs that are not combined with shewa) is to a large extent predictable from syllable structure and the placement of stress. The general principles are as follows:

Vowels represented by basic vowel signs are long when they are either (i) in a stressed syllable or (ii) in an unstressed open syllable.

Vowels represented by basic signs that are in an unstressed closed syllable are short.


These principles are clearly reflected by the Karaite transcriptions, which represent long vowels with Arabic *matres lectionis*. They are also referred to in various other medieval sources. Examples from the Karaite transcriptions are presented below.

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60 In *Hidāyat al-Qāri‘*, for example, it is stated that the pronunciation of the stressed *patah* in words such as שֶׁמֶ־ר [ʃɛmɛː] and שֶׁמֶֶר [ʃɛmɛː] ‘indicates the existence of ʾalef’ (short version, edition in vol. 2 of this book, §II.S.4.0), i.e. it is pronounced long with a hidden vowel letter. For further references see Hommel (1917, 99f.), Ben-David (1957a, 21–23), Yeivin (1981b, 42); also the Masoretic note to Lev. 1.11 quoted by Wickes (1887, 25): עַלַח׳.
When a long vowel occurs in a closed syllable, an epenthetic vowel is inserted after the long vowel before the syllable-final consonant, e.g. שָּׁמֶַ֫ר and שָּׁמֶַ֫ר should be represented as [dɔːˈvɔːɔʀ̟] and [ʃɔːˈmɑːɑʀ̟] respectively. This feature of syllable structure is discussed in detail in §I.2.4.

I.2.2.2. Stressed Syllables

(marked by shading in the roman phonetic transcription)

Qamesh

שָּׁמֶַ֫ר [sɔːˈr̟ɔː] (Gen. 21.7 ‘Sarah’ — מָרָֹּ֑ה (BL Or 2539 MS A, fol. 63r, 1)

נִסִָּׂ֖ה [nisˈsɔː] (Gen. 22.1 ‘he tempted’ — נִסָֹּ֛ה (BL Or 2539 MS A, fol. 66r, 7)

הַדָּבָָ֛ר [haddɔːˈvɔːɔʀ̟] (Gen. 21.11 ‘the word’ — הָדָּבָָ֛ר (BL Or 2539 MS A, fol. 63r, 8)

אַבְרָּהָֹּ֑ם [ʔavˈr̟ɔːm] (Gen. 21.11 ‘Abraham’ — אָבְרָּהָֹּ֑ם (BL Or 2539 MS A, fol. 63r, 8)

8 instances in Leviticus lengthen the particle על with an accent’. Lengthening of vowels in open unstressed syllables is alluded to by Saadya in his commentary on Sefer Yešira (ed. Lambert 1891, 76–77; 1889, 125).
**Patah**

וַיַַּ֤עַש (Gen. 21.8 ‘and he made’) — וְיָאֵעֶָּס (BL Or 2539 MS A, fol. 63r, 3)

הַנַּּ֖עַר (Gen. 21.17 ‘the boy’) — הֶנְַעֶָּר (BL Or 2539 MS A, fol. 64r, 5)

הַמִַּׂ֖יִם (Gen. 21.15 ‘the water’) — הֶמְַ֥אֵים (BL Or 2539 MS A, fol. 64r, 1)

וַיִּגָּמָל (Gen. 21.8 ‘and he was weaned’) — וְיִגָּמְּל (BL Or 2539 MS A, fol. 63r, 2)

בַּסְּבַ (Gen. 22.13 ‘in the thicket’) — בְּסַּבַּ (BL Or 2539 MS A, fol. 68r, 3)

**Segol**

הַגֵֶ֗בר (Psa. 52.9 ‘the man’) — הֶגְבַּר (BL Or 2551 fol. 9v, 3)

מִפָּנִֶ֖יך (Isa. 26.17 ‘before you’) — מְפָּנַָּּךְ (BL Or 2548 fol. 186r, 4)

מִשְׁתֶַ֣ה (Gen. 21.8 ‘feast’) — מְׁשַָּּׁתָה (BL Or 2539 MS A, fol. 63r, 3)
Vowels and Syllable Structure

[bar'ze'el] (Ezek. 4.3 ‘iron’) — בָּרֶ֔ל (BL Or 2549 fol. 145r, 4)

[ʔavoθε:χem] (Exod. 3.16 ‘your fathers’) — אֲבוֹתֵיכֶם (BL Or 2544 fol. 77v, 8)

Șere

[vat'the:ev] (Gen. 21.16 ‘and she sat’) — וָתִיטָסָב (BL Or 2539 MS A, fol. 64r, 4)

[higgə'meṣel] (Gen. 21.8 ‘to be weaned’) — הִגָּמֵָל (BL Or 2539 MS A, fol. 63r, 3)

[gə'reef] (Gen. 21.10 ‘cast out!’) — גָּרֵ֑שׁ (BL Or 2539 MS A, fol. 63r, 6)

Ḥireq

[vohə'ʁiːdu:] (Deut. 21.4 ‘and they will bring down’) — וּוּהְרִידֶ֑ו (BL Or 2539 MS A, fol. 105r, 7)

[vaj'jiːven] (Gen. 22.9 ‘and he built’) — וּוּבֵיִ֑יבֵ֑י (BL Or 2539 MS A, fol. 67r, 9)

[ʔikim] (Gen. 15.4 ‘if’) — אִ֑יִּמּ (BL Or 2539 MS A, fol. 58r, 4)
מִין (Exod. 2.7 ‘from’) — מִין (BL Or 2540, fol. 6r, 4)

**וֹצְבָּא** (Gen. 21.22 ‘his host’) — סָבָא (BL Or 2539 MS A, fol. 64v, 9)

**הָגָדִית** (Exod. 3.3 ‘the great’) — הָגָדוֹל (BL Or 2544 fol. 74v, 2)

**וּמִגְזָנִית** (Gen. 24.53 ‘precious things’) — וּמִגְזָנִית (BL Or 2539 MS A, fol. 76v, 4)

**וּיִשָּׁק** (Gen. 22.19 ‘and they rose up’) — וַיִּשָּׁק (BL Or 2539 MS A, fol. 68v, 6)

**גְּבַול** (Psa. 78.54 ‘border of’) — גְּבַּול (BL Or 2551 fol. 32v, 13)

**נְאַם** (Jer. 2.22 ‘utterance of’) — נְאַם (BL Or 2549 fol. 3v, 12)

**יְרִיחוּן** (Deut. 4.28 ‘and they (mp) will smell’) — יְרִיחוּן (BL Or 2539 MS A, fol. 87v, 4)
I.2.2.3. Open Unstressed Syllables

(marketed by shading in the roman phonetic transcription)

Qamesh

הַגַָּדִֹׂ֖ול [haggɔːˈðoːol] (Exod. 3.3 ‘the great’) — הָגַָּדִֹ֖ול (BL Or 2544 fol. 74v, 2)

יַָּמִָ֥ים [jɔːˈmiːim] (Jer. 31.38 ‘days’) — יַָּמִָ֥ים (BL Or 2549 fol. 93v, 8)

בְּעֵינֶ יך [beˈʕeːnɛχɔː] (Gen. 21.12 ‘in your (ms) eyes’) — בְּעֵינֶ יך (BL Or 2539 MS A, fol. 63v, 2)

Patah

ֵחַּאַה [haˈχiː] (Gen. 21.22 ‘that’) — הֵֽחַּאַה (BL Or 2539 MS A, fol. 64v, 8)

כֵֽחַַאַה [kʰaˈχeːseʃ] (Gen. 21.23 ‘like the kindness’) — כֵֽחַַאַה (BL Or 2539 MS A, fol. 65r, 3)

לַחַֹ֣דֶ [laˈχoːdeʃ] (Neh. 9.1 ‘of the month’) — לַחַֹ֣דֶ (BL Or 2556, fol. 52v, 8)
The Tiberian Pronunciation Tradition of Biblical Hebrew

**Segol**

[בֶּחָֹ֑רֶב] (Num. 14.43 ‘by the sword’) — בֶּחָֹ֑רֶב (Genizah MS 1, Khan 1990a, 26)  

[וְנֶעֱזִָּׂ֖ב] (Isa. 27.10 ‘forsaken’) — וְנֶעֱזִָּׂ֖ב (BL Or 2548 fol. 187r, 12)  

[נֶעֶשְתַָּ֣ה] (Num. 15.24 ‘it [f] was done’) — נֶעֶשְתַָּ֣ה (Genizah MS 1, Khan 1990a, 27)  

**Ṣere**

[לַָּעֵַדַָּּ֤ה] (Num. 14.27 ‘for the congregation’) — לַָּעֵַדַָּּ֤ה (Genizah MS 1, Khan 1990a, 23)  

[אֵַלֵא] (Exod. 3.11 ‘I will go’) — אֵַלֵא (BL Or 2540, fol. 9r, 1)  

**Ḥireq**

[מִַחַ֣וּץ] (Deut. 23.11 ‘from outside’) — מִַחַ֣וּץ (BL Or 2539 MS A, fol. 113v, 5)  

[מִַחוּט] (Gen. 14.23 ‘from a thread’) — מִַחוּט (BL Or 2539 MS A, fol. 57r, 8)
Holem

[ʔelo‘hi:im] (Gen. 21.22 ‘God’) — [ʔɛloːˈhiːim] (BL Or 2539 MS A, fol. 65r, 1)

[ʔɛloːˈhiːim] (BL Or 2543 MS A, fol. 5v, 2)

Shureq/qibbuṣ

[rauβe:en] (Exod. 1.2 ‘Reuben’) — [ruːˈveːen] (BL Or 2540, fol. 3v, 2)

[hamu‘i:im] (Josh. 4.12 ‘those who are armed’) — [həmuːˈʃiːm] (BL Or 2547 fol. 6v, 12)

[juːˈtˁɑːɑl] (Job. 41.1 ‘he will be hurled down’) — [juːˈtˁal] (BL Or 2552 fol. 85v, 4)

[dudoʔeː] (Jer. 24.1 ‘baskets of’) — [dゥドゥ(assign)ai] (BL Or 2543 MS A, fol. 3r, 8)

[vajraʔəviːduː] (Exod. 1.13 ‘and they made to serve’) — [ʔəviːduː] (BL Or 2540, fol. 4v, 2)

I.2.2.4. Closed Unstressed Syllables

(marked by shading in the roman phonetic transcription)
Qames 61

The distinction between long and short qames is expressed by the terms qames gadol and qames hatef in the works of the early Hebrew grammarians of Spain (Lambert 1889, 124).

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Pataḥ

Segol

61
The vowels ḥolem and šere are invariably long and have no short variants. This also is essentially dependent on stress and syllable structure, in that they occur only in the aforementioned environments that condition vowel length, e.g. בְּרֵי [bər'e:] ‘brings’, הַשְּׁתֵּה [həʃ'te:] ‘drink!’, וֹמְקוֹמֶה [wo'mokome:] ‘his place’.

I.2.3. **VOWEL PHONEMES**

In order to establish the synchronic phonological representation of the vowels of the Tiberian reading tradition one must...
distinguish between (i) vowels which are invariably long and include length in their underlying phonological representation and (ii) vowels whose length is determined by syllable structure and stress so are of unspecified length at a phonological level (Khan 2013g). 62

I.2.3.1. Vowel Phonemes with a Specified Length Feature

The long vowel phonemes with a length feature specified in their underlying representation include: long qames /ɔ̄/, holem /œ/, sere /e/, long shureq /œ̄/, long hireq /ɪ/ (typically written with yod), e.g.

הָרַשׁ /ʃɔ̄θɔ̄/ [ʃɔːˈθɔː] ‘he drank’

הָרְעַ /ʃeθɔ̄/ [ʃeθɔː] ‘community’

נָבִיב /beθɔ̄/ [beθοː] ‘his house’

נָוָמה /q̟u̞ːm̟u̞/ [ˈq̟uːm̟uː] ‘arise!’

נְרִי /jirɔ̄/ [jiːˈrɔː] ‘he fears’

62 For an alternative analysis of the phonemes of Tiberian Hebrew based on the phonetic realizations I have reconstructed from medieval sources see Suchard (2018). For phonemic analyses based on earlier views of the phonetic realization of the vowels see, for example, Morag (1962) and Schramm (1964, 63).
I.2.3.2. Vowel Phonemes without a Specified Length Feature

The vowel phonemes unspecified as to length include: patah /a/, segol /e/, hireq /i/, qibbuṣ/shureq /u/. In principle, these are long when they bear stress, e.g.

דָּמַע /pɔ̄mað/ [pɔːmaːd] ‘he stood’
לָהֶם /lɔ̄hem/ [lɔːheːm] ‘to them’
מִן /min/ [ˈmiːn] ‘from’

The length of the vowel, therefore, is a phonetic phenomenon induced by stress and is not a feature of the underlying vowel phoneme.

As shown above, vowels of this category represented by basic vowel signs that occur in unstressed closed syllables are short, whereas those that occur in open unstressed syllables are realized as long.

An open syllable with a long vowel (C̄V) can be considered to have the same weight as a closed syllable with a short vowel (CVC). Their codas both contain two weight components, known as morae, and both types of syllable are termed bimoraic. Bimoricity is, in fact, not obligatory in open syllables. There are some cases of short lexical vowels in open unstressed syllables, mainly rounded vowels with the quality of qameṣ, indicated in the vocalization by haṭef qameṣ, e.g. רֵרֵי [rəriː] ‘balm’, רֵת [ʁeː] [ɾeː] ‘silence’ (§I.2.7.). The lengthening of the vowels of unspecified length in open syllables must, therefore, be conditioned by factors other than the need to conform to a principle of canonical bimoricity.
One subset of vowels of this category that are lengthened in open syllables occur before gutturals that were historically geminated, but have now lost their gemination. In traditional descriptions of Hebrew, this is referred to as ‘virtual doubling’ of the guttural, i.e. the vowel is the type one would expect in a syllable closed by gemination of the following consonant. The phonetically long realization of the vowel can be explained as having arisen due to spreading of the vowel in compensation for the lost gemination. This can be represented as the replication of the phoneme thus:

*/hahhū/ > /haahū/ [haːˈhuː] אָהַה ‘that’

*/jihhēθū/ > /jiihēθū/ [jiːˈheθuː] שִׁחְּתָה ‘they have ruined’ (Nah. 2.3),

This can be regarded as a morphologically motivated replication of the vowel, in order to bring the morphological pattern of a word or prefixed particle (definite article or preposition) into line with the pattern of these forms in other contexts, in which they are typically followed by a geminated consonant, e.g. תֹּבֶר /habbajiθ/ ‘the house’, מַפֹּה /mippʰō/ ‘from here’, יִצְבָּר /jibber/ ‘he shattered’, or have a long vowel phoneme, e.g. הָּאָם /ẖɔ̄ʕɔ̄m/ ‘the people’, מֵאֵן /mēʔēn/ ‘he refused’.

A second subset of vowels of this category that are lengthened in open syllables occur before gutturals with a hatef vowel, e.g. יָעֲלֶה ‘they go up’, הֶעֱלֶה ‘he brought up’, צָּהֲרֶיִם ‘noon’. Here the lengthening is conditioned by metrical factors. This will be discussed below (§1.2.5.4.).
A third, marginal, subset of vowels of this category that are lengthened in open syllables occur in segolate forms that do not bear the main stress, e.g. וּבֶּרֶכְיִָּׂ֖ה [bɛʁɛχˈjɔːhʊ] ‘Berechiah’ (1 Chron. 2.24). This also appears to have a metrical motivation (§I.2.6.).

To the category of vowel phonemes that lack a specified length feature we should add also /e/ and /o/. These are represented by the șere and ḥolem vowel signs respectively in the stressed syllable of certain forms. Since stressed vowels are always long, on a phonetic level these are not distinguishable from șere and ḥolem representing phonemes with underlying length. This is necessary to account for apparent discrepancies in the historical development of vowels in several morphological forms, in which pataḥ (a vowel with no specified length feature) occurs in parallel with șere and ḥolem (Sarauw 1939, 56–64; Khan 1994). This applies, for example, to nouns with an originally doubled final consonant. In forms deriving from the *qall pattern the vowel is pataḥ, e.g. בִּ[רַכָּאָב] ‘much’, and in forms deriving from the *qill and *qull pattern, the vowel is șere and ḥolem respectively, e.g. בְּ[לֶהֶב] ‘heart’, זָעֶ[וּז] ‘strength’. Such words would all have a vowel of unspecified length on the phonological level /rav/, /lev/, /ʕoz/ and the length would have been a consequence of stress. There is, therefore, no discrepancy in their pattern. The same applies to the underlying phonological representation of the pataḥ, șere and ḥolem in verbal forms of the patterns יֵכִּל, יִקְטַל, יִקְטֵל, יִקְטֹל; יַקֵּל, יִקָּטַל, יִקָּטֵל, יִקָּטֹל and in segolate nouns of the patterns חַלִּל, חַלּוֹז, נִפְרְטֵר, עֶנֶר [pausal form], which would have the phonemes /a/, /e/ and /o/ respectively:
The Tiberian Pronunciation Tradition of Biblical Hebrew

עָּמֶַ֫ד /ʕɔːˈmað/ ‘he stood’

dבֵֶַ֫כַָּ /kʰɔːveθ/ ‘it became heavy’

קָּטֶֹ֫ן /q̟ɔːˈt_boot/ ‘it became small’

יִשְׁכֶַ֫ב /jiʃˈkʰaːv/ ‘he lies down’

נֶַַ֫עַר /ˈnɑːʕɑ_r̟/ ‘youth’

סֵֶ֫פֶר /ˈseːfɛʀ/ ‘book’

שֵַׁ֫ךָ /ˈq̟oːʃək/ ‘holiness’

לִיחַֹֹ֑ /ˈħoːliː/ ‘sickness’

In syllables that do not have the main stress, the vowels /e/ and /o/ are generally realized phonetically as [ɛ] or [ɔ̄] respectively, which overlap in quality with the phonemes /ɛ/ and /ɔ̄/, e.g.

וַיֵֶּ֫רֶד /vaɟˈɟeːʀ̟ɛð/ ‘and he came down’

שֵַׁ֫ךָ /q̟oðʃoː/ ‘his holiness’

וָלִַ֫ /ˈhoːliː/ ‘sickness’

שִׁמְַ֫ /q̟oðʃim/ ‘holinesses’ (Exod. 29.37).

A secondary stress may be marked on short [ɔ], and in such cases it is generally lengthened to [ɔː] rather than [oː], as in שִׁמְַ֫ /q̟oðʃim] ‘holinesses’ (Exod. 29.37).

63 The second vowel in segolates is epenthetic and does not appear in the underlying phonological form; see §I.2.6.
There are some marginal cases in the Tiberian tradition where short [ɛ] and short [ɔ] are realized as [ɛː] and [ɔː], rather than [eː] and [oː], with the main stress of an accent. The accent in such cases is usually a conjunctive, though sporadic cases of disjunctives are attested, e.g. seven cases of בֶּן ‘son’ (Gen. 17.17, Lev. 1.5, Lev. 24.10 [disjunctive yetiv], Isa. 8.2, Esther 2.5, 1 Chron. 9.21, Neh. 6.18), three cases of את object marker/‘with’ (Psa. 47.5, Psa. 60.2, Prov. 3.12) and at least two cases of כָּל ‘all’ (Psa. 35.10, Prov. 19.7), e.g.

בֶַ֣ןַיָּאִ יר (Esther 2.5 ‘son of Yair’)
את אֹרְבָּא נרהי (Psa. 60.2 ‘with Aram-naharaim’)
כָָ֥לַאֲחֵי־ר (Prov. 19.7 ‘all the brothers of a poor man’)

This phenomenon is likely to be due to the fact that, in the Tiberian prosodic chant, words that were originally unstressed in an earlier form of the reading tradition were occasionally assigned an accent. Such prosodic ‘transformations’, according to DeCaen and Dresher (2020), occurred due to the length of a verse and the desire to slow down the chant.

Conversely there are a few sporadic cases of /o/ and /e/ realised with the qualities of [oː] and [eː] in syllables two syllables back from the main stress that may be considered to be the

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64 These are listed in Masoretic treatises, e.g. Diqduqe ha-Ṭeʿamim (ed. Dotan 1967, sections 6-8), Hidāyat al-Qāriʾ, long version, edition in vol. 2 of this book, §III.L.3.2.5., §III.L.3.2.6. The sources differ regarding the number of cases of כָּל with a main stress. Psa. 87.7, which is one of the three cases cited in Diqduqe ha-Ṭeʿamim, has a maqqef in L [BHS]: כָּלִּ֖יַֽמ בֶּֽז (Psa. 87.7 ‘all my springs’).
result of lengthening by a secondary stress (§I.2.8.2.), although this is not always indicated by the accentuation, e.g.

אֹהָלִים [ˌʔoːhəˈliːim] (Gen. 25.27 ‘tents’); cf. singular אֶֽהֶל ʾohl/ (see §I.2.6. for further details concerning the underlying form)

הֵעֲלִיהוּן [ˌheːʕəˈluːn] (Hab. 1.15 ‘he has brought up’) (see §I.2.5.4. for further details concerning the underlying form)

Vowel phonemes without a specified length feature in their underlying form, which have been lengthened through stress or compensatory reduplication (e.g. /haahū/ [haːˈhuː] אָהָה [ʔaːˈhaː],) are vowels that appear to have acquired phonetic length relatively late in the history of the Tiberian tradition. In the Greek transcriptions of the Hexapla of Origen (c. 185–254 C.E.) they are still represented as short where length distinctions could be made in Greek, viz. between the short and long ‘e’ and ‘o’ vowels (Khan 1994). Where Tiberian had lengthened /e/ [eː] and lengthened /o/ [oː], the Hexapla generally has Ε and Ο respectively, which represented short ‘e’ and ‘o’, as opposed to Η and Ω, which represented long ‘e’ and ‘o’. Examples:

Verbal forms

אֲֽלָל (Ambrosiana Palimpsest | L [BHS]: יֶלֶם Psa. 89.35 ‘I will [not] profane’)

וּיָתֵשׁ (Ambrosiana Palimpsest | L [BHS]: יַתֵּשׁ Psa. 18.33 ‘and he set’)

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65 Data supplied by Ben Kantor.
ουβαρεχ (Ambrosiana Palimpsest | L [BHS]: בּרָ֖כָּךְ Psa. 28.9 ‘and bless! (ms)’)

ουκσσες (Ambrosiana Palimpsest | L [BHS]: נֱקַּשׁ Psa. 46.10 ‘and [he] shatters’)

יְדַבֵּר (Ambrosiana Palimpsest | L [BHS]: יְדַבֵּר Psa. 49.4 ‘[my mouth] will speak’)

יִמַּלְּט (Ambrosiana Palimpsest | L [BHS]: יִמַּלְּט Psa. 89.49 ‘[he] will rescue’)

אֲכַזֵּב (Ambrosiana Palimpsest | L [BHS]: אֲכַזֵּב Psa. 89.36 ‘I will lie’)

אֶרְדַּוּף (Ambrosiana Palimpsest | L [BHS]: אֶרְדַּוּף Psa. 18.38 ‘I chase’)

יִדֹּ֑ם (Ambrosiana Palimpsest | L [BHS]: יִדֹּ֑ם Psa. 30.13 ‘[it will not] be silent’)

יִשְרָֹף (Ambrosiana Palimpsest | L [BHS]: יִשְרָֹף Psa. 46.10 ‘[he] burns’)

זְכַֹ֣ר (Ambrosiana Palimpsest | L [BHS]: זְכַֹ֣ר Psa. 89.51 ‘remember! (ms)’)

*qill and *quill nominal forms

לֵב (Ambrosiana Palimpsest | L [BHS]: לֵב Psa. 32.11 ‘heart’)

λεβ (Ambrosiana Palimpsest | L [BHS]: לֵב Psa. 32.11 ‘heart’)

\*qill and \*quill nominal forms

λεβ (Ambrosiana Palimpsest | L [BHS]: לֵב Psa. 32.11 ‘heart’)
εμ (Ambrosiana Palimpsest | L [BHS]: אֵֵ֝֗ם Psa. 35.14 ‘mother’)

βαες (Ambrosiana Palimpsest | L [BHS]: שׁנֹּ֖ניה Psa. 46.10 ‘with fire’)

οζ (Ambrosiana Palimpsest | L [BHS]: יֶָ֥ז Psa. 30.8 ‘strength’)

λαχολ (Ambrosiana Palimpsest | L [BHS]: לְכַֹּ֤ל Psa. 18.31 ‘for all’)

Segolate forms

ιεθερ (Ambrosiana Palimpsest | L [BHS]: יְֵֶ֝֗תר Psa. 31.24 ‘remainder/abundance’)

ρεγε (Ambrosiana Palimpsest | L [BHS]: רֵֶ֨גַע Psa. 30.6 ‘a moment’)

κεσθ (Ambrosiana Palimpsest | L [BHS]: קֶ שֶׁ֖ת Psa. 18.35 ‘bow of (cstr.)’)

μενεγדי (Ambrosiana Palimpsest | L [BHS]: מִנֶּ ִֽגֶד Psa. 31.23 ‘from before’)

δεφχ (Ambrosiana Palimpsest | L [BHS]: דֶּפֶצ Psa. 89.42 ‘(the) way’)

βεχί (Ambrosiana Palimpsest | L [BHS]: בֵֶּ֗כי Psa. 30.6 ‘weeping’)

βοκρ (Ambrosiana Palimpsest | L [BHS]: בֹּ קֶר Psa. 46.6 ‘morning’)

κορ (Ambrosiana Palimpsest | L [BHS]: קֹֹ֬רַח Psa. 49.1 ‘Korah’)

Contrast other adjectival and nominal forms, which have η, representing long ‘e’, as the counterpart of Tiberian šere, and ω, representing long ‘o’, as the counterpart of Tiberian holem, e.g.

αηλ (Ambrosiana Palimpsest | L [BHS]: ֲֶאֵל Psa. 18.31 ‘God’)

εκκης (Ambrosiana Palimpsest | L [BHS]: שַׁעַ֝קֵּ Psa. 18.27 ‘crooked’)

κωλ (Ambrosiana Palimpsest | L [BHS]: קַ֣וֹל Psa. 28.6 ‘voice’)

μαζμωρ (Ambrosiana Palimpsest | L [BHS]: מִזְמָ֥וֹר Psa. 31.1 ‘melody/psalm’)

φεδιων (Ambrosiana Palimpsest | L [BHS]: פִדְיָ֥וֹן Psa. 49.9 ‘the redemption of (cstr.)’)

The counterpart of stressed šere and holem in most verbal forms that are pausal in the Tiberian tradition are transcribed by the long vowels η and ω respectively in the Hexapla, e.g.

θηληχ (Ambrosiana Palimpsest | L [BHS]: שֵּׁלֵח Psa. 32.8 ‘you go’)

ιησηβ (Ambrosiana Palimpsest | L [BHS]: יֵשֵֹׁ ב Psa. 9.8 ‘he sits’)

ιδαββηροθ (Ambrosiana Palimpsest | L [BHS]: וּיְדֶַ֫בֵָּר Psa. 35.20 ‘the speak’)

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ιαλληλου (Ambrosiana Palimpsest | L [BHS]: וּיְחַלֵֹ֑ל Psa. 89.32 ‘they violate’)

ιεσμωρου (Ambrosiana Palimpsest | L [BHS]: וּיִשְׁמֹ ר Psa. 89.32 ‘they (do not) keep’)

This evidence supports the assumption that the šere and holem in such forms are the phonemes /ē/ and /ō/ with a length feature. Segolate nouns and nouns with the historical pattern *qill and *qull that are pausal in Tiberian tradition, by contrast, are transcribed in the Hexapla with ε and ο (see the lists above).

There is one possible case in the Hexapla corresponding to forms such as נִחֶַ֫ם ‘he was comforted’ צוּמִחֶַ֫ ‘outside’ with ‘virtual doubling’ of the guttural. The case in question is the following:

μερεσθ (Ambrosiana Palimpsest | L [BHS]: מֵרֶַ֣שֶׁת Psa. 31.5 ‘from (the) net’)

Here the resh has lost its gemination and the transcription represents the preceding vowel as short. This form is interpreted by Kantor (2017, 223) as equivalent to forms with hireq in Tiberian such as יַצַּמְח, i.e. the forebear of a hypothetical form יֲצַמְח. If this is correct, this would be evidence that the vowel before ‘virtual doubling’ that we are proposing was a vowel phoneme without a specified length feature in Tiberian was represented as short in the Hexapla like other vowels of this category.

I.2.4. Long Vowels in Closed Syllables

When long vowels with the main stress occur in closed syllables, there is evidence that an epenthetic with the same quality as that
of the long vowel occurred before the final consonant in its phonetic realization, e.g. (syllable boundaries are marked by dots):

וֹלקֶַ֫ /q̟ōl/ ['q̟oː.ol] ‘voice’

דְיֵַ֫ /jɔ̄ð/ ['jɔː.ɔð] ‘hand’

וּםלָּקֶַ֫ /lɔ̄q̟ūm/ [lɔː.'q̟u.um] ‘to rise’

וּהִשְׁמִֶַ֫ /hiʃmīð/ [hiʃ.'mi.ið] ‘he destroyed’

וּהְרֵַ֫ /bēθ/ ['be:.eθ] ‘house of’

This syllable split on the phonetic level was not represented in the vocalization notation since it did not change the vowel quality. On account of the lack of change in phonetic quality across the syllable boundary the epenthetic syllable could not have been very distinct perceptually.

The most compelling evidence for the insertion of an epenthetic in a closed syllable with a long vowel phoneme is the so-called furtive pataḥ, e.g. רֶ֫וּחַ [ˈʀ̟uː.aḥ] ‘spirit’. This short [a] vowel is to be interpreted as the epenthetic vowel, which has shifted quality through assimilation to the vocal tract configuration of the following laryngeal or pharyngeal. If the whole of the vowel nucleus were a unitary long vowel in the same syllable, one would have expected the assimilation to affect it as a unit.66

66 The splitting of a long vowel into two syllable nuclei is a phenomenon that is attested in the Samaritan reading tradition, e.g. rēʾoš ‘head’ (= Tiberian שָׁאָר), which, according to Ben-Ḥayyim (2000, 67), developed from *rōoš with the first nucleus dissimulating.
The occurrence of this epenthesis appears to reflect a constraint against syllables heavier than two morae. An open syllable with a long vowel (C̄V) and a closed syllable with a short vowel (CVC) are bimoraic, i.e. they have two morae in their codas, whereas a closed syllable with a long vowel (C̄VC) would have three morae. The constraint causes the C̄VC syllable to be broken into two bimoraic syllables on the phonetic level C̄V.C̄.

The underlying syllable structure of a word such as בָּל could be represented thus: /q̟ō.l/, with a stray extrasyllabic consonant. This follows from the assumption that the epenthetic vowel must have been added at the phonetic level and the aforementioned constraint against superheavy syllables must have existed also at the underlying level. Following the analysis by Kiparsky (2003) of Arabic syllable structure, we may say that such unsyllabifiable consonants at the underlying level, or ‘word-level’ according to Kiparsky’s terminology, are licensed by morae adjoined to the higher node of the prosodic word rather than the syllable node. Kiparsky refers to these consonants as ‘semisyllables’. In the following tree ω = prosodic word, σ = syllable, and μ = mora:

```
\omega
  \sigma
    μ
      μ
        μ
q o l
```

/q̟ō.l/ ‘voice’
We may postulate that the epenthetic is added at the phonetic level, or ‘post-lexical level’ according to the terminology of lexical semantics used by Kiparsky, to turn the semisyllable into a syllable, i.e. /qō.l/ [qoː ol], since in Tiberian Hebrew semisyllables were not allowed at the phonetic level. The underlying syllable structure of the other examples given above would, therefore, be /jō.ð/, /lā.qū.m/, /hiŋ.mi.ð/ and /bē.θ/.

It will be argued (§I.2.6.) that in the metrical parsing the epenthetic in the phonetic syllable structure of a word such as [‘qō:ol] belonged together with the preceding long vowel in the same prosodic foot. This foot would have consisted of a trochaic metrical pattern with a strong syllable followed by a weak epenthetic syllable. This can be represented as follows, where brackets enclose the foot and * = strong beat:

[‘qō:ol]

(* .)

In the examples given above of epenthesis the closed syllables have a vowel phoneme with inherent length. There are some words with furtive pataḥ in a word-final stressed closed syllable that, according to their etymology, would be expected to have an underlying vowel phoneme without a length specification. This applies to the *qull noun forms רע [ˈr̂ oː aʔ] ‘badness’ (< *ruʿʿ, root רעע) and מוח [ˈmoːaʔ] ‘marrow’ (< *muḥḥ, root מוח). The constraint against syllables heavier than two morae and the splitting

67 J. McCarthy (1979, 155) also proposed that such syllables were feet containing ‘two rhyme nodes’, though he did not identify an epenthetic in his framework of analysis.
of the final consonant from the rest of the syllable would have operated here at the phonetic level only after the phoneme had been lengthened at the phonetic level by stress, i.e. /roʕ/ [ˈɾoːʕ]. We should analyse, therefore, the syllable structure of short vowel phonemes that are lengthened by stress in syllables without a furtive *pataḥ* as having epenthetic vowels with the same quality of the vowel on the phonetic level, thus:

עָּמֶַ֫ד /ʕɔ̄.mað/ [ʕɔː.maː.ḏ]

לָָ֚כֶֶַ֫ /lɔ̄.χɛm/ [lɔː.χɛː.m̩]

עֶֹ֫ז /ʕoz/ [ˈʕoː.ẕ]

לֵֶ֫ב /lev/ [ˈleː.ev]

The existence of the vowel split on the phonetic level in closed syllables with a long vowel is also reflected by the phenomenon of *nesiga*. This is a metrical measure to avoid the clash of two accents, whereby the stress represented by a conjunctive accent in the first of a sequence of two words is retracted when the second word has initial stress (Praetorius 1897; Revell 1983; Yeivin 1980, 236–40). It most regularly occurs when the first word ends in an open syllable or else a closed syllable that contains a vowel phoneme without a length specification, in particular *pataḥ* and *segol*, e.g.

מַָּ֣לֵאַמָֹּ֑י (Psa. 65.10 ‘full of water’)

וָּ֥בִיאַלָָ֛נ (Gen. 39.14 ‘he has brought for us’)

תַֹ֣אכַלַלִֶ֔חֶם (Gen. 3.19 ‘you will eat bread’)

יִַ֣יפַתִֹאַר (1 Sam. 25.3 ‘beautiful of form’
The accent is in principle not retracted when it falls on a closed syllable containing a long vowel phoneme, e.g.

לָּצָ֥וּדַצִַׂ֖יִד (Gen. 27.5 ‘to hunt for game’)

אָּשִָׁ֥יבַל (Zech. 9.12 ‘I will restore to you’)

נִינַָּ֣םַיָֹּ֑חַד (Psa. 74.8 ‘we will oppress them together’)

שׁ ֹ֑שְר פַ֣וֹתַאֵ (Isa. 1.7 ‘burnt by fire’)

ךְ  ָּאָּשִָׁ֥יבַל (1 Kings 17.19 ‘he is dwelling there’)

Praetorius (1897, 16) already suggested that the long vowels in stressed closed syllables that fell adjacent to another stressed syllable, as in the examples cited above, had an accent with ‘two peaks’, which tended to split it into a disyllable. According to our formulation, this second syllable can be identified as the result of the insertion of an epenthetic vowel, and this would have acted as a buffer between the two stresses, thus rendering nesiga unnecessary:

לָּצָ֥וּדַצִַׂ֖יִד [lɔː.ˈsɔː.uð ˈsəː.jið].

Likewise, the accent is not retracted from the final syllable when the epenthetic vowel is clearly discernible in the form of a furtive patah, e.g.

לְהָּרִַ֣יחַַבָֹּּ֑הּ (Exod. 30.38 ‘to smell it’)

We have seen that nesiga takes place when a vowel phoneme without a length specification occurs in a final closed syllable, e.g. תַֹ֣אכַלַלִֶ֔חֶם (Gen. 3.19). When stressed, such a vowel would be phonetically long and split by an epenthetic, which
would have rendered retraction unnecessary. The fact that *nesiga* does take place is most easily explained as reflecting that the retraction took place at an earlier historical period, when vowels that are phonemes with unspecified length in the Tiberian tradition were still pronounced short when stressed. The position of the accents would have been fixed at this period.

There is a considerable degree of variation in the occurrence of *nesiga* when a word-final closed syllable contains *ṣere*. Some of this variation reflects the fact that *ṣere* is the realization either of a long vowel phoneme /ē/ or of the vowel phoneme /e/ of unspecified length that is lengthened by stress. Retraction often takes place when the *ṣere* belongs to the latter category, as one would expect from the discussion above. This is the case, for example, in verbal inflections. Since the /e/ phoneme is not stressed, it has the allophone [ɛ], which is represented by *segol*, e.g.

אֵלְכַל (Cant. 4.6 ‘I go’)

יִוָָּּ֥תֶרַבָּּ הּ (Zech. 13.8 ‘it will be left in it)

יְכַָ֥חֶשַׁבָּּ הּ (Hos. 9.2 ‘it will fail them’)

In some cases, there is retraction of an accent on *ṣere* in a closed syllable even where it would be expected to be a long /ē/ phoneme. This is found especially in participles, which are nominal forms. When this occurs, the *ṣere* remains long (generally indicated by a *ga’ya*), since its length is not dependent on stress, e.g.

אַֹ֣הֵ בַדָֹּ֑עַת (Prov. 12.1 ‘loves knowledge’)

שָלֶףַחֶר (Jud. 8.10 ‘drawing a sword’)

ןְלַחָרּ" (Hos. 9.2 ‘it will fail them’)
Retraction even takes place in such forms where the šere occurs before a guttural and has a furtive patah, e.g.

בַּּ֤וָֹּּ֥קֵ עַַמַ יִם (Isa. 63.12 ‘cleaving the waters’)

מַֹ֣נֵ עַַבֶָּּ֭ר (Prov. 11.26 ‘one who holds back grain’)

This retraction in forms with a long /ē/ phoneme in participles may be due to analogy with the retraction in verbal forms with šere, where the šere is a realization of the phoneme /e/ without a specified length feature. It is significant to note that the vowel corresponding to the šere in the final syllable of participles in the Greek transcriptions of the Hexapla is normally η, which represents a long vowel, but in one case ε, which represents a short vowel, e.g. 68

αννωθην (Ambrosiana Palimpsest | L [BHS]: הַנּוֹתֵ֣ן Psa. 18.48 ‘the one who gives’)

νωσηρ (Ambrosiana Palimpsest | L [BHS]: נֹצֵַ֣ר Psa. 31.24 ‘preserving’)

ωζηρ (Ambrosiana Palimpsest | L [BHS]: עֹזֵָ֥ר Psa. 30.11 ‘helper’)

ααφης (Ambrosiana Palimpsest | L [BHS]: הֶָ֜חָּפֵֵ֗ץ Psa. 35.27 ‘the one who delights’)

μαλαμμεδ (Ambrosiana Palimpsest | L [BHS]: מְלַמֵַּ֣ד Psa. 18.35 ‘trains (ms)’)

68 Data supplied by Ben Kantor.
In the Hexapla, ε is the counterpart of Tiberian šere also in verbal forms (§1.2.3.2.). This isolated use of ε in a participle may likewise reflect the fact that the vowel has undergone partial analogical levelling with that of the verbal inflections.\(^{69}\) Other nominal and adjectival forms regularly have η, representing long ‘e’, as a counterpart of šere in the Tiberian tradition, e.g.

\[ \alphaηλ \] (Ambrosiana Palimpsest | L [BHS]: הָּאֵל Psa. 18.31 ‘God’)

\[ εκκης \] (Ambrosiana Palimpsest | L [BHS]: שׁעְִ֝קֵּ Psa. 18.27 ‘crooked’)

A typological parallel to the hypothesized insertion of an epenthetic vowel in closed syllables containing a long vowel in Tiberian Hebrew existed in Classical Arabic. According to the medieval Arabic grammars and works on the recitation of the Qurʾān, when a long vowel occurred in a closed syllable on account of a subsequent geminated consonant, e.g. šābbatun ‘young woman’, qūṣṣa ‘he was avenged’, the long vowel was pronounced longer than a long vowel in an open syllables.\(^{70}\) The grammarian Ibn Jinnī in his work al-Khaṣṣāʾiṣ states that this phenomenon arose from the fact that syllables such as šāb and qūṣ contained the inadmissible sequence of two quiescent letters.

\(^{69}\) Yuditsky (2017, 153–54) and Brønno (1943, 260) argue that the short vowel is because the form is in construct with what follows. Such an explanation, however, is not totally satisfactory because other nominal forms with final η in the Hexapla transcription do not necessarily shorten in construct (Ben Kantor, personal communication).

\(^{70}\) See the sources cited by Roman (1983, 720–21).
In the Arabic grammatical tradition, a long vowel was thought to consist of a short vowel + quiescent letter of extension (ḥarf al-madd) or ‘soft’ letter (ḥarf al-lin), i.e. šā (شا) would be analysed as šīn + a + quiescent soft ʾalif. This theory was introduced into the medieval tradition of Hebrew grammar by Ḥayyūj. The extra length of the vowel in closed syllables is said by Ibn Jinnī to have occurred ‘as a substitute for the short vowel that is necessitated by the clustering of two quiescent letters’.71 The Arabist André Roman has proposed that the syllable structure described by Ibn Jinnī should be represented as šaa-ab etc.,72 i.e. the overlong syllable is split by an epenthetic vowel of the same quality as the preceding long vowel. This sequence of long vowel + epenthetic would have been perceived as an extra-long unitary vowel. Roman suggests that the onset of the syllable of the epenthetic vowel was constituted by a light constriction of the vocal folds. This form of syllable onset was attested elsewhere as a weak variant of the glottal stop (hamza), called by Sibawaihi hamza bayna bayna (‘sound between hamza and zero’). Although the virtually null articulation of the hamza bayna bayna was, in effect, simultaneous with the beginning of the subsequent vowel, it formed sufficient division between two vowels for the resultant structure to be scanned as two syllables in poetry.73

It is reasonable to assume that the onset of the phonetic syllable arising from the insertion of the epenthetic after a long vowel in closed syllables in the Tiberian reading tradition of

72 Roman (1983, 723).
73 For the hamza bayna bayna see Roman (1983, 333).
Hebrew was analogous to the Classical Arabic *hamza bayna bayna*, i.e. a very light constriction of the vocal folds. As in Arabic, this would have been hardly perceptible but nonetheless sufficient to mark a syllabic boundary for metrical purposes.

When the epenthetic in such syllables in the Tiberian tradition was a furtive *patah*, the onset of the phonetic syllable containing the epenthetic would have been a glide homorganic with the quality of the preceding vowel. The medieval Karaite lexicographer al-Fāsī refers to the existence of a bilabial glide in words in which the vowel before the furtive *patah* is *shureq* or ḫolem:

Whenever the accent is on the letter before a *vav*, its pronunciation is light, between the lips, as in רוח ‘spirit’ and ניחוח ‘soothing’.  

Glides before furtive *patah* are mentioned also in a Genizah fragment of a Masoretic treatise: 

If one of the letters ה, ח or ע occurs at the end of a word and under the letter before it there is either א or א, then they are separated by יא (i.e. [ja]), as in וה’ and he heard’, יחפז, ‘joyful’, משבית, ‘flourishing’, ‘causing to hear’. If א is over it, they are separated by וא (i.e. [wa]), as

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in ‘hearing’, ‘fragrant’, and it occurs, cases such as ‘Joshua’.\footnote{CUL T-S NS 301.32: \today}

Such a glide is the result of a slight dip in the sonority of the preceding vowel. This can be represented in the phonetic transcription of a word such as רוח thus: \[
\text{[ˈɾ̟uːwəh]}.
\]
A word with a hireq or šere before furtive pataḥ can be represented with a palatal glide thus: \[
\text{[siːjaḥ]} \text{‘plant’}.
\]

In most modern reading traditions in Arabic-speaking Jewish communities the glide before the furtive pataḥ is geminated (Morag 1952), e.g.

Baghdad

\begin{itemize}
\item jeso\'hejjah (Morag 1977, 55 | L [BHS]: ישׁוֹחַ Isa. 53.8 ‘[who] considers …?’)
\item 'ruwwaḥ (Morag 1977, 55 | L [BHS]: רוח Ecc. 11.4 ‘spirit’)
\end{itemize}

Jerba

\begin{itemize}
\item ha'rejjaʕ (Katz 1977, 87 | L [BHS]: הַרְּחִי Isa. 1.16 ‘doing evil’)
\item 'ruwwaḥ (Katz 1977, 87 | L [BHS]: רוח Deut. 34.9 ‘spirit of’)
\end{itemize}

In some traditions, the gemination of the glide alternates with the lack of it, e.g.
Yemen

rejjah ~ rejjah (Morag 1963, 134 | L [BHS]: רֵֹ֑יחַַ Cant. 2.13 ‘fragrance’)

jaḏḏijjah ~ jaḏḏiːjah (Morag 1963, 134 | L [BHS]: יַגִָ֥יהַַ Isa. 13.10 ‘[he] will lighten’)

nɔwwah ~ nɔːwah (Morag 1963, 134 | ḳ ‘Noah’)

ruwwah ~ ruːwah (Morag 1963, 134 | Ṣ ‘spirit’)

In some of the Karaite transcriptions, an Arabic shadda sign is written over the glide, indicating that it was read as geminated in some variations of the Tiberian tradition already in the Middle Ages, e.g.

רֹוֵ֣ח (BL Or 2555 fol. 23r, 1 | L [BHS]: Ṣ Ecc. 4.4 ‘spirit’)

تضمنع (BL Or 2555 fol. 86v, 10 | L [BHS]: כּוֹנֵע Ecc. 8.14 ‘that which reaches’)

הַנוֹגֵעַ (BL Or 2559, fol. 5v, 13 | L [BHS]: Lev. 22.4 ‘whoever touches’)

It is attested also in some medieval manuscripts of Rabbinic Hebrew, e.g. קְפִּי (Mishnah, Kelim 5.10 ‘the plastering’).76

The strengthening of the glide by gemination can be regarded as a measure to preserve it. It results in the fortition of the second vocalic mora of the preceding long [uː] or [iː] vowel, thus:

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76 Epstein (1950), Morag (1952, 236).
[Cuu] > [Cuw], e.g. ['ɾuːwah] > ['ɾuwwah]

[Cii] > [Cij], e.g. [mag'giːjaʕ] > [mag'gijjaʕ]

The geminated [j] would, according to the normal principles of Tiberian pronunciation be realized as [˪j], so a more accurate transcription would be [mag'gijjaʕ].

A similar type of gemination of glides is reflected in other contexts in the standard Tiberian vocalization, e.g. אֱדֹמִיִָּ֜ים (1 Kings 11.17 ‘Edomites’), רְמִיָּּּ֤ו (Job 13.7 ‘deceit’), והַשְּׁתִיָָּ֥ה (Esther 1.8 ‘and the drinking’). This too is likely to have developed as a measure to preserve the glide. The vulnerability of such glides is shown by gentilic forms such as הָעֵבְרִים (Gen. 12.14 ‘the Egyptians’ < *hammiṣriyim).

In the Samaritan reading tradition, gemination of the glides [w] and [j] is normal between vowels. In many such cases an original guttural has been lost between the vowels (Ben-Ḥayyim 2000, 38–39), e.g.

muwwwāb (מִעֲבָּב Gen. 19.37 ‘Moab’)

ʾēlūwwwām (אֵלְוָּמִּים Gen. 1.1 ‘God’)

ruwwwi (רַוָּח Gen. 6.3 ‘my spirit’)

miyyāḏām (מִיָּדָּם Gen. 6.7 ‘from man’)

miyyor (מִיָּר Gen. 11.31 ‘from Ur’)

miyyēlab (מִיָּלָב Gen. 49.12 ‘than milk’)

A possible example of the opposite process is the reading by Ben Naftali of the word יִיָּר (Exod. 19.13 ‘he will be shot’) as רִֶ֔היִי without gemination of the second yod, which is reported in
Kitāb al-Khilaf (ed. Lipschütz 1965, אֶל-כְּהִלָּא). This would reflect an original [Cij] shifting to [Cii].

In modern reading traditions in the Middle East, the furtive pataḥ often receives a secondary or, in some cases, a second main stress, e.g.

Jerba

ha’rejjaḥ (Katz 1977, 87 | L [BHS]: הָּרֵעַ הַרְוִי Isa. 1.16 ‘doing evil’)  
ho’fejjjaḥ (Katz 1977, 87 | L [BHS]: ה魋וֹיִּ֛וַּוּ Deut. 33.2 ‘he shone forth’)  

This phenomenon is reflected already in some Karaite transcriptions, in which the furtive pataḥ is represented by mater lectionis ʾalif, e.g.

אָבָּדוּּ (BL Or 2551 fol. 42r, 7 | L [BHS]: אֵלַּֽבָּדִּי Psa. 81.15 ‘I shall subdue’)  
והֵכֵַּ֤חַַ (BL Or 2551 fol. 66r, 3 | L [BHS]: מַהַּכַּּכַּ Deut. 19.17 ‘you shall surely rebuke’)  

It is likely that the purpose of this measure was to preserve the furtive pataḥ.

In some manuscripts with Non-Standard Tiberian vocalization, a furtive pataḥ is not marked before a guttural where it occurs in standard Tiberian vocalization, e.g.
Genizah manuscripts

(ת-ס א11.1, בלפא 2017, 48 | ל [BHS]: פִתֵחַ Job 39.5 ‘he has loosened’)

(ת-ס א11.1, בלפא 2017, 47 | ל [BHS]: מַדוּע Job 40.2 ‘he who reproves’)

(ת-ס א12.1, בלפא 2017, 71 | ל [BHS]: מַדוּעַ Ruth 2.10 ‘why?’)

(ת-ס א13.18, בלפא 2017, 125 | ל [BHS]: בִּזְרֹחַ Psa. 89.11 ‘with an arm of’)

European manuscripts

(קוקסיד, מורג 1959, 233 | ל [BHS]: וְלֵנְטֹו Jer. 18.9 ‘and to plant’)

(קוקסיד,Morag 1959, 233 | ל [BHS]: יַגִיהו Isa. 13.10 ‘it (does not) shine’)

(פִסִַח ASCAMO 57.2 v, Pilocane 2004, 29 | ל [BHS]: 2 Sam. 9.13)

As can be seen, in some cases a shewa is marked on the final guttural, which is a common practice in Non-Standard Tiberian manuscripts (§I.1.8., §I.1.16.). The vocalization, however, reflects the absence of furtive patah. A furtive patah is absent also in many manuscripts with Palestinian vocalization.\(^\text{77}\)

It is also omitted in some modern reading traditions of the Mishnah, e.g.

\(^{77}\) Morag (1959, 233), Katz (1977, 87), Bauer and Leander (1922, 112–13).
The development of the furtive *pataḥ* after close ([iː], [uː]) and close-mid ([eː], [oː]) long vowels before gutturals in the Tiberian tradition was the result, as remarked above, of giving the epenthetic after the long vowel a quality that is compatible with the vocal tract configuration of the guttural. This is likely to have had the orthoepic motivation of increasing the perceptibility of the guttural in order to ensure that it was preserved in the reading. The reading traditions that lacked furtive *pataḥ* were more lax in the measures they took to preserve the gutturals in this respect. It is significant to note that the Samaritan tradition, which in its modern form has lost a large proportion of the gutturals, does not reflect the historical presence of a furtive *pataḥ* (Ben-Ḥayyim 2000, 38–39), e.g.

wrū (BHS: וְרַ֣וּחַַ Gen. 1.2 ‘and the spirit of’)

zōrū (BHS: זְרִׂ֖וֹעַַ Deut. 33.20 ‘arm’)

šū (BHS: שֹׁ֑וּעַַ Gen. 38.2 ‘Shua’)

maz'rī (BHS: מַזְרִַ֣יעַַ Gen. 1.11 ‘producing seed’)

ʾarqi (BHS: רָָּּּקִִׂ֖יעַַ Gen. 1.6 ‘expanse’)

Yemen

פֹחֵחַַ (Morag 1963. 128 | Mishnah, *Megillah* 4.6, ‘clad in rags (ms)’)
I.2.5. **SHEWA AND ḤAṬEF VOWELS**

I.2.5.1. **Principles of Phonetic Realization and Graphical Marking**

I.2.5.1.1. **Default Realization of Shewa**

The shewa (שְׁוָּא) sign (ָא) in the Tiberian vocalization system was read either as a vowel or as zero.\(^{78}\) When shewa was read as vocalic, its quality in the Tiberian tradition was by default the same as that of the patah vowel sign, i.e., the maximally low vowel [a], e.g.

חֲסֹזִית [tʰaχasˈsɛː] ‘you (ms) cover’ (Job 21.26)

מְדַבְּרִים [maðabbaˈʀ̟iːm] ‘speaking’ (mpl) (Esther 2.14)

This [a] vowel is the outcome of a type of vowel reduction. Vowel reduction processes cross-linguistically usually result in

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\(^{78}\) Various other terms are used in the early sources to refer to the shewa sign, such as the Arabic terms nuqṭayn qā’imatayn ‘two dots standing upright’ and jazm ‘cutting off’, both found in the works of Saadya. Moreover in some sources the word shewa is spelt with a bet (שֵׁב). For details see Dotan (1953), Allony (1973, 105, n.165). In the early medieval sources a terminological distinction was made between shewa and the vowels, the latter being referred to by Hebrew terms such as מלכים ‘kings’, סימנים ‘signs’, נועמות ‘melodies’, תנועות ‘movements’ or Arabic terms such as mulūk ‘kings’, naghamāt ‘melodies’, muṣawwitāt ‘sounding forms’, ḥarakāt ‘movements’ and ‘anḥā’ ‘inflections’. See, for example, *Hidāyat al-Qārī*, Long version, edition in vol. 2 of this book, §II.L.2.1., also Allony (1963), Posegay (2020).
loss of prominence, involving centralization and truncating duration. It has been recognized, however, that in some languages reduction involves pushing the vowels to the edges of the vowel space.\(^{79}\) In some documented cases, this involves lowering vowels to \([a]\), which is the vowel quality with the highest sonority.\(^{80}\) This can be regarded as a strategy for preventing loss of prominence and maintaining duration. Such a strategy would be compatible with the conservative nature and orthoepic tendencies of the Tiberian tradition.

Other pre-modern traditions of Hebrew generally exhibit a less sonorous realization of vocalic \textit{shewa}.

In the Greek and Latin transcriptions, it is frequently represented as an \([e]\) quality, e.g.\(^{81}\)

\textbf{Septuagint}

\begin{itemize}
\item Γέραρα (Göttingen Septuagint | L [BHS]: גֶּרֶּרֶּר Gen. 26.1 ‘to Gerar’)
\item Νετώφα (Göttingen Septuagint | L [BHS]: נֶטֶּפֶּה Ezra 2.22 ‘Netopha’)
\end{itemize}

\textbf{Origen}

\footnotesize
\(^{79}\) See, for example, Crosswhite (2000; 2001; 2004).

\(^{80}\) E.g. in the unstressed syllables of Belarussian: ‘kol ‘pole’ > ka’la ‘pole’ (genitive); ‘jept ‘whisper’ > šap’tatsʲ ‘to whisper’. This phenomenon is discussed in the context of Tiberian Hebrew by Himmelreich (2019), although he does not apply it to the vocalic \textit{shewa}.

\(^{81}\) Data supplied by Ben Kantor.


γεδουδ (Ambrosiana Palimpsest | L [BHS]: נְדוּד Psa. 18.30 ‘a troop’)

σερουφα (Ambrosiana Palimpsest | L [BHS]: רוּפָה Psa. 18.31 ‘refined’)

Jerome

bethula (Commentary on Isaiah, ed. Gryson, III.16.21 | בֶּתֻלָּה ‘virgin’ [comments on Isa. 7.14])

mecchenaph (Commentary on Isaiah, ed. Gryson, VIII.7.11 | L [BHS]: מְכִנָּה Isa. 24.16 ‘from the edge of’)

In Origen, there is sometimes no vowel where Tiberian has a vocalic shewa, e.g.

βδαμυ (Ambrosiana Palimpsest | L [BHS]: בְּדָּמִי Psa. 30.10 ‘in my blood’)

φλαγαυ (Ambrosiana Palimpsest | L [BHS]: פְּלָּגֵי Psa. 46.5 ‘its streams’)

In medieval Palestinian vocalization, an [e] (represented below by א) or [i] vowel (represented below by א) is often used where Tiberian and vocalic shewa, e.g.²

כִּמְנִי (T-S NS 249.6, Dietrich 1968, 78* | L [BHS]: כִּמְנִי 1 Chr 6.16 ‘of the resting of’)

יִסְבַּב (T-S 12.195, Kahle 1930, 84 | L [BHS]: יִסְבַּב Psa. 55.11 ‘they will go round’)

² Data supplied by Shai Heijmans.
The older layers of the Babylonian vocalization tradition appear to reflect a tendency to have zero where Tiberian has vocalic shewa. This can be inferred, for example, from a vocalization such as the following (Yeivin 1985, §8.13):

דֹּס [iːsoːð] (Yeivin 1985, §8.13 | L [BHS]: יְסִׂ֖וֹד Lev. 4.25 ‘the base of’)

Here the yod is vocalized with hireq, which appears to have arisen due to the fact that this initial consonant clustered with the second consonant without an epenthetic [jsoːð] > [iːsoːð].

A few modern reading traditions realize vocalic shewa as the sonorous [a] vowel, as in Tiberian, e.g.

Yemen

[ʁaf̪.ˈim] (Ya’akov 2013, 1014 | L [BHS]: רְפָּאִָ֥ם Isa. 26.19 ‘shades’)

[ləˈmaʕã] (Ya’akov 2013, 1014 | L [BHS]: לְמַַ֣עְלָּה Ezra 9.6 ‘higher/above’)

Western Kurdistan

Šalomo (Sabar 2013, 480 | שלֹמֹה ‘Solomon’)

našāma (Sabar 2013, 480 | נשָּמָּה ‘soul’)

Eastern Kurdistan

tafillim (Sabar 2013, 481 | תְפִילִין ‘phylacteries’)

barit mila (Sabar 2013, 481 | בְּרִית מִלָּה ‘circumcision’)

Kerala (festive reading)

[gaːdoːˈloː] (Forsström 2013, 462 | L [BHS]: גְדוֹלִָ֔ה ‘large (fs)’ Esther 8.15)
In most Sefardi reading traditions vocalic *shewa* is realized higher in the region of [e], e.g.

Baghdad

-men-te'mol (Morag 1977, 67 | L [BHS]: מַֹ֣לתְַמִַ Exod. 21.29 ‘from yesterday)"

Jerba

-heg-gedo'la: (Katz 1977, 101 | L [BHS]: הָנַּה גֶּלֶּה Exod. 14.31 ‘the big (fs)’)

Aleppo

-ne (Katz 1981, 54 | L [BHS]: שְׁנִּ Gen. 48.1 ‘years of’)

Tripoli

-selumu (Artom 1922, 6 | לֶ שֶלְּמֹה ‘Solomon’)

Tunisia

-werox'bu (Henshke 2013, 864 | L [BHS]: וְרוֹכְבָּ Exod. 15.1 ‘and its rider’)

Karaite traditions (Lithuania, Poland, Ukraine, Crimea and Istanbul)

-be-torat (Harviainen 2013, 457 | L [BHS]: בְּהַחֹ֥וָּנה ‘in the teaching of’ Psa. 119.1)

Italy

-metunim (Ryzhik 2013, 363 | מְתוּנִים ‘moderate’ (mpl))
Kerala (regular reading)

\[\text{ʃefiˈpon} \] (Forsström 2013, 461 | L [BHS]: פִיפִֹׂ֖ן ‘adder’ Gen. 49.17)

In Morocco, vocalic shewa is frequently realized as the high vowel \([i]\), e.g.

hagidulá (Akun 2010, 186 | L [BHS]: דֹלֵָּ֗ה Exod. 14.31 ‘the big (fs)’)

Ashkenazi reading traditions often have zero where Tiberian has a vocalic shewa, e.g.

Northeastern Ashkenazi

\[\text{krejˈvɔ} \] (Katz 1993, 74 | קְרוֹבָּה ‘close’)

\[\text{gvul} \] (Katz 1993, 74 | גְבוֹל ‘border’)

In some traditions, it is often realized as the central vowel \([ə]\), e.g.

Mideastern Ashkenazi

\[\text{mədiːˈnu} \] (Glinert 2013, 194 | מְדִינָּה ‘country’)

Central Ashkenazi

\[\text{mədiːˈnoː} \] (Glinert 2013, 196 | מְדִינָּה ‘country’)

I.2.5.1.2. Contextually-Conditioned Realization of Shewa

In the Tiberian tradition, when vocalic shewa occurs before a guttural consonant or the letter yod, it was realized with a different quality through an assimilatory process. Before a guttural (i.e.
it was realized as a short vowel with the quality of the vowel on the guttural,\textsuperscript{83} e.g.

\begin{itemize}
  \item \text{בְּעֶרְכְךַָ֛} \text{[bɛʕɛʀ̟kʰaˈχɔː]} ‘by your evaluation’ (Lev. 5.15)
  \item \text{וְהָּיִָּׂ} \text{[vɔ ɔːˈjɔː]} ‘and it became’ (Gen. 2.10)
  \item \text{בָּאְר} \text{[beʔeɛr̟]} ‘well’
  \item \text{מְאֶ֫וֹד} \text{[moˈʔoːoð]} ‘very’
  \item \text{מְחִֶ֫יר} \text{[miˈħiːir̟]} ‘price’
  \item \text{וְחִכֵֶ֫} \text{[viħikˈkʰeːχ]} ‘and your palate’ (Cant. 7.10)
  \item \text{מְעוּכָּ} \text{[muʕuːˈχɔː]} ‘pressed’ (1 Sam. 26.7)
\end{itemize}

Before \textit{yod}, it was realized as a short vowel with the quality of short \textit{ḥireq} [i],\textsuperscript{84} e.g.

\begin{itemize}
  \item \text{ךְ ֵ֕} \text{וְחִכֵֶ֫} \text{[viħikˈkʰeːχ]} ‘and your palate’ (Cant. 7.10)
\end{itemize}

\textsuperscript{83} \textit{Hidāyat al-Qāriʾ}, long version, edition in vol. 2 of this book, §II.L.2.12.1, short version, edition in vol. 2 of this book, §II.S.5.1. Some Non-Standard Tiberian manuscripts substitute a vowel sign for the shewa in such contexts, explicitly marking the assimilation in quality, e.g. \text{כִאִמרת} (T-S AS 68.100 | L [BHS]: \text{כְאִמְרָּתְךַָ֥} Psa. 119.76 ‘according to your promise’), \text{יִהִי־לִבִַּ֣י} (T-S AS 68.100 | L [BHS]: \text{יְהִ י־לִבִַּ֣} Psa. 119.80 ‘let my heart be’), \text{וֶֶ֭אֶשׁמַרָּה} (T-S AS 68.100 | L [BHS]: \text{וְְ֝אֶשְׁמְרֵָּ֗} Psa. 119.88 ‘and I will keep’), \text{בָּעָּניִי} (T-S AS 68.100 | L [BHS]: \text{בְעָּנְיִ י} Psa. 119.92 ‘in my affliction’) (Outhwaite 2020).

\textsuperscript{84} \textit{Hidāyat al-Qāriʾ}, short version, edition in vol. 2 of this book, §II.S.5.2. Saadya, \textit{Kutub al-Lugha} (ed. Dotan 1997, 468–72). \textit{Treatise on the Shewa} (CUL Or 1080.13.3.2, fol. 2v.). Some Non-Standard Tiberian manuscripts explicitly mark this pronunciation before \textit{yod} by vocalizing with a \textit{ḥireq}, e.g. \text{בִיוֹם} (T-S AS 44.35 | L [BHS]: \text{בְּיַ֣וֹם} Lam. 3.57 ‘on the day’) (Outhwaite 2020).
The Tiberian Pronunciation Tradition of Biblical Hebrew

בְּיָוֹם [biˈjoːom] ‘on the day’ (Gen. 2.17)

לְיִשְרָּאֵל [lijisrˁɔːˈʔeːel] ‘to Israel (Gen. 46.2)

הַתְיָָ֖שִּׁים [hattʰijɔːˈʃiːm] ‘the goats’ (Gen. 30.35)

דַמְּיַ֣וּןתְַ [tʰaðammiˈjuːn] ‘you liken’ (Isa. 40.18)

According to the introduction to Kitāb al-Khilaf, where Ben Asher vocalized a preposition ְ or ב followed by yod thus לְיִשְרָּאֵל ‘to Israel’, Ben Naftali vocalized the first letter with hireq with no vowel on the yod, i.e. לִישְרָּאֵל (Lipschütz 1965, 18). The pronunciation of the reading of Ben Asher was [lijisrˁɔːˈʔeːel], the shewa being pronounced as [i] before the yod. In the reading of Ben Naftali, the sequence [iji] was contracted to a long vowel. As we shall see below, long vowels in syllables closed by a shewa must have had an epenthetic of the same quality, as was the case with long vowels in closed syllables in word-final position (§I.2.5.6.). Ben Naftali’s reading, therefore, can be represented [li:is-rˁɔːˈʔeːel].

Among the early model manuscripts, C frequently exhibits the type of reading of shewa before yod attributed to Ben Naftali. Such vocalizations are common also in manuscripts with Non-Standard Tiberian vocalization after the prefixed particles ְ, ב and ְ, i.e. types of vocalization such as לִישְרָּאֵל, בִֵּישְרָּאֵל, וִַישְרָּאֵל.

85 For this type of vocalization in Non-Standard Tiberian manuscripts see Ginsburg (1897, 578), Kahle (1930, 58*), Morag (1959, 233–34), Blapp (2017, 40-41, 76, 204).
I.2.5.1.3. Ḥaṭef Signs

The shewa sign is combined with some of the basic vowel signs to form the so-called ḥaṭef signs. In the standard Tiberian vocalization these compound signs include:

| ḥaṭef pataḥ | (₪) | [a] |
| ḥaṭef segol | (₪) | [ɛ] |
| ḥaṭef qames | (₪) | [ɔ] |

In such signs the vocalic reading of the shewa is made explicit and also its quality.

In the Aleppo Codex (A) there are sporadic examples of a ḥaṭef hireq sign,\(^\text{86}\) e.g.

A: ישוּצֵתָה חַתֵּב (Psa. 14.1 ‘they have acted corruptly and have done abominable deeds’ | L [BHS]: תֿוּעִָ֥יבהִ תְַַֿוּהִ שְׁחִֵ֗י)

In ḥaṭef signs the shewa sign is normally placed to the right of the vowel sign. There are, however, some isolated variant forms of ḥaṭef signs in the early manuscripts in which the shewa sign is placed under or above the vowel sign. When the

\(^{86}\) There are five cases of this sign in A; cf. Yeivin (1968, 21). Ḥaṭef hireq is attested also in some manuscripts with Non-Standard Tiberian vocalization.
component signs are stacked in this way, one of the components is sometimes placed inside the open space of the letter under which it is marked. Variants of this nature are attested, for example, in A (Yeivin 1968, 17). In L several of the ḥālef pataḥ signs are the result of later corrections of an original simple shewa sign by the scribe of L, Samuel ben Jacob, or a later hand. In many such cases, the ḥālef sign is misshapen with the vowel sign component often squeezed into the space above the shewa sign (Phillips 2020).

A: †הַפֹּרָה ‘it was rent asunder’ (Isa. 24.19)

L: †כִּלָּהל ‘the curse of’ (Jud. 9.57)

The stacking of shewa above the vowel sign and writing inside the letter, especially ḥet and he, is common in Non-Standard Tiberian manuscripts.87

The default pronunciation of vocalic shewa with the quality of [a] was equivalent to that of the ḥālef pataḥ sign (׃). Both the

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87 Kahle (1930, 58*), Díez Macho (1963, 37) and Blapp (2017, 79).
vocalic *shewa* and the vowels expressed by *ḥātēf* signs were short vowels that, in principle, had the same quantity as short vowels in closed unstressed syllables, which were represented in standard Tiberian vocalization by a simple vowel sign. So, the vocalic *shewa* in a word such as תְכַסֶָ֥ה ‘you cover’ (Job 21.26) would have been read with the same quality and quantity as the *patah* in the closed syllable that follows it: [tʰaχas'seː]. Likewise, the *ḥātēf patah* inךְהֲמֶלֶךָ [ha'me:leχ] ‘interrogative + king’ would have been read with the same quality and quantity as the *patah* inךְהַמֶּלֶךָ [ham'me:leχ] ‘the king’. Evidence for this is found in the Treatise on the Shewa published by K. Levy:

It is an established fact that every letter that has a ‘light’ (i.e. short) vowel requires a *shewa* unless this is precluded by a *dagesh* (in the following letter), as we exemplified at the beginning of our treatise,ךְהֲמֶלֶךָ, or by a *shewa* that is adjacent to it, i.e. after it, as in ןאברּהמ; the ‘אlef has a short vowel, and were it not for the *shewa* that comes after it, we would have given it a *shewa*.88

The author of this treatise did not feel that there was a quantity difference between the vowel written with the *ḥātēf* sign and the vowel represented by the full vowel sign. In his view, it was the syllable structure that necessitated the notational distinction and not the quantity of the vowel segment. The

shortness of the vowel in a closed syllable was indicated by the *dagesh* or *shewa* on the subsequent consonant. For the sake of economy of notation, no additional sign was added to the vowel sign.

Further evidence for the quantitative equivalence of *shewa* and *ḥaṭef* vowels, on the one hand, and short vowels represented by full vowel signs in closed unstressed syllables, on the other, can be found in the use of the *ḥaṭef* signs and *shewa* in a variety of Non-Standard Tiberian manuscripts from the Cairo Genizah. These manuscripts sometimes represent short vowels in closed unstressed syllables with a *ḥaṭef* sign and represent short [a] in a closed unstressed syllable by a *shewa* sign, e.g.

לְאֲברָּהָּם (T-S A21.14, Khan 1991, 863 | L [BHS]: אַבְרָּהָָ֥םלְַ Gen. 35.12 ‘to Abraham’)

הַפָֹּ֑עֲַם (T-S A2.30 | L [BHS]: הַפָֹ֑עַם Exod. 9.27 ‘this time’)

וְאָּמְרְתִַָּׂ֖ (CUL Or 1080.A3.21 | L [BHS]: וְאָּמַרְתִַָּׂ֖ Num. 6.2 ‘and you will say’)

בְּשָּּׁנִָּׂ (T-S AS 67.133 | L [BHS]: בַּשָּּׁנִָּׂ Deut. 14.28 ‘in the year’)

In manuscripts with vocalization, both those in the Genizah and those written in Europe, a *ḥaṭef qames* sign is frequently marked on a closed syllable, e.g.

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89 The data for this and the following two examples were supplied by Estara Arrant.
Genizah manuscripts

חֳכְמָּה (T-S A13.18, Blapp 2017, 125 | L [BHS]: חָּכְמָּה Ps. 90.12 ‘wisdom’)

רֳהְבָּם (T-S A13.18, Blapp 2017, 125 | L [BHS]: רָהְבָּם Ps. 90.10 ‘their strength’)

European manuscripts

ובּר (Codex Reuchlinianus, Morag 1959, 230 | L [BHS]: בּר 2 Sam. 15.19 ‘foreigner’)

חָּכְמָּה (ASCNON B.I.1r, Pilocane 2004, 29 | L [BHS]: חָּכְמָּה Num. 27.1 ‘Hoglah’)

Even some of the Standard Tiberian Masoretic codices contain a few cases of הָתַָּּ֛ף signs and שֶׁוֹּ֥א in closed unstressed syllables,90 e.g.

בּ ַחֲרְט מִִּׂ֖ם (L [BHS], Exod. 9.11 ‘on the magicians’)

הָעֲרְבִַּׂ֖יִם (L [BHS], Exod. 30.8 ‘the evening’)

חֱזַ֣וּיֶַַ (L [BHS], 2 Sam. 10.11 ‘they are strong’)

יַעְכֳרְךַַ֥ (L [BHS], Josh. 7.25 ‘he brings trouble on you’)

וְרֳהְבָָּּ֛ם (L [BHS], Jud. 16.2, ‘and we will kill him’)

לֹּ֣א (B | L [BHS]: לֹּ֣א Lev. 20.3 ‘to Molech’)

The הָתַָּּ֛ף qames representing a short qames in a closed syllable occurs in a number of imperatives in the model manuscripts in forms that could be confused with suffix conjugation forms with a long qames. In such cases, the use of the הָתַָּ֛ף in a closed

90 Yeivin (1968, 18), Dotan (1985).
syllable clearly has orthoepic motivations. Ḥaṭef qames signs are marked frequently in this context in A (Yeivin 1968, 19), e.g.

- יַדְדָה (A | L [BHS]: יַדְדָה Jer. 49.28 ‘and destroy!’)
- מָשְׂכ (A | L [BHS]: מָשְׂכ Ezek. 32.20 ‘drag away!’)
- זָכְרֵה (A | L [BHS]: זָכְרֵה 2 Chron. 6.42 ‘remember!’)

They are found occasionally in L, e.g.

- שֶמֶר (L | A: שֶמֶר 1 Chron. 29.18 ‘keep!’; Masora parva in L and A: שֶמֶר ‘unique with short [qames]’)

According to a medieval source, the Rabbanite authority Hai Gaon (tenth–eleventh centuries) recommended the use of Ḥaṭef qames in such words to ensure that the vowel was read correctly with a short vowel (Harkavy 1970, 24).

In the Masoretic literature, the root ḥ-ṭ-p is, in fact, is employed not only to describe short vowels in open syllables but also those in closed syllables, e.g.

- כלולש וראות וכל לחשו ראים ותך

Whenever the verb is from the root ‘to fear’, (the prefix) has a long vowel (e.g. יִרְא), whenever it is from the root ‘to see’, (the prefix) has a short vowel (e.g. יִרְא). 91

Furthermore, in medieval Judaeo-Arabic texts with Tiberian vocalization, shewa and Ḥaṭef pataḥ are used to represent Arabic short /a/ in both open and closed syllables, e.g.

91 Baer and Strack (1879, 31); cf. Ben-David (1957a, 14–15).
The use of *ḥåtef* signs to indicate short vowels in unstressed closed syllables was the regular practice in the so-called ‘compound system’ of Babylonian vocalization. In this variety of Babylonian vocalization, short vowels in both open and closed syllables were regularly represented by different signs from those used to indicate long vowels. Most of the signs marking short vowels were formed by combining a vowel sign with the Babylonian *ḥiṭfa* sign, equivalent to Tiberian *shewa*, and so were formally equivalent to the Tiberian *ḥåtef* signs. The *ḥiṭfa* sign was placed over the vowel sign in unstressed syllables closed by *dagesh* in Tiberian or under the vowel sign in unstressed syllables closed by *shewa* in Tiberian or by a word-final consonant.\(^{92}\) e.g.

אֲלדוּד [ʔalduːd] ‘the worm’ (T-S Ar. 8.3, fol. 16v, Khan 1992a, 107)

כַלְקְתְני [χalqatnî] ‘you created me’ (T-S Ar. 8.3, fol. 16v, Khan 1992a, 107)

In such compound Babylonian vocalization, the consonant following the vowel is typically not marked by a *dagesh* sign or *shewa* sign (*digsha* and *ḥiṭfa* in Babylonian terminology). The compound Babylonian system, therefore, marked on the vowels what the Tiberian system marked on the following consonant,

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\(^{92}\) For further details see Yeivin (1985, 364–69) and the summaries in Khan (2013f) and Heijmans (2016).
one of the purposes of both being to indicate the shortness of the vowel.

1.2.5.2. Syllabification and Metrical Structure

In the Tiberian Masoretic literature a consonant with a vocalic shewa or a ḫaṭef vowel sign was not considered to stand independently, but was said to be bound to the following consonant. Thus the word וּתִסְפְּרֶ (you shall count) (Lev. 23.16) was considered to have been composed of two prosodic units [tis–paʁu:]. The sources refer to these prosodic units by the Arabic term maqtaʿ (literally: ‘point of cutting off’), which is used in the Arabic grammatical literature to refer to a syllable. The treatise Hidāyat al-Qāriʾ notes that syllables thus formed have the status of words, i.e., they can stand independently:

‘Another of its [i.e. the shewa’s] features is that it divides a word into (units) that have the status of words. This is because every letter at the end of a word is quiescent when it is deprived of an accompanying vowel and this letter that is deprived of a vowel is the stopping point (mahatt) of the word and its place of division (maqtaʿ), as in בְּרֵאשִׁית, in which the tav is the stopping point of the word, and אוֹר, in which the resh is the stopping point of the word, and so forth. A quiescent shewa in the middle of a word has the same status, for it is in a sense a stopping point on account of its quiescence, for example וְהָּאֲחַשְׁדַרְפְנִים ‘and the satraps’ (Esther 9.3), וָאָמַרְתִּים ‘those who chirp’ (Isa. 8.19). Each
of these two expressions has the status of three words (ka-lim) on account of the quiescent shewa’. 93

In various passages in *Hidāyat al-Qāri’* there are references to the fact that a vocalic shewa or ḥaṭef vowel is read more quickly than a following full vowel sign, e.g. ‘The shewa makes a letter mobile and causes it to be uttered quickly, so that one cannot tarry on that letter’, 94 ‘The shewa moves quickly forwards’. 95 By contrast, a vowel is read more slowly, e.g. ‘A vowel has an indissoluble feature, namely slowness and steadiness’. 96 A vocalic shewa was considered to be in a subordinate relationship to a following vowel. In some Masoretic treatises, the shewa is referred to as a khādim ‘servant’ and the vowels are mulūk ‘kings’. 97 This would be analogous to the relationship of a conjunctive accent, also referred to in the treatises as a khādim, with a following disjunctive accent.

These descriptions can be interpreted as referring to the rhythmic structure of the prosodic unit consisting of a vocalic shewa followed by a vowel whereby this unit is a prosodic foot


97 E.g. CUL T-S NS 301.84.
consisting of an iambic metrical pattern with a weak syllable followed by a strong syllable. This can be represented thus: (. *), where the brackets enclose the syllables of the foot, the star * represents the strong prominent syllable and the dot the weak syllable. On a prosodic level, therefore, the phonetic realization of a word such as והָּֽסֶפֶר would consist of three syllables parsed into two feet:98

[(tʰis.) (pʰa.ˈɾ̟uː)]

(*) (. *)

A number of features reflect the prosodic weakness of the syllable of a vocalic shewa. One feature is the neutralization of the original vowel quality (see below). Another feature is the occasional loss of gemination of a consonant with vocalic shewa. This applies in particular to sibilants, sonorants (yod, lamed, mem, nun) and qof, which constitute relative weak consonants. The omission of the dagesh in such forms varies across the medieval manuscripts, e.g. in L:

הַשְׁלַבִּים ‘the frames’ (1 Kings 7.28, < לַבִּ יםהַשְַּׁ)

וַיְדַבֵָּר ‘and he spoke’ (Gen. 8.15, etc. < דַבֵָּזְַּר)

הַ מְדַבֵָּר ‘the one speaking’ (Gen. 45.12, etc. < דַבֵָּזְַּר ‘the one speaking’)

בַּ נְח שְׁתִַ֔יִם ‘with bronze fetters’ (Jud. 16.21 < ח שְׁתִַ֔יִםבַּנְַּ)  

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98 Even though he was unaware of the medieval sources described here, J. McCarthy (1979, 162) recognized that the vowel of shewa was not shorter in quantity than other short vowels but rather was prosodically weak due to its being bound to the following vowel in a foot.
‘sing praise’ (Jer. 31.7, <הלְלִי>)

‘let them seek’ (1 Sam. 16.16, <ְיֵבַקְשֶׁי>)

The Masoretic notion of maqta, therefore, can be equated with the notion of foot in the prosodic hierarchy rather than syllable.

In the representation above of the prosody of the זRequestMethodology it will be noticed that the first syllable by itself has the status of a foot, i.e. [(tʰis.) (pʰa.ɭuː)], where feet are marked by rounded brackets. This is in conformity with the current state of research on the typology of the metrical phonology of the world’s languages. The foot (pʰa.ɭuː), as remarked, is iambic, i.e. it consists of two syllables, of which the second is the stronger. It is a binary foot consisting of a light syllable with one mora, viz. CV, and a heavy syllable consisting of two morae, viz. CVV. In many languages with metrical phonology with binary feet, the feet may be binary either in the number of their syllables, as in the foot (CVCVV), which is known as a syllabic foot, or in the number of their morae, known as a moraic foot. This means that a heavy syllable with two morae, viz. CVV or CVC, normally represented in metrical phonology by (*), could function as a foot in the metrical scansion of a word alongside a syllabic foot. The metrical parsing of זRequestMethodology [tʰis.pʰa.ɭuː] would, therefore, be [(*), (. *)].

The CVC syllable with a vowel [tʰis], which constitutes an independent foot, would be metrically stronger than the first syllable of the foot (. *), which is represented by a shewa sign. This

would conform to the medieval descriptions cited above, which state that a vowel has the feature of ‘slowness and steadiness’ whereas a shewa ‘moves quickly forwards’. The CVC syllable [tʰis] would, however, be lesser in prominence than the final CVV syllable with the main stress [ˈʁuː:]. These differences in prominence can be represented by a metrical grid. In the grid the relative prominences are marked by differences in heights of columns of index marks:

<table>
<thead>
<tr>
<th>Level 3</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>x</td>
</tr>
<tr>
<td>Level 1</td>
<td>x</td>
</tr>
<tr>
<td>(* )</td>
<td>(  )</td>
</tr>
<tr>
<td>(tʰis)</td>
<td>(pʰa.  )</td>
</tr>
</tbody>
</table>

As can be seen, the syllable with the main stress is the most prominent. This stress occurs on the strong syllable of the (. *) foot.

The foot is of relevance for some phonological processes in the Tiberian pronunciation tradition, such as the conditioning of the allophones of resh (§I.1.20.) and the retraction of stress (§I.2.6.). This is a key justification for the reality of such metrical constituents (Nespor and Vogel 2012).

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100 For hierarchical arrangement of linguistic rhythm on a grid see, for example, Liberman and Prince (1977), Hayes (1995, 26–31) and Halle and Vergnaud (1987). In a study of the metrical phonology of Tiberian Hebrew, Hovav (1984, 87–211) argues for the need to combine foot structures with grids.
As remarked, the phonetic realization of a word such as קול [ˈq̟oː.ol] should be parsed metrically as a single trochaic foot consisting of a strong syllable and a weak epenthetic syllable, which can be represented (* .). The weak syllable [ol] is bimoraic, so, in terms of its morae should be classified as heavy. It is somewhat unusual for a moraically heavy syllable to be the weak syllable of a binary foot (Kager 2007), but it is preferable to consider it as belonging together with the preceding syllable in the same foot constituent. The epenthetic syllable [VC] is weak and never stressed. Moreover, there is evidence from the distribution of the allophones of resh (§I.1.20.) and the pattern of the retraction of accents (§I.2.6.) for the parsing of two heavy syllables together as a single trochaic foot (* .). As for the occurrence of a trochaic foot in the foot inventory of Tiberian Hebrew together with the iambic foot (. *), it should be noted that the moraic foot consisting of CVV or CVC, which is a very frequent foot, is, in fact, best analysed as trochaic, although by convention it is normally represented (*). This is because the main prominence is on the first vowel mora, which is the most sonorous segment of the syllable, i.e..CV́V, CVC (Kager 1993). A word-final syllabic sequence such as [ˈq̟oːol] can be preceded by a vocalic shewa, e.g. בְּקוֹל ‘with a voice’, which should be analysed metrically as an amphibrach (. * .).

I.2.5.3. Phonological Principles

In the vast majority of cases, vocalic shewa and hatef vowels can be regarded as having the synchronic status of epenthetic vowels. Very often, vocalic shewas in the Tiberian reading tradition occur
where historically there were originally lexical vowels. These vowels were of different qualities, e.g.

יִכְתְבֶַ֫ [yiχtʰa'vu:] ‘they (m) write’ (< *yaktubū)

סְפָּרִֶַ֫ [safɔː'riːm] ‘books’ (< *siparīm)

דְבָּרִֶַ֫ [davɔː'r̟iːm] ‘words’ (< *dabarīm)

The vocalic shewa, however, does not preserve the quality of the historical lexical vowel; rather, the shewa is a vowel with a neutralized quality, i.e., the maximally open vowel [a], in some circumstances modified by assimilation to its phonetic environment. As remarked, before a guttural, it was realized as a short vowel with the quality of the vowel on the guttural and before yod it was realized as a short vowel with the quality of short hireq [i]. Shortness and non-rounded vowel quality and also the copying of the quality of an adjacent vowel are characteristic features of epenthetic vowels (Hall 2011, 1581). In examples such as those cited for the reduction of lexical vowels to epenthetic vocalic shewa, the motivation for the vowel is no longer lexical but rather phonotactic, in that it breaks illicit clusters of consonants on the phonetic level. Lexical vowels can be reduced to zero in contexts where licit sequences of consonants are the result, e.g.

מַלְכֵֶַ֫ [malχeː] ‘kings of’ (< *malakeː)

לִשְׁמוּאֵֶַ֫ [liʃmuː'ʔeːl] ‘to Samuel’ (< *la-Šamūeːl)

According to this analysis of vocalic shewa, it would have to be assumed that the original vowel is absent at some underlying level of the phonological derivation of words and an
epenthetic vowel is introduced at the phonetic surface level. A /CC/ cluster at the onset of a syllable in word-initial position is broken by an epenthetic and this can be represented thus:\textsuperscript{101}

\[ /m\text{q}\ddot{o}.\text{m}/ [\text{ma.qo.'mo:}] 'his place' מָקוֹמֶַ֫
\[ /y\text{i}χ.\text{tv}\ddot{u}/ [\text{yi}χ.ta.'vu:] 'they write' יִכְתְב
\[ /s\text{f}5.\text{r}\ddot{i}.\text{m}/ [\text{sa.fi.'ri.im}] 'books' סְפָּרִֶ֫ים
\[ /d\text{v}5.\text{r}\ddot{i}.\text{m}/ [\text{da.va.'ri.im}] 'words' דְבָּרִֶ֫ים

The only exception was the shewa in forms of the feminine numeral שְׁתַיִם / שְׁתֵי ‘two’ and the first component in שְׁתֵיםַעֶשְׁרֵה ‘twelve’, which was silent [ˈʃta:jim] / [ʃtei] / [ʃte:em]. It is for this reason that in many medieval manuscripts the accent yetiv is written on these words, e.g.

L: שְׁתֵים (Lev. 23.17)
L, A: שְׁתֵים (Ezek. 1.11, 41.24)

The rule of the accent yetiv is that it occurs on a vowel that is in the first syllable of a word. If the accent syllable is preceded by another vowel, including vocalic shewa, yetiv cannot occur but is replaced by pashta, e.g. הָ֫אָב ‘with this’ (Num. 16.28) (Yeivin 1980, 198–99). According to some sources, the word was pronounced by the Tiberian Masoretes with a prosthetic vowel:

\textsuperscript{101} Such underlying representations without the epenthetic vowel are adopted in analyses of Tiberian Hebrew made within the framework of generative phonology and optimality theory, e.g. Prince (1975), Greenstein (1992), Malone (1993), Coetzee (1999), Edzard (2013).
[ʔeʃˈtʰaːjim], although this vowel is not written in the manuscripts. According to the author of \textit{Hidāyat al-Qāri‘} old and reliable codices (\textit{al-maşāḥif al-‘utuq al-jiyād}) mark \textit{pashța} (שַׁתִּים) rather than \textit{yetiv} (שָׁתי) on this word,\footnote{Cf. the \textit{Treatise on the Shewa} and the other sources discussed by Levy (1936, 31–33), also \textit{Hidāyat al-Qāri‘}, long version, edition in vol. 2 of this book, §II.L.2.12.5, and an anonymous Masoretic treatise CUL T-S NS 301.21.} and this is occasionally found in the extant early codices, e.g.

\begin{itemize}
\item \textit{C}: שַׁתִּים (Ezek. 1.11)
\end{itemize}

This can be interpreted as reflecting that the word was read with a prosthetic vowel, on account of which the accented vowel was not the first vowel of the word.

An anonymous Masoretic treatise indicates that there was variation in the way the word was read:

\begin{itemize}
\item As for \textit{שַׁתִּים}, some people read this word with a mobile \textit{shin} (i.e. a mobile \textit{shewa} on the \textit{shin}) on account of the necessity (of doing so) due to the fact it occurs in initial position and with strengthening of \textit{tav} (i.e. with \textit{dagesh}). Some people do not permit the reading of the \textit{shin} as mobile and add a \textit{hamza} (i.e. glottal stop, \textit{‘alef}) before pronouncing it, although it is not written, in order to be able to pronounce the \textit{shin} as quiescent (i.e. pronounce the \textit{shewa} on the \textit{shin} as quiescent). This (latter) is our reading.\footnote{Long version, MS II Firkovitch, Evr.-Arab II 418, fols. 21r–21v.}
\end{itemize}
The silent shewa in שְׁתִים / שְׁתֵה / שְׁתֵים could be explained by the analysis of the shin as extrasyllabic and not part of the onset of the syllable. Moreover, if the cluster /ʃtʰ/ were considered an onset, this would violate the normal principle of rising sonority of syllable onsets (Ewen and Hulst 2001, 136–41, 147–50; Hoberman 1989):

ʃtʰē

By contrast, in the imperative verbal form שְׁתִֵ֔ה 'drink (ms)!’ (Gen. 24.14) the shin and the tav form the onset of a syllable and are split by an epenthetic: /ʃθē/ [ʃθeː].

The variant reading of שְׁתַיִם / שְׁתֵי / שְׁתֵים with a vocalic shewa reported in the aforementioned Masoretic treatise could be regarded as an epenthetic that was introduced late the transmission of the reading tradition after the rule of fricativization of post-vocalic בגכפת consonants had ceased to operate.¹⁰⁵

When the preposition מ ‘from’ is prefixed to the word שְׁתִים / שְׁתֵה / שְׁתֵים וְשְׁתֵו and the nun is assimilated to the shin, two processes are attested. In Jud. 16.28. the shin is geminated and the shewa is read vocalic, resulting in the pronunciation of the tav as a fricative:

L, A: נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י נְקַם אַחַָ֛תַמִשְּׁתֵָ֥יַעֵינִַ֖י

¹⁰⁵ For this phenomenon after guttural consonants see §I.2.5.4. below.
In Jonah 4.11 the shin remains ungeminated and the hiriq of the prefixed preposition is lengthened in compensation. The lengthening is indicated by a ga’ya:

L: מִ שְׁתֵים–עֶשְרֵ הַרִבָּ֝וַֹהַרְבֵּה ַ ‘more than twelve myriads’ (Jonah 4.11)

The author of the aforementioned anonymous Masoretic treatise states that in the tradition he is familiar with the shewa of the shin in מִ שְׁתֵים is silent. He indicates, however, that some people read the shewa here vocalic and maintain the dagesh in the tav.\footnote{II Firkovitch, Evr.-Arab. II 365, fol. 21r.}

In word-internal position, the sequence /CCC/ is in principle syllabified /C.CC/, i.e. the second consonant is syllabified as an onset, and the cluster of the second and third consonants at the onset of the second syllable are split by a vocalic shewa, e.g.,

/\textit{yix.}tʰvū/ \[\textit{yix.}tʰa.ˈvuː\] יִכְתָּבְבוּ ‘They write’

A shewa under a geminated letter with dagesh within a word was likewise vocalic, e.g.

/\textit{ham.}ml⁵.χī.m/ \[\textit{ham.}ma.ː.χiː.im\] הַמְּלִָ֖יקִים ‘The kings’ (Gen. 14.17)

I.2.5.4. $\textit{Hātêf}$ Signs on Guttural Consonants

The discussion above concerning the epenthetic vocalic shewa has been concerned so far with cases in which it has developed
from a historical lexical vowel. Another motivation for an epenthetic vowel was to introduce an ahistorical vowel between two consonants for orthoepic purposes. This applies in particular to the frequent insertion of an epenthetic after a guttural consonant (תונשא) where there was no historical lexical vowel in a sequence where the guttural originally closed a syllable in word-medial position and was in contact with a following consonant. These epenthetics are regularly written with $\text{ḥafef}$ signs in the standard Tiberian tradition. The process can be analysed as involving the following stages.

(i) The historical syllable structure reflects the morphological pattern of the grammatical form in question, e.g. the prefix conjugation verb $\text{ׇיַעֲלֶַ֫}$ ‘they go up’ would have the historical syllable structure *$\text{jaʕ.lū}$*, in line with, for example, $\text{ׇיַשִּׁ}$ ‘they drink’. This can be regarded also as the underlying phonological syllable structure $/\text{jaʕ.lū}/$.

(ii) A short epenthetic is added after the guttural. This creates a short open phonetic syllable [CV], viz. $[\text{jaʕ.a.lu:}]$.

(iii) The vowel in the syllable preceding the guttural is lengthened, viz. $[\text{ja.ʕa.lu:}]$. This is likely to have come about due to a metrical constraint on having a sequence of a light CV syllable and a following weak epenthetic syllable.

In such syllabifications involving gutturals in word-medial position the epenthetic copies the quality of the preceding vowel:

$/\text{jaʕ.lū}/ \quad > \quad [\text{ja.ʕa.ˈlu:}] \quad \text{ׇיַשִּׁ} \quad \text{‘they go up’}$

$/\text{heʕ.lū}/ \quad > \quad [\text{he.ʕe.ˈlo:}] \quad \text{ׇיִשְׁשָּ֫} \quad \text{‘he brought up’}$
/tˁoh.rɔ̄/ > [tˁɔː.hɔ.ˈʀ̟ɔː]  ‘cleansing’

A similar process applies to sequences in which a monoconsonantal preposition is attached to a word beginning with a guttural, e.g.

/beʔ.ðō.m/ > [beː.ʔe.ˈðoː.om]  בֶּאֱדִ֔וֹמ
‘in Edom’ (Gen. 36.32):

The fact that an underlying short /e/ and short /o/ in forms such as /heʃ.ǜ/ and /tˁoh.rɔ̄/ surface in the phonetic form with a segol and qames quality respectively, rather than as sere and holem, suggests that the lengthening was a late rule, both diachronically and synchronically, in the derivation. The derivation can be posited to be as follows:

/heʃ.ǜ/ > (i) [heː.ʔe.ˈluː] > (ii) [heː.ʔe.ˈluː]
/tˁoh.rɔ̄/ > (i) [tˁɔː.hɔ.ˈʀ̟ɔː] > (ii) [tˁɔː.hɔ.ˈʀ̟ɔː]

The short vowel phonemes /e/ and /o/ are normally realized with the quality of [ɛ] and [ɔ] respectively when they are short and [eː] and [oː] when they are lengthened in syllables with the main stress, e.g. בֵֵַ֫/  lev/ [ˈleː.ev]  ‘heart’, יֶָֹ֫/  ūoz/ [ˈʕoː.oz]  ‘strength’ (§I.2.3.2.). In a few sporadic cases the /e/ and /o/ vowels before gutturals are realized as [eː] and [oː], e.g.

הֶַ֫עיָָ֬֫ (Hab. 1.15 ‘he has brought up’)

הַֹ֫עְיָָ֬֫ (Jud. 6.28 ‘it was offered up’)

Here the epenthetic ḥatef on the guttural has its default quality of [a], since a ḥatef does not have the qualities of holem or sere. These forms could be interpreted as reflecting a grammaticalization of the phonetic syllable structure in the environment
of gutturals with a lengthened vowel before the guttural, whereby it is encoded in the underlying phonological form as a long vowel phoneme, viz.

/hē.ʕlū/ [heː.ʕa.ˈluː]

/hō.ʕlɔ̄/ [hoː.ʕa.ˈlɔː]

Manuscripts with Babylonian vocalization exhibits many forms in which stage (ii) posited above for the development of most Tiberian forms (e.g. /heʃ.ʔlū/ > (i) [heː.ʔe.ˈluː] > (ii) [heː.ʔe.ˈluːː]) does not seem to have taken place, with the result that the vowel before the guttural remained short or was elided. This is reflected in the following pattern of vocalization of guttural consonants (Yeivin 1985, 313). Such a syllabification was allowed because in the Babylonian tradition there was no constraint on the sequence of two weak CV syllables or on clusters of consonants in syllable onsets (Khan 2019):

ךַנְן [nəʕaˈrcː] or [naʕaˈrcː] ‘young woman’ (1 Kings 1.3 | L [BHS]: נַעֲרָה)

ידִיעַ [jəʕaˈmiːð] or [jaʕaˈmiːð] ‘He will build up’ (Prov. 29.4 | L [BHS]: יַעֲמִיד)

In the metrical scansion of medieval Hebrew poetry in Spain, the vowel before a guttural with a hatef vowel is, likewise, treated as a short vowel, e.g. פַשְׁמִי is scanned as CVCVCV (Delgado 2020).

The Greek transcriptions in Origen’s Hexapla also reflect a pronunciation in which the lengthening of the vowel before the
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...guttural had not taken place. This is seen in the following examples, in which epsilon reflects a short vowel:

1. εἐτηθ (Ambrosiana palimpsest | L [BHS]: הֶעֱטִֵ֨יתַָּ Psa. 89.46 ‘you wrapped’)
2. εἐליθ (Ambrosiana palimpsest | L [BHS]: הֶעֱלִַ֣יתַָּ Psa. 30.4 ‘you lifted up’)
3. εἐמדנθ (Ambrosiana palimpsest | L [BHS]: הֶעֱמִַׂ֖דְתַָּ Psa. 31.9 ‘you established’)

This suggests that the late lengthening of the vowel before the guttural is a feature specific to the careful reading of the Tiberian tradition.

The motivation for the introduction of the epenthetic between a guttural and a following consonant was orthoepic. Gutturals were weak consonants in the reading tradition and efforts were made to ensure that they were not slurred over. Acoustically the epenthesis made the gutturals more perceptible when separated from the following consonant and this facilitated their preservation in the reading.

Although there is a tendency for gutturals to be followed by epenthetic vowels where parallel forms have silent shewa, this is not a universal rule. It is sometimes possible to identify additional phonotactic and metrical factors that appear to have conditioned the occurrence of the šewa vowels in certain forms with gutturals in contrast to other forms that have silent shewa.

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107 Data supplied by Ben Kantor.
As shown by DeCaen (2003) and Alvestad and Edzard (2009), one factor that conditions the occurrence of הָטֶף vowels on gutturals, at least on הֶט, is sonority of the following consonant. They have shown that a הָטֶף vowel tends to occur when the following consonant is high in sonority, e.g. in הָטֶף יָרָא ‘he ploughs’ (Hos. 10.11), where the consonant is a sonorant rhotic, but exhibits a greater tendency to be omitted when the following consonant is lower in sonority, e.g. הָטֶף יָעַר ‘he ceases’ (1 Sam. 9.5). This is motivated by the principle that the optimal contact between two adjacent syllables is where the onset of the second syllable is stronger than the offset (coda) of the preceding syllable (Vennemann 1988, 40), and so the contact with a following weak sonorous onset is eliminated by an intervening הָטֶף vowel.

Variations, however, occur in inflections of the same verb, where the same consonants are involved, e.g. הָטֶף יָנָב ‘they consider’ (Isa. 13.17) vs. הָטֶף יָנָב ‘they consider’ (Psa. 35.20). In such cases the הָטֶף appears to have been motivated by a metrical factor, namely the disfavouring of a rhythmic clash. This is seen in a metrical grid representation of the two forms. In these grids feet are marked in the first row. It will be assumed that feet after the main stress are extrametrical (marked with angular brackets < >). Evidence for this extrametricality is presented below.

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feet</td>
<td>x</td>
<td>x x</td>
<td>x</td>
</tr>
</tbody>
</table>

jah.  'jo:.  vu:
The grid representation displays the varying degrees of the relative prominence of syllables. These include epenthetic syllables, syllables containing a vowel without the main accent, and syllables with the main accent (represented as levels 1, 2 and 3 respectively in the grids above). It is likely that the insertion of the syllable with the hatef vowel in the second form was favoured since it created grid euphony by repairing a potential rhythmic clash caused by two syllables of the same prominence before the stress,\textsuperscript{109} as shown in the following grid:

\begin{tabular}{ccc}
Level 3 & \textbf{x} \\
Level 2 & \textbf{x} & \textbf{x} & \textbf{x} \\
Level 1 & \textbf{x} & \textbf{x} & \textbf{x} & \textbf{x} \\
Feet & (*) & (*) & (*) & .) \\
jaː. & ha & ŋo. & 'vu. & un
\end{tabular}

In the standard Tiberian tradition a shewa is in principle silent on a guttural when the syllable of the guttural receives the main accent and it is followed by another syllable, e.g.

\begin{tabular}{c}
\textit{וּשָּׁמִַׂעְנ} [ʃɔː.ˈmaː.af.nuː] \textit{we heard} (Deut. 5.24)
\end{tabular}

\textsuperscript{109} A clash is the occurrence of two adjacent metrically strong elements with the same prominence. A lapse is the occurrence of two adjacent metrically weak elements; cf. Prince (1983), Selkirk (1984).
I sent (Num. 22.37)

If the accent moves forward after the attachment of a suffix in such forms, however, a *ḥatef* appears, e.g.

‘we heard it’ (Psa. 123.6)

These phenomena can also be explained on metrical grounds if we posit, as remarked above, that syllables after the main accent are extrametrical and unfooted. The word can be represented thus (extrametrical syllables in angular brackets):

\[
ʃɔː.ˈmaː. ə. nu:\n\]

Here, since the syllable following the guttural is extrametrical and unfooted there is no rhythmic motivation for a *ḥatef*, which is a weak syllable that is obligatorily footed and metrically bound to a following strong syllable.

The metrical structure of is:

\[
ʃa.  ma.  ʃa.  nu:.  ho:\n\]

For extrametrical syllables at the right periphery of words see Kager (2007, 204).
Here the accent on the syllable after the guttural licenses the *ḥaṭef* in that it can be footed and bound metrically to this strong footed syllable.  

Apparent exceptions to this are cases where a conjunctive accent are retracted by *nesiga* onto a syllable before a *ḥaṭef* vowel, e.g.

ךְ מַה־נַעֲשֶה (Jonah 1.11, ‘what shall we do to you?’)

רַחֲקָהַמֶ (Job 21.16, ‘it is far from me’)

This could be explained by a hypothesis of rule-ordering, whereby the syllabification and foot structure is fixed on the prosodic word level before the main stress retraction on the prosodic phrase level.

In many cases where a guttural occurs after the main stress in forms with an unstressed suffixed directive *he* particle the guttural does not have a *ḥaṭef*, e.g.

שֵׁעְרָה (Deut. 25.7 ‘to the gate’; contrast שָׁעֵר Neh. 13.19 ‘the gates of’)

לְמֵעְלָּה (Exod. 25.20 ‘above’; contrast מַעֲלֵה Lev. 11.5 ‘it brings up’)

וָמִַעְלָּה (Exod. 38.26 ‘and upward’)

מַעֲלֵַּ֤ה מַעֲלָּה (Deut. 28.43 ‘above and higher’)

111 According to J. McCarthy (1979, 164) the *ḥaṭef* vowel on a guttural is bound prosodically with the preceding syllable rather than the following syllable. The descriptions in the medieval sources and the process described here constitute counterevidence to such an analysis.
Vowels and Syllable Structure

There are, however, two exceptions to this, in both cases the stressed vowel is ḥolem:

- הָּאִֹׂ֖הֱלָּה (Gen. 18.6 ‘into the tent’)
- צֹ עֲרָּה (Gen. 19.23 ‘to Zoar’)

There is general agreement across the model Standard Tiberian manuscripts regarding the marking of ḥaṭef signs on gutturals. The reason a composite ḥaṭef sign was written rather than a shewa is likely to have been that the Masoretes considered that readers would have had greater difficulty predicting the realization of shewa under gutturals than in other contexts. As we have seen, there were differences conditioned by variations in the sonority of the consonant following the guttural. There were also variations within forms of the same root, e.g. in different inflections of verbal forms such as

- בֹשׁ ַוַ ִֽיַּחֲַ (Gen. 22.3 ‘and he saddled’)
- וּשׁוּ (1 Kings 13.13 ‘and they saddled’)
- וּיַחְשִֹׁ֔ו (Isa. 13.17 ‘they consider’)
- יַחֲשֹׁב וּן (Psa. 35.20 ‘they consider’)

There were variations also across different grammatical categories, such as the distinction between the verb עֲקֵֽב ‘he supplants’ (Jer. 9.3) and the proper name עֲקָב. 

Examples include:

- (Josh. 17.15 ‘to the forest’, silent shewa also with stressed suffix, e.g. יַעְרָּה Jer. 46.23 ‘her forest’)
- (Num. 34.5 ‘to the brook of Egypt’)
- (Num. 21.23 ‘to Jahaz’)
- בֹשׁ ַוַ ִֽיַּחֲַ (Gen. 22.3 ‘and he saddled’)
- וּשׁוּ (1 Kings 13.13 ‘and they saddled’)
- וּיַחְשִֹׁו (Isa. 13.17 ‘they consider’)
- יַחֲשֹׁב וּן (Psa. 35.20 ‘they consider’)
The quality of the epenthetic vowel on gutturals deviates from the normal rules, which likewise motivated the addition of a vowel sign to the shewa. A shewa on a guttural, for example, retained the quality of [a] even if it preceded a guttural that was followed by a vowel of a different quality, e.g. גַּלְגַּלְגַּל [g̱algal] ‘they clap’ (Psa. 98.8). Moreover, as we have seen, an epenthetic vowel on a guttural became assimilated to the quality of a preceding segol or qamesh, e.g. יָנֵּשׁ [yanes] ‘he set up’, יָנֵּשׁ [yanes] ‘it was set up’.

In some extant manuscripts with Non-standard Tiberian vocalization, simple shewa is frequently marked on a guttural where standard Tiberian vocalization has a hatef sign, e.g.

תֶּחְנִית (T-S A11.1, Blapp 2017, 44 | L [BHS]: חָנֵית Job 39.23 ‘spear’)

עְשַׁרְקִי (T-S A11.1, Blapp 2017, 44 | L [BHS]: עַרְקִי Job 40.23 ‘it will oppress’)

הֶעֱנִֵה (T-S A11.1, Blapp 2017, 43 | L [BHS]: עֶנִֽה Job 40.5 ‘I will answer’)

חֲלִיַּחֵי (T-S A13.18, Blapp 2017, 124 | L [BHS]: לֹּחֵי Psa. 90.5 ‘it passes away’)

This could be regarded as reflecting a more primitive stage of the development of the Tiberian vocalization system, in which the reading of a shewa on a guttural was not marked explicitly as vocalic by the addition of a vowel sign next to the shewa sign. In the standard Tiberian system a vestige of a more primitive stage of development can be identified in the vocalization of the qere of the Tetragrammaton with shewa corresponding to the hatef
vowel on the ʾalef in the standard vocalization of the words representing the qere (אֱלֹהִים = יהוה = יהוּה). One can compare this to the continuing use of the early Hebrew script to write the Tetragrammaton in Qumran manuscripts that are otherwise written in square script (Tov 2012, 205).^112

In L a ḫaṭef segol is sporadically written on the Tetragrammaton when the qere is אֱלֹהִים. This is marked on the first two cases where it has this reading (Gen. 15.2, 15.8) and thereafter is vocalized with shewa:

L: אֲדוֹנַי הָיוֹת (Gen. 15.2)
L: אֲדוֹנַי הָיוֹת (Gen. 15.8)

In some Standard Tiberian manuscripts the Tetragrammaton is vocalized with ḫaṭef segol when the qere is אֱלֹהִים more regularly than in L, e.g. I Firkovitch Evr. I B 52.

In some Non-Standard Tiberian manuscripts the Tetragrammaton is vocalized with a ḫaṭef pataḥ (יהוה) when the qere is אֱלֹהִים, e.g. II Firkovitch Evr. II B 3. Likewise, in Non-Standard Tiberian manuscripts, ḫaṭef segol is written on the Tetragrammaton more frequently than in L when the qere is אֱלֹהִים (Blapp 2017, 151).^113

Conversely, in some Non-Standard Tiberian manuscripts a ḫaṭef sign is marked on a guttural where the standard Tiberian tradition has a silent shewa, e.g.

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^112 Also in early manuscripts of Greek translations of the Hebrew Bible the Tetragrammaton is written in Hebrew script, in some cases even in the early type of script (Roberts 1951, 173–174).

^113 Some manuscripts with Babylonian vocalization represent the initial vowel of the qere on the Tetragrammaton (Yeivin 1985, 912).
Genizah manuscripts

הרה (T-S A12.1, Blapp 2017, 71 | L [BHS]: הרה Prov. 31.18 ‘her merchandise’)

בשל (T-S A12.1, Blapp 2017, 71 | L [BHS]: בשל Prov. 31.23 ‘her husband’)

תורה (T-S A12.1, Blapp 2017, 71 | L [BHS]: תורה Prov. 27.6 ‘and excessive’)

ארה (T-S A12.1, Blapp 2017, 74 | L [BHS]: ארה Ruth 2.13 ‘I will be’)

תןנה (T-S A12.1, Blapp 2017, 71 | L [BHS]: תנה Prov. 27.20 ‘will [not] be satisfied’)

European manuscripts

שמע (Codex Reuchlinianus, Morag 1959, 224 | L [BHS]: שמע Josh. 1.17 ‘we heard’)

איריל (Codex Reuchlinianus, Morag 1959, 224 | L [BHS]: איריל Jer. 2.31 ‘darkness’)

מעין (BL Add MS 21161, fol. 160v | L [BHS]: מעין Psa. 104.10 ‘springs’)

The occurrence of a dagesh in the הנוַּ֫כָּפֶּת letter after the הָ֛טֶֽף in forms such as תָּרֵ֗וֹתָּוֹה and הָ֛טֶּפֶּילַ֣֖ה indicates that the guttural must originally have been vowelless and the epenthetic הָ֛טֶֽף vowel was inserted at a late period after the rule of fricativization of הנוַּ֫כָּפֶּת consonants following vowels had ceased to operate. The same applies to the occurrence of the Non-Standard
Tiberian *dagesh* in the nun of שׁנּמַע, which would normally occur only after a vowelless letter (§I.3.3.).

In manuscripts with Babylonian vocalization, there are several attested cases of the phenomenon of late insertion of an epenthetic and preservation of a plosive בגדכפת in word-internal position marked by *dagesh* (a miniature *gimel* over the letter) (Yeivin 1985, 342), e.g.\(^\text{114}\)

114 Data supplied by Shai Heijmans.

\[\text{hiʔitative} \quad [\text{hiʔiʔiqu}] \quad \text{‘they moved away’ (L [BHS]: \text{

32.15)\n
כָּמַעְגְלֹתָּ֥יו} \quad (L [BHS]: \text{Prov. 5.21 ‘his paths’})\n
אַרְבַּעְתִָּ֔ם} \quad (L [BHS]: \text{Dan 1.17 ‘the four of them’})\n
1.2.5.5. **Haṭef Signs on Non-Guttural Consonants**

*Haṭef* signs are occasionally marked on non-guttural consonants in the Standard Tiberian vocalization. Many of these are epenthetic vowels, which had the purpose of disambiguating the reading of a *shewa* under a non-guttural consonant, i.e. to indicate explicitly that it was vocalic and to indicate its quality. This was an orthoepic measure to ensure correct reading. The model manuscripts differ as to the number and distribution of *haṭef* signs on non-guttural consonants, and the Masoretic treatises refer to differences in this regard among the Tiberian Masoretes. The existence of these differences can be interpreted as indicating that *haṭef* signs on non-guttural consonants emerged

\[\ldots\]

\[\ldots\]
at a later stage in the development of the Tiberian vocalization system than hatef signs on guttural consonants.

The main difference in the marking of hatef signs on non-guttural consonants is the extent to which the vocalic shewa with its default pronunciation of [a] was replaced by a hatef patah sign. The Aleppo Codex (A) exhibits a particularly advanced tendency to mark hatef patah in such contexts, and there are many examples where A has hatef patah but L and other manuscripts have simple shewa, e.g.

A: חַַהַ מֲרַצֵַַּ֤ (L [BHS]: הַ מְרַצֵַּ֤ה 2 Kings 6.32 ‘the murderer’)  
A: לַ מֲמִתִ ים (L [BHS]: לְמִמִּיתֵם Job 33.22 ‘to those who bring death’)  
A: בְמַעְשֵּׁהָּ (L [BHS]: בַּעֲשֵׁהוֹ 1 Chron. 16.5 ‘with the cymbals’)  
A: הנַּיַּל (L [BHS]: הַנְּלֵכָה 1 Sam. 18.23 ‘does it seem to you a little thing?’)  
A: חַהַ (L [BHS]: חַַהַ 2 Kings 9.17 ‘and send’)  
A: תְפָא (L [BHS]: תִּפְעָל Jer. 22.15 ‘are you a king?’)  
A: לַקָּ (L [BHS]: לַּקְַ 1 Kings 21.19 ‘they licked’)  

The manuscript L marks hatef patah in place of vocalic shewa in a number of cases, e.g.

L: וּ ַ֣ ְוְהִתְבָּּרֲכ (Gen. 22.18 ‘they shall bless themselves’)  
L, A: רַ֣פְא (Job 33.25 ‘his flesh became fresh’)  
L, A: בַּּ (Jud. 5.12 ‘and take captive!’)
In some model manuscripts, however, haṭef pataḥ never occurs on non-gutturals, e.g. MS Sassoon 507 (S) (Shashar 1983, 20).

The Masorete Pinḥas Rosh ha-Yeshiva is reported in the Diqduqe ha-Ṭeʿamim to have added a pataḥ sign to many instances of vocalic shewa under non-guttural consonants, some of which have simple shewa in L (ed. Dotan 1967, §20), e.g.

כִַּ֤יםכֲַסֹ (Exod. 25.20 ‘covering’ | L [BHS]: כִַּ֤יםסֹ)

חָּם (Isa. 24.19 ‘it has been rent asunder’ | L [BHS]: חָּם)

שִׁקֶּּ יֵּ (Deut. 9.27 ‘stubbornness’ | L [BHS]: קֶשֶי)

There are also differences in the manuscripts and among the Masoretic authorities with regard to the replacement of a vocalic shewa by a haṭef sign on a non-guttural consonant before a guttural consonant with the purpose of indicating the quality of the shewa. This is referred to in Diqduqe ha-Ṭeʿamim, which states that there was no consistency among the Tiberian Masoretes in the marking of haṭef qames in words such as (ed. Dotan 1967, §19):

שִׁמְעָּה (L [BHS]: שִׁמְעָּה Gen. 43.21 ‘and we opened’)

שִׁמְעָּה (L [BHS]: שִׁמְעָּה Psa. 39.13 ‘hear’)

נְכֵרָה (L [BHS]: נְכֵרָה Zech. 8.3 ‘and it will be called’)

This was a measure to ensure that the shewa was read with the quality of the qames after the guttural rather than its default
pronunciation with the quality of patah.\textsuperscript{115} Here L generally exhibits the more conservative practice of leaving the words with simple shewa with the expectation that the reader would know the correct pronunciation. There are, however, some cases of ḥatef qamesh in this context in L, e.g. 

\textit{शुभेऽं} (Jer. 20.15 ‘he made him happy’)

The Aleppo Codex exhibits a greater tendency to use a ḥatef sign in these circumstances (Yeivin, 1968, 35), e.g.

A: \textit{הַקְּהָּתִֹ֑י} (L [BHS]: \textit{כְּהָּתֶּן} Josh. 21.4 ‘the Kohathite’)

As we have seen, A even uses an innovative ḥatef hireq. The purpose of this was to mark explicitly that a shewa was vocalic and that, since it was followed by a guttural with a hireq, the shewa was to be read with the quality of hireq (Yeivin 1968, 21), e.g.

\textit{כְּהָּתֶּן} [hii.\thi.\yi.vur:] (L [BHS]: \textit{כְּהָּתֶּן} Psa. 14.1 ‘they have done abominable deeds’)

Some Non-Standard Tiberian manuscripts use the simple vowel sign hireq in place of the shewa sign where the shewa has the pronunciation of short [i] before a guttural with hireq, e.g.

\textsuperscript{115} Compare the remarks of David Qimhi (\textit{Sefer Mikhlo\l}, ed. Rittenberg, 1862, 138b): \textit{וּבֵן עַל כַּמַּיִם חָטָא בַּמַּנְעֵר בַּא קָרַאת הַגִּימָל נִשְׁבָּה לְכָמֵם חָטָא מִפְּנֵי}. Likewise with ḥatef qamesh, as in \textit{וּבְּכַמַּיִם חָטָא מִפְּנֵי נִשְׁבָּה לְכָמֵם חָטָא} “and from rebuking you” (Isa. 54.9), the reading of the [vowel on] the gimel is similar to ḥatef qamesh on account of the ‘ayin. There are accurately vocalized codices in which the gimel is vocalized with ḥatef qamesh.’
In Non-Standard Tiberian manuscripts shewa before yod, which is pronounced as [i], is frequently replaced by hireq, e.g. Genizah manuscripts

שְׁוַיִּי (T-S A12.1, Blapp 2017, 75 | L [BHS]: שְׁוָיָּי Prov. 31.20 ‘and her hands’)

מַרְחָל (T-S A13.20, Blapp 2017, 151 | L [BHS]: מֶרְחָל Psa. 69.4 ‘waiting’)

European manuscripts

וְָ֜יָּדֵֶ֗ו (Codex Reuchlinianus, Morag 1959, 234 | L [BHS]: יְיַסְדִֶ֔נָּּו Josh. 6.26 ‘he will found it’)

יְיֵל (Codex Reuchlinianus, Morag 1959, 234 | L [BHS]: יְיֵלִִ֔יל Isa. 15.2 ‘wails’)

I.2.5.6. Silent Shewa after a Long Vowel

When shewa occurred within a word after a long vowel, it was as a general rule silent,\(^{116}\) e.g.

יֵשְׁבוּ [jeʃˈvuː] (Gen. 47.6 ‘let them dwell)

יָּדְךִַׂ [jɔːɔðˈχɔː] (Gen. 49.8 ‘your hand’)

וּ ָ֥ שָּׁמְר [ʃɔːɔmˈɾ̟ uː] (Jud. 2.22 ‘they guarded’)

שֹׁמְרֵָי [ʃoːomˈɾ̟ eː] (2 Kings 25.18 ‘the guards of’)

\(^{116}\) The evidence for this in the various medieval sources is discussed in Khan (1987, 54–55).
As can be seen in the transcriptions above, we should assume that an epenthetic vowel of the same quality of long vowel occurred before the consonant with the silent *shewa* after the long vowel. The presence of the epenthetic in such word-medial syllables is demonstrated by the fact that the first syllable can take a secondary stress in the form of a conjunctive accent, e.g.

כְעַֹ֣טְיִָּ֔ה \( [kʰoˌʔoːtˁˈjɔː] \) ‘like one wrapped’ (Cant. 1.7)

A secondary stress cannot clash with the main stress but must, in principle, be separated from it by intervening syllable on the phonetic level.

This phenomenon may be compared to the insertion of an epenthetic after a long vowel in a closed syllable at the end of a word, e.g. לֶשׁ [qoː.ol] ‘voice’ (§1.2.4.). The underlying syllable structure of words such as שֹׁמְר [ʃɔː.ɔm.ˈr̟uː] could, therefore, be represented /ʃɔ̄.m.rū/, with a stray extrasyllabic consonant, just as it has been proposed to posit the existence of an extrasyllabic consonant in word-final position, viz. /q̟ō.l/. Following the analysis by Kiparsky (2003) of Arabic syllable structure, we may say that such unsyllabified consonants, which he terms ‘semisyllables’, are licensed by moras adjoined to the higher node of the prosodic word rather than the syllable node:
On the phonetic level the extrasyllabic consonant was syllabified by means of an epenthetic. There was a constraint against word-final short epenthetic vowels in open syllables [CV], since such syllables had to be combined in an iambic foot with a following bimoraic syllable, i.e. a syllabification such as [qɔ: la] or [ʁɔ: ja] was not licit. So the epenthetic came before the consonant, forming a closed syllable [VC]: ['qɔ:. ol], which constituted a trochaic foot (*.) metrically. In principle, the word-internal consonants in a sequence such /C V̄ CC V̄/, as in ושעֲרוּ, could have been syllabified /C V̄ CC V̄/ with an epenthetic breaking the cluster in the onset of the second syllable /CC V̄/ on the phonetic level, thus [(CV:) (CV.CV:)], with the feet indicated by the round brackets. This is because a short open syllable [CV] is licit in this position. Such a syllabification, indeed, occurs in some words (see below). The normal syllabification of word-internal sequences such as /C V̄ CC V̄/ and /C V̄ CCVC/ as /C V̄ C.C V̄/ and /C V̄ C.CVC/ rather than /C V̄ CC V̄/ and /C V̄ CCVC/ is likely to have developed by analogy with the obligatory syllabification /C V̄ C./ in word-final position.

The metrical parsing of a form such as [ʃɔ:. ɔm. ˈʁuː] would be [(* .) (‘)] , i.e. [([ʃɔ:. ɔm).('ʁuː:)]. As remarked already, the second syllable in the trochaic foot (* .) is heavy since it is bimoraic, but it would have been of relatively low prominence. The relative differences in prominence can be reconstructed on a metrical grid as follows:117

117 J. McCarthy (1979, 157) also proposed that such word-internal syllables were feet containing ‘two rhyme nodes’, though he did not identify an epenthetic in his framework of analysis.
I.2.5.7. **Vocalic Shewa after a Long Vowel**

I.2.5.7.1. **On Guttural Consonants**

In certain cases, a *shewa* after a long vowel in word-internal position was pronounced vocalic. This applies to all cases where the consonant after the long vowel is a guttural. In such cases, as is the rule with gutturals, the vocalic reading is explicitly indicated by *ḥāṭef* signs, e.g.

כֹהֲנִים \[kʰoːhaˈniːim\] ‘priests’

צֹעֲָּ֥יקֵָ֥ים \[sˁoːʕaˈqiːim\] (Gen. 4.10 ‘crying out’)

לֹחֲצִָ֥ים \[loːħaˈsˁiːim\] (Exod. 3.9 ‘pressing’)

כֹ אֲבִֵ֗ים \[kʰoːʔaˈvim\] (Gen. 34.25 ‘being in pain’)

Hypothetically it could have been possible for a type of furitive *pataḥ* vowel to have been inserted before the guttural, i.e. \[loːwahˈsˁiːim\], by analogy with gutturals in word-final position, as in, for example, \[moːwah\] ‘marrow’. The insertion of the epenthetic after the guttural had an orthoepic motivation. It was a more optimal position to make the guttural maximally perceptible before the following consonant. This also put the guttural in the onset of a syllable, which is a stronger position than the syllable coda and thus more optimal from an orthoepic point of...
view. The placement of the epenthetic before the guttural in word-final position, i.e. furtive pataḥ, is due to the fact that the constraint on word-final, unfooted CV syllables outranked the orthoepic principle of putting the guttural in onset position. The Babylonian reading tradition did not have such a constraint on word-final CV syllables and placed furtive pataḥ after a guttural in word-final position. This is attested where the final consonant is ʿayin (Yeivin 1985, 327–28), e.g.₁¹⁸

יַגִיעַ [jag'giːʕa] (L [BHS]: יַגִֹיעַ Isa. 8.8 ‘it will reach’)

ועַמד [mad'duːʕa] (L [BHS]: מַדִׂעַ Jer. 2.14 ‘why?’)

I.2.5.7.2. On Non-Guttural Consonants

The Masoretic sources list a number of cases where the shewa on non-guttural consonants after a long vowel is vocalic rather than silent according to the general rule. The early Tiberian Masoretic manuscripts vocalize many of these cases with ḥaṭef pataḥ to indicate that the shewa should be read as vocalic (§I.2.5.1.). As remarked above, some manuscripts vocalize in this way more frequently than others and it is particularly common in A.

I.2.5.7.3. Long Vowel before Two Identical Consonants

One notable case is a shewa under the first of a pair of identical consonants, which was vocalic if the preceding vowel was long, e.g.


₁¹⁸ Data supplied by Shai Heijmans.
The Tiberian Pronunciation Tradition of Biblical Hebrew

L: וּסָבְב [sɔvəˈvu:] ‘they surrounded’ (A: סָבְבָּ, Josh. 6.15)

L: וּשׁוֹטְט [ʃoːtəˈtuː] ‘run to and fro!’ (A: שׁוֹטֶ, Jer. 5.1)

L: וְעֹלָוֹת [ʕoːlaˈloːoθ] ‘gleanings’ (A: עֹלָ, Jud. 8.2)

L: חֹקְי [ħoːqaˈq̟iː] ‘one who carves’ (A: חֹקָ, Isa. 22.16)

L: בְּתוֹכִם [baθoːχ̟aˈχ̟em] ‘in your presence’ (Gen. 23.9)

L: הֹלִיךְ [hoːliːχ̟aˈχ̟ɔː] ‘he caused you to go’ (Deut. 8.2)

The insertion of the epenthetic between the consonants was most likely favoured since it made the two identical consonants more perceptible and so ensured that they were not slurred together and contracted in the reading. The vocalic shewa, therefore, here has an orthoepic motivation. In a CV̄CC sequence one repair strategy of the overlong syllable CVC would have been to elide the consonant in the coda. This would have been easier where there was a sequence of two identical lexical consonants.

If the preceding vowel was short, the shewa was silent.119 This was due to the fact that the syllable CVC with a short vowel was bimoraic and not subject to any change to optimize its weight, e.g.

L: הִנְנִי [hinˈniː] ‘behold me’ (Gen. 6.17)

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L, A: הַרְרֵי־קֶֹ֑דֶם [harreː] ‘the mountains of old’ (Deut. 33.15)

L, A: רבְבַ֣וֹתַאֶפְרִַ֔יִם [riv’voːoθ] ‘the ten thousands of Efraim’ (Deut. 33.17)

L, A: חִקְרֵאָּ֣ו Theodore [hiqqeː] ‘decrees of iniquity’ (Isa. 10.1)

L, A: הַisión [jillɔːˈθɔːɔ] ‘its wailing’ (Isa. 15.8)

L: וּ ִׂ֖וְשָּׁדוֹד [vaʃɔðˈðuː] ‘and devastate!’ (A: וּ ִׂ֖וְשֳׁדְד, Jer. 49.28)

Note that in the last example, A indicates the shortness of the vowel in the closed syllable by הָטֶף gemes sign.

In six words, however, shewa on the second of two identical letters after a long vowel is silent, in all of which the long vowel has the main stress. These are the following:120

L, A: יִמְצָּא נְנִי [jim̩sˁɔːˈʔuː nnīː] ‘they (m) will find me’ (Prov. 8.17)

L, A: יְשַׁחֲר נְנִי [jaʃaːhaˈrˁuː unniiː] ‘they seek me’ (Hos. 5.15)

L, A: יְ כֶַ֫בְּדָָ֥נְנִי [ˌjaˑχabbaˈðɔːɔ nnniː] ‘he honours me’ (Psa. 50.23)

L, A: יִמְצָּא נְנִי וְשָּׁדוֹד נְנִי ... יְשַׁחֲר נְנִי ... jaʃaːhaˈrˁuː unniiː va’loː jimsˁɔːˈʔuː nniiː] ‘they call me ... they seek me but do not find me’ (Prov. 1.28).

This can be explained on metrical grounds in the same way as the difference between שְׁמַעֲנוּהַ and וּשָּׁמִׂע (§I.2.5.4.) The occurrence of vocalic shewa after the main accent in יִמְצָא נְנִי is not optimal since the final syllable after the accent is extrametrical and unfooted and a vocalic shewa is a weak syllable that is obligatorily footed and metrically bound to a following strong syllable.

When the accent on a word is retracted by *nesiga* onto a long vowel before two identical consonants, A marks the *shewa* on the first consonant as vocalic by *ḥaṭef pataḥ* in virtually all cases, e.g.

L: בָּּ֥זְזוַּבַ ז [ˈbɔːzazuː ˈbaːaz] ‘they took plunder’ (A: וּבָּּ֥זְזוַּב, Isa. 33.23)

L: נָֹ֥סְסָּהַב [ˈnoːsasɔː ˈvoː] ‘it drove it on’ (A: נָֹ֥סֲסָּה, Isa. 59.19)

L: וְיִסָּוֹבְַ [viːˈsoːvavuː ˈʕiːiʀ̟] ‘and they go around the city’ (A: וְיָסְבוּב, Psa. 59.7)

L: וֹוּדֶקַקְוַ hakk [joˈħoːq̟ aq̟uː ˈsˁeːðɛq̟] ‘they decree what is just’ (A: וּוָּ֥קְקִי, Prov. 8.15)

In one case that is extant in A, however, a *shewa* is written rather than a *ḥaṭef pataḥ*. The consonant following the retracted accent here is the sonorant *nun*:

L: תִּתְבָּנְנ [ˈtittəbnən] ‘you will understand it’ (A: וּתִתְבָּנְנ, Jer. 23.20)

It is clear from the vocalization in A of the majority of examples that the retraction of the accent did not cause the *shewa* to become silent.¹²¹ As noted above (§I.2.5.4.), in the sequence of rules of derivation, the retraction of an accent appears to have taken place after the syllable structure had been established. With regard to וּתִתְבָּנְנ (Jer. 23.20), in which A has a simple *shewa* sign, it is likely that here too the *shewa* was read as vocalic, since the *Treatise on the Shewa* states that the *shewa* on the first of two

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¹²¹ This is contrary to the claim of Dotan in his notes to his edition of *Diqduqe ha-Ṭeʿamim* (1967, vol. 2, 192) that the *shewa* was silent in all these cases.
identical letters after the vowel holem was read in all cases without exception as vocalic (ed. Levy 1936, י-ז). 

I.2.5.7.4. Long Vowel in a Prefixed Particle before Resh 

According to the Treatise on the Shewa published by Levy (1936), if resh with shewa is the first letter of a noun and is preceded by a prefixed grammatical particle that is vocalized with qames or šere, the shewa was pronounced vocalic. The relevant passage is as follows (Levy 1936, י-ז):

Rule concerning the resh that causes shewa to be vocalic: Whenever resh has shewa under it and is the second letter of the word, the shewa is always pronounced like pataḥ, as in יְחוֹלָֹ֑לוַּהָּרְפָּאִָ֥ים (Job 26.5 ‘the shades tremble’), and as in מְרָכֹֿ֑שׁ בְּרֵכְשׁ (2 Chron. 35.7 ‘from the possession of’), בְּרַכְשׁ (Ezra 1.6 ‘with goods’), בְּרַחְוָו (Gen. 19.2, etc. ‘in the street’), בְּרַחְוָוהַ (Prov. 7.12, etc. ‘in the streets’), בְּרַחְוָים (Neh. 4.15 ‘[held] onto the spears’), בְּרַחְוָים (Neh. 4.10 ‘and the spears’), and other cases. Know that this rule applies only when it [i.e. resh] is preceded by qames or šere [lit. two dots]. If it occurs without these two signs (preceding it), it is never pronounced like pataḥ, as in יְורְדִִ֔ים (Jud. 9.37 ‘coming down’), מְרָדֹיָם (Neh. 2.19 ‘rebelling’), מִרְדָּבֹת (Ezra 10.9, etc. ‘in the open square of’), מֵרְכֹּת (Esther 1.8 ‘according to the will of’), מֵרַדְּעִ (1 Sam. 23.28, etc. ‘from pursuing’), מֵרַחְוָ (Deut. 16.20, etc. ‘you shall pursue’). The whole of Scripture follows this rule. The words that I have just shown you, under which
the shewa is vocalic, are only nouns. Do not mix these with verbs and fall into error.\textsuperscript{122}

The intention of the statement that the shewa is pronounced as patah (yuftah) is that the shewa was pronounced vocalic. This was the default pronunciation of vocalic shewa and was the pronunciation of most of the cases cited, e.g. הָּרְשָּׁעִֹ֑ים [hɔːɭʃɔːˈʕiːm], מְרָבְשִּׁים [meːɾɔˈʃum]. In some of the cases cited in the Treatise on the Shewa, however, the vocalic shewa occurs before a guttural and so one would expect that it would have had the quality of the vowel after the guttural, e.g. בָּרְחִׂ֖וֹב [vɔːɭoˈħoːv]. In some cases in the early manuscripts, the quality of the vocalic shewa before the guttural is made explicitly by a hatef sign, e.g. בָּּרֳהָּטִִׂ֖ים [bɔːɭɔːˈtˀim] (L [BHS] Gen. 30.38 ‘in the troughs’).

The reading of the shewa as vocalic in these forms appears to have had a morphological motivation. It was a strategy to keep the morpheme boundary perceptually distinct, aligning the prosody with the morphology by creating a foot boundary between the grammatical affix and the stem of the word:

\[
\begin{align*}
\text{hɔ.} & \quad \text{ʁa.} & \quad \text{ʃɔ.} & \quad \text{ˈiː.} & \quad \text{im} \\
\text{(*)} & \quad (.) & \quad (\ast) & \quad (\ast) & \quad .
\end{align*}
\]

\textsuperscript{122} שָׁתַּא אֶלְּשָׁנִּיס בָּּרְלָחְוָנִים: כְּרֵישׁ הָתֶחָה שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָא שָׁאָמַר הָאָלְמָา.
In the same phonological conditions, i.e. resh preceded by long qames or šere, in other contexts the shewa was generally silent and the resh footed with the preceding syllable, e.g. in the following verbal forms (feet indicated by round brackets):

\[
\begin{align*}
\text{יוּרְד} \ [\text{(jɔː.ɔ}_1\text{.ʔu:_)}] & \ 'they went down' \ (\text{Exod.} \ 15.5) \\
\text{יוֹרְד} \ [\text{(jɛ:_e}_1\text{.ʔu:_)}] & \ 'they (m) will come down' \ (1 \text{Sam.} \ 13.12) \\
\text{יוֹרְדִּים} \ [\text{(jo:_o}_1\text{.ʔu:_)}] & \ 'coming down (mpl)' \ (\text{Jud.} \ 9.37)
\end{align*}
\]

The statement at the end of the passage from the Treatise on the Shewa implies that the reading of the shewa as vocalic after a prefixed grammatical particle only applied to nouns, suggesting that in forms such as תמֵרְאֹ (Isa. 21.3 ‘from seeing’), מֵרַעֵ֣וֹת (Ezek. 34.10 ‘from feeding’), מֵרְדָָ֣ה (Gen. 46.3 ‘from going down’) the shewa would be silent, viz. [me_1.ɛξ̂.ʔo:θ], [me_1.ɛξ̂.ʔo:θ], [me_1.ɛξ̂.ðɔː]. In the Hebrew Masoretic treatise §11 in Baer and Strack’s (1879) corpus, however, it is stated that the shewa in תמֵרְאֹ (Isa. 21.3) and מֵרַעֵ֣וֹת (Ezek. 34.10) is read vocalic.

The strategy of reading the shewa as vocalic to mark the morpheme boundary only applied to cases where the particle had a vowel phoneme with inherent length, i.e. long qames /ɛ̄/ or long šere /ē/. In such cases, the reading of an epenthetic after the resh would be achieved by syllabifying the resh in the onset of the initial syllable of the noun, e.g. מִרְכָּ֣ב (mē.ɾəχ̄.b̄) [me_1.ɾə.χ̄.b̄]. When the particle had a short vowel phoneme, e.g. בִּרְחוֹב, the syllabification of the resh in the onset would require compensatory lengthening by the replication of the short pho-
neme to fill the slot of the \textit{resh}, i.e. /bir.hō.v/ > /bii.rhō.v/. Evidently, there was a constraint against this additional adjustment of the syllable structure.

The \textit{Diqduqe ha-Ṭeʿamim} (ed. Dotan 1967, §20) includes some cases of constructions consisting of a prefixed particle with \textit{gāmes} or \textit{sere} before \textit{resh} as examples of the practice of the Masorete Pinḥas Rosh ha-Yeshiva to use \textit{ḥatef pataḥ} to indicate that a \textit{shewa} on a non-guttural consonant was vocalic, viz.

\begin{itemize}
  \item מֶפְרִידִים ‘\textit{from Rephidim}’ (L [BHS]: מֶפְרִידִים, Exod. 19.2)
  \item הָרֲחַת ‘\textit{the respite}’ (L [BHS]: הָרֲחַת, Exod. 8.11)
  \item הָרֲבִיעִית ‘\textit{the fourth}’ (L [BHS]: הָרֲבִיעִית, Gen. 2.14, etc.)
  \item הָרֲכִים ‘\textit{the property}’ (L [BHS]: הָרֲכִים, Num. 16.32, 1 Chron. 27.31, 2 Chron. 21.17)
  \item הָרֲשָׁעִים ‘\textit{the bad ones}’ (L [BHS]: הָרֲשָׁעִים, Exod. 9.27, etc.)
\end{itemize}

With the exception of הָרֲכִים (Num. 16.32), L vocalizes all cases of \textit{resh} in these constructions with a simple \textit{shewa}. Even in Num. 16.32 the \textit{ḥatef pataḥ} is misshapen and the \textit{pataḥ} appears to have been added during a later revision. As one would expect, A marks a \textit{ḥatef pataḥ} in many cases to indicate explicitly that the \textit{shewa} was vocalic. The extant examples include:

\begin{itemize}
  \item הָרֲבִיעִית ‘\textit{the fourth}’ (L [BHS]: הָרֲבִיעִית, 1 Kings 6.37)
  \item הָרֲכִים ‘\textit{and the rough places}’ (L [BHS]: הָרֲכִים, Isa. 40.4)
  \item הָרֲשָׁעִים ‘\textit{and the wicked}’ (L [BHS]: הָרֲשָׁעִים, Isa. 57.20)
  \item בָּרֲשָׁעִים ‘(do not envy) the wicked’ (L [BHS]: בָּרֲשָׁעִים, Prov. 24.19)
\end{itemize}
Vowels and Syllable Structure

It is significant to note, however, that a proportionally larger number of cases of these constructions are vocalized in A with simple shewa. Some selected examples include:

- ’הָּרְבִיעִֹי ‘the fourth’ (Josh. 19.17 + 20 other cases)
- ’בָּּ רְבִיעִי ‘on the fourth’ (Ezek. 1.1)
- ’הָּרְבִיעִֹית ‘the fourth’ (1 Kings 6.1, + 8 other cases)
- ’הָּרְשָּׁעִֹים ‘the evil ones’ (Zeph. 1.3 + 3 other cases)
- ’לָּרְשָּׁעִ ים (Isa. 48.22 + 1 other case)
- ’מֵרְשָּׁעִִׂ֖ים ‘from wicked ones’ (1 Sam. 24.14 + 5)

These include cases in which a preposition is attached to a verbal infinitive and so, judging by the statement in the Treatise on the Shewa, one would expect the shewa to be read as silent:

- ’מֵרְאָ֣וֹת (Isa. 21.3 + five other cases)
- ’מֵרְעַ֣וֹת (Ezek. 34.10)

It is possible that the use of simple shewa in A before many nominal forms is due to inconsistency of the marking of ḫaṭef patah on non-guttural consonants. There are also a number of cases in A in which a vocalic shewa would have had the quality
of [o] before guttural with ʰolem. In such cases, there was no available ʰaṭef sign to represent this quality, e.g.

הָּרְחוֹּֽוָּם ‘the distant ones’ (Isa. 46.12, 66.19)

וּבָּֽרְחֹֽוָּוֹת ‘and in the squares’ (Cant. 3.2)

מֵרְחַֽוָּב ‘from the square of’ (2 Sam. 21.12)

Some of the Karaite transcriptions use the Arabic sukūn symbol to mark explicitly that a shewa is silent. It is significant that examples can be found in the manuscripts of the sukūn marked on the transcription of resh where, according to the rule in the Treatise on the Shewa just described, one would expect the shewa to be vocalic, e.g.

וּבָּֽרְחֹֽוָּוֹת (BL Or 2554 fol. 56v, 9 | L [BHS]: וּבָּֽרְחֹֽוָּוֹת Cant. 3.2 ‘and in the squares’)

This indicates that in some streams of the Tiberian tradition the shewa was not consistently pronounced vocalic after a long vowel of a prefixed particle.

I.2.5.7.5. Shewa in Inflections of Specific Verbal Roots

A shewa on the medial radical of the verbal roots שׁגר ‘to drive out’, ל”אכ ‘to eat’, ḫבר ‘to bless’, ḫאש ‘to go down’, and ḫל ‘to go’ is vocalic after a long vowel in certain circumstances, according to Ben Asher. In some of the cases where Ben Asher read the shewa as vocalic, Ben Naftali read it as silent.
In forms with *shewa* on the *resh* following a long vowel from the root "בר" 'to bless',\(^{123}\) if the accent is on the *bet*, the *shewa* is silent. This applies to cases where the accent has been retracted by *nesiga*, e.g.

L: וּבָּוַֹוְהִתְבָָּּ֥רְכ [vihiθˈbɔːɔʀ̟χuː ˈvoː] 'they will bless themselves in him’ (A: וּהַתְבָּּ֥רְכ, Jer. 4.2)

L: וּבָּוַֹוְיִתְבָָּּ֥רְכ [vi jiθˈbɔːɔʀ̟χuː ˈvoː] ‘and may they bless themselves in him’ (A: וּוְיִתְבָּּ֥רְכ, Psa. 72.17)

L: וּבֹ֑וַֹוְיִתְבָָּּ֥רְכ [vijiθˈbɔːɔʀ̟χuː ˈvoː] 'bless!‘ (A: וּוְיִתְבָּּ֥רְכ, 1 Chron. 29.20)

If, however, the accent is on the *kaf*, the *shewa* after a long vowel is vocalic.\(^{124}\) The manuscript *A* regularly indicates the vocalic realization by a *ḥaṭef pataḥ* sign and this is frequently the case also in *L*, e.g.

L: בָּּרֲכֵָ֥נִי [b ɔː ɾ aˈχeːniː] ‘bless (ms) me!’ (Gen. 27.34)

L: בָּּרֲכָ֥וַּיְהוֵָּ֗ה [b ɔː ɾ aˈχ uː] ‘bless the Lord’ (A: וּ ָ֥רְכ, Psa. 103.20)

L: נִָּׂ֖אַבָָּּ֥רְכ [ˈ ˈb ɔː œ r̟χ uːnɔː ˈnɔː] ‘in order that your soul blesses me’ (Gen. 27.19)

L: בַּעֲבִׂ֖וּרַתְבָּרֲכַָ֥נִּי [tav ɔː ɾ aˈχ aːn niː] ‘bless the Lord’ (Jud. 5.2)

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\(^{124}\) According to *Diqduqe ha-TeV’amim* (ed. Dotan, 1967, §21) the only exception in the Bible is the Aramaic form בָּּרְכִֵ֔ת ‘I blessed’ (Daniel 4.31), in which the accent falls on the syllable beginning with the *kaf* but the *shewa* is silent.
The marking of haṭef pataḥ is not completely regular in L and, moreover, many cases seem to be corrected from an original simple shewa sign. Other manuscripts written by the scribe of L, Samuel ben Jacob, mark the haṭef pataḥ more regularly, such as the manuscript known as L17:  

L: וּבָּרְכִּי [wuvɔːᵝrˈχi] ‘and bless’ (L17, A נברך, 2 Sam. 21.3)  
L: לא תברך [θavɔːᵝrˈχɛːɛ] ‘do not bless him’ (L17, A תברך, 2 Kings 4.29)  

The shewa was vocalic also when a secondary accent occurred on the syllable beginning with the bet. This is the case, for example, in the following form, although it is written with a simple shewa in L:  

L: מְבַָּרְַכִֶ֔ך [maˌvɔːᵝrˈχɛːχɔː] ‘and I will bless those that bless you’ (Gen. 12.3)  

According to Masoretic sources, Ben Asher read a shewa on the resh in forms from the root שגח ‘to drive out’ as vocalic

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125 The manuscript in the I Firkovitch collection labelled L17 by Yeivin (1968) has recently been identified by Phillips (2017) as being written by Samuel ben Jacob. See Phillips (2020) for a study of distribution of haṭef pataḥ in L, L17 and other manuscripts attributed to Samuel ben Jacob.  
126 This is confirmed by Hidāyat al-Qāri‘, which states that מברך ‘has two accents and the shewa is vocalic’ (Long version, edition in vol. 2 of this book, §II.L.3.2.7.).  
127 Baer and Strack (ed. 1879, §52), Kitāb al-Khilaf (ed. Lipschütz 1965, 17).
when the third radical has *segol* before a suffix with a geminate *nun*, i.e. in the following three forms:

L: [ʔaʁɔːʁaˈʃɛːɛnuː] ‘I will not drive them out’
(Exod. 23.29)

L: [ʔaʁɔːʁaˈʃɛːɛnuː] ‘I will drive them out’
(Exod. 23.30)

L: [ʔaʁɔːʁaˈʃɛːɛnuː] ‘and I will drive them out’
(Num. 22.6)

Elsewhere Ben Asher read a *shewa* on the *resh* of forms from this root as silent, e.g.

L: [vajʁɔːɔʁ̟ˈʃuː] ‘and they drove out’
(Jud. 11.2)

L: [ʁeːʃːiːniː] ‘they have driven me out’
(1 Sam. 26.19)

There was one exception, in which Ben Asher read the *shewa* as vocalic (indicated by *ḥatef patah* in L and A):

L, A: [ˌvaːjʁɔːʁ̟aˈʃeːhuː] ‘and he drove him out’
(Psa. 34.1)

By contrast, Ben Naftali read the *shewa* in all forms of the root שַׁר as silent.\(^{128}\)

The same applies to the root [אכ"ל.\(^{129}\) Ben Asher read the *shewa* as vocalic in forms in which the third radical has *segol* before a suffix with geminate *nun*. These amount to 24 cases in total in the Hebrew Bible. All cases that are extant in A are

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\(^{128}\text{Kitāb al-Khilaf (ed. Lipschütz 1965, 17, מ, ).}\)

vocalized with a ֶ֔הָטֶפַּה patah. In L the marking of ֶ֔הָטֶפַּה patah is not systematic. The ֶ֔הָטֶפַּ sign is found in only 14 cases out of 24, and in some of these the ֶ֔הָטֶפַּ appears to be a later modification of an original simple shewa sign:130

L: תֹאכֲלֶ֔נָּּה [tʰoːχaˈlɛːɛ nnɔː] ‘you shall eat’ (Gen. 3.17)
L: יֹאכֲלֶ֔נָּּה [joːχaˈlɛːɛ nnɔː] ‘he may eat it’ (Lev. 6.11)
L: וּתֹאכֲלֶֹ֑נּ [tʰoːχaˈlɛːɛ nnuː] ‘you may eat it’ (Num. 18.10)
L, A: תֹאכֲלֶֹ֑נָּּה [tʰoːχaˈlɛːɛ nnɔː] ‘you (ms) shall eat it’ (Ezek. 4.12)

Examples from L with simple shewa:

L: יֹאכְלֶֹ֑נּ [joːχaˈlɛːɛ nnuː] ‘he may eat it’ (Lev. 7.6)
L: נַֹ֣אכְלִֶ֔נּוּוְַ [vanoːχaˈlɛːɛ nnuː] ‘that we may eat him’ (A: נַֹ֣אכְלִֶ֔נּוּוְַ, 2 Kings 6.28)
L: נַֹ֣אכְלִֶ֔נּוּוְַ [vanoːχaˈlɛːɛ nnuː] ‘that we may eat him’ (A: נַֹ֣אכְלִֶ֔נּוּוְַ, 2 Kings 6.29)

In other contexts, Ben Asher read the shewa as silent. In L and the extant portions of A a simple shewa sign is regularly marked in such cases:

L: נַֹ֣אכְלִֶ֔נּוּוְַ [vanoːχaˈlɛːɛ luː.un] ‘you shall [not] eat’ (Num. 11.19)
L, A: וּנַֹ֣אכְלִֶ֔נּוְַ [vanoːχaˈlɛːɛ luː] ‘and they ate’ (Jos. 5.11)
L, A: וּנַֹ֣אכְלִֶ֔נּוְַ [joːχaˈlɛːɛ luː] ‘they will eat’ (1 Kings 21.23)

130 Cf. Phillips (2020), who notes that simple shewa is marked in these forms in the extant portions of other manuscripts written by Samuel ben Jacob, the scribe of L.
The sources indicate that also in the following form, where the *lamed* has *segol* but is not followed by a geminated *nun*, Ben Asher read the *shewa* as silent:

L: אֹכְלֶֶ֑יהַָּ [ʔoːχˈlɛːhɔː] ‘those (m) who eat it’ (Ecc. 5.10)

By contrast, Ben Naftali read the *shewa* as silent in all forms of the root לְאכ׳, including those that are followed by a suffix with *segol* and geminated *nun*.\(^{131}\)

According to *Diqduqeq ha-Ṭeʿamim* (ed. Dotan 1967, §25), when forms from the roots ד"ר ‘to come down’ and צ"ה ‘to go’ are in *dehiq* constructions (§1.2.8.1.2.) and are followed by a word beginning with a consonant with *dagesh*, then a *shewa* on the medial radical is vocalic. In L all of the cases are vocalized with *ḥaṭef pataḥ*, but most of these are the result of later corrections from an original simple *shewa* sign,\(^{132}\) e.g.

L: אֵרדְה־נַָּ [ʔeːr̟aðɐˑ-ˈnnɔː] ‘I will go down’ (Gen. 18.21)

L: אֵלֲכָּהַנֵָּ [ˈʔeːla.χɔˑ-ˈnnɔː] ‘let me go’ (Exod. 4.18)\(^{133}\)

L: נֵלֲכָּה־נָּ֞ [ˌneːla.χɔˑ-ˈnnɔː] ‘let us go’ (Exod. 3.18)

In the extant portions of A and in L17 (written by the scribe of L) they are regularly vocalized with *ḥaṭef pataḥ*, e.g.

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\(^{131}\) Kitāb al-Khilaf (ed. Lipschütz 1965, 17, ג). Phillips (2020) suggests that the frequent lack of *ḥaṭef pataḥ* in this verb in L where Ben Asher read the *shewa* as vocalic may reflect that the scribe of L intended the vocalization to reflect a tradition corresponding to that of Ben Naftali.

\(^{132}\) Dotan (1967, 276), Phillips (2020).

\(^{133}\) In BHS the word is vocalized אֵלֲכָּה according to the vocalization of the first hand in the manuscript.
L, A: לָּנַוְנֵלֲכָּה (1 Sam. 26.11)
L, A: נַנֵלֲכָּה (2 Kings 6.2)
L, A: נַלֲכָּה ‘I shall go’ (Jer. 40.15)\(^\text{134}\)
L, A, L17: נַלֲכָּה ‘let us go there’ (1 Sam. 9.6)
L, A, L17: נַלֲכָּה ‘I shall go’ (2 Sam. 15.7)

Diqduqe ha-Ṭeʿamim only mentions these two verbs in this rule. Saadya, however, in his Kutub al-Lugha gives the general rule that shewa after a long vowel is always vocalic when the vowel two syllables after it is stressed and is preceded by dagesh (ed. Dotan 1997, 464–69). In addition to forms of the verb יַלְכָּה, he cites the following examples:

L: וְנִַ֣ירֲשָּׁהַלָֹּ֑נ ‘let us take possessions for ourselves’ (A: נִירֲשָׁה, Psa. 83.13)
L: נַרְוָרָּה-בָָּ֜הּ ‘there is left in it’ (A: נַרְוָרָּה, Ezek. 14.22)
L: יִרְעָּהַלּ וֹ ‘his soul trembled’ (A: יִרְעָּה, Isa. 15.4)

Only the first of these examples is vocalized with hatef pataḥ in A. Saadya also cites the following Biblical Aramaic form as a case that follows the rule and so has vocalic shewa after the long vowel. This form is not a deḥiq construction, but has a dagesh in a suffix:

\(^{134}\) In BHS the word is vocalized נלֶלֶכָּה according to the vocalization of the first hand in the manuscript.
Vowels and Syllable Structure

L: יְשֵׁזְבִינָּו [jaʃeːzavˈinən] ‘he will deliver you’ (Dan. 6.17)

There are numerous other cases attested in the Hebrew Bible with the structure that according to Saadya’s formulation of the rule would be expected to have a vocalic shewa, although he does not refer to them explicitly. In all such cases, both L and A have a simple shewa sign, suggesting that these manuscripts reflect a reading with silent shewa, e.g.

L, A: יְשִׁפְּהֵלָה [jaʃeʃˈeːlə] ‘it has oppressed me’ (Isa. 38.14)
L, A: יָשָׁה [jaʃeˈa] ‘it did that’ (Isa. 41.20)
L, A: יָשָׁה [jaʃeˈa] ‘it breathed upon it’ (Isa. 40.7)
L, A: יָשָׁה [jaʃeˈa] ‘it was pleasant to me’ (Jer. 31.26)

Some Karaite transcriptions explicitly mark the shewa as silent in such forms by an Arabic sukūn sign, e.g.

(BL Or 2548 fol. 50v, 7 | L [BHS]: יָשָׁה [jaʃeˈa] Isa. 41.20 ‘it did’)

The manuscripts L and A sporadically mark a hatef patah in place of shewa after a long vowel in forms that are not mentioned in the Masoretic sources, e.g.

L, A: יָאַכְרֲבֶּנה [jaχəɾˈbeː娜] ‘I would approach him’ (Job 31.37)
L, A: יָהַטְמַרְ ז [jaχəɾˈmeːʐ] ‘columns’ (Joel 3.3)
A: יָאַלֲתֵל [jaχalˈteːl] ‘the power has gone’ (L [BHS]: יָאַלֲתֵל [jaχalˈteːl], Deut. 32.36)

In most cases where the shewa is vocalic in the forms cited in this section, one of the consonants involved is a sonorant ר /r/ or ל /l/. The general rule given by Saadya, however, would
potentially include cases where the sequence of consonants does not include a sonorant, and he indeed cites one such example from Biblical Aramaic (מִיתְיָע). The consonants in potential contact here, nevertheless, are still relatively weak (fricatives). The distribution of ḥatef pataḥ in A, on the other hand, appears to indicate that shewa was frequently read as silent in the context that Saadya claims would have a vocalic shewa, including several cases where one of the consonants is a sonorant.

There was variation with regard to the reading of the shewa in these contexts in various streams of the Tiberian tradition, as shown, for example, by the differences between Ben Asher and Ben Naftali in this regard that are referred to in Kitāb al-Khilaf. Saadya presents a type of reading in which the shewa was more regularly read as vocalic than in the traditions of Ben Asher and Ben Naftali and the evidence reflected by the early Bible codices.

The result of the reading of the shewa as vocalic was to break the contact between two consonants. This would have ensured that each consonant was flanked by vowels. The motivation for this may have been to increase the salience of the sonorants, which were weak consonants and vulnerable to loss or inadequate realization in certain circumstances.

In many of the forms discussed above, the shewa is read as vocalic where the form in question contains a geminated consonant in a suffix (e.g. ṣḥālēn Gen. 3.17) or a following word to which the first word is bound prosodically by maqqef or dehiq (יִּֽלְכַּה 2 Kings 6.2, יִֽלְכַּה Exod. 4.18). This may have induced a quicker reading of the syllables and so increased the potential weakness of the sonorants. The Hidāyat al-Qāri’ refers to the
quick reading and compression of vowels in constructions with dagesh associated with deḥiq (see §I.2.8.1.2.). Furthermore, long vowels in closed syllables in words read with a quick tempo were particularly vulnerable to contract due to their suboptimal structure. In the Karaite transcriptions, for example, a long vowel in a closed syllable in a word bound by maqqef to what follows is sometimes transcribed without a mater lectionis, reflecting the shortening of the vowel, e.g.

הָּד (Genizah MS 13, Khan 1990a, 13 | L [BHS]: יהוד Psa. 111.3 ‘majesty’)

הָנ (Genizah MS 13, Khan 1990a, 13 | L [BHS]: יהונ Psa. 112.3 ‘wealth’)

This potential contraction would have been prevented by reading the shewa as vocalic.

In forms with suffixes such as אַשָּׁפָל it could be hypothesized that the prolonged timing of the gemination resulted in a corresponding quickening of reading of the rest of the word.

With regard to the rules relating to the reading of forms from the root בָּרִך, in a form without the stress before the resh such as בָּרִכִּי (Gen. 27.34) the resh may have been weaker than in a form in which the stress is placed before the resh, such as בָּרִכְתְּדוּ (Jer. 4.2), and this motivated a reading with vocalic shewa that made the sonorant resh more salient in the first type of form.
1.2.5.7.6. Eliphelehu

In A a ḫaṭef pataḥ is written on the pe after a long vowel in the proper name וּוֶאֱלִֵ֨יפֲלֵָ֜הוּ [nuːʔeɪliːfeːhuː] ‘and ‘Eliphelehu’ (לַוֶאֱלִ יפְלֵָ֜הוּ, 1 Chron. 15.18). This indicates that the shewa was read as vocalic although it is preceded by a long vowel. The etymology of this name is not fully clear (possibly: ‘God distinguishes him’ < אלה + אל). The vocalic shewa evidently reflects the interpretation of the name as a compound with a morphological division after the initial element אלה.

1.2.5.8. Vocalic Shewa after Short Vowel Phonemes

A shewa in the middle of a word on a consonant without dagesh after a short vowel is normally silent and syllabified with the consonant that precedes it, e.g.,

מַמְרִֵׂ֖א [mam.ˈɾɐ̂ː] (Gen. 13.18) ‘Mamre’

In some circumstances, however, a consonant with shewa after a short vowel is syllabified in the onset of the following syllable. In such cases, the preceding short vowel is lengthened in compensation. This applies to the following cases.

1.2.5.8.1. The Definite Article

When the definite article is attached to a word beginning with the sonorant consonant mem with shewa, the gemination of the mem expected after the article is often lost, but the mem is syllabified with what follows, e.g.

הַ מְדַבֵָּ֥ר [haːmaðabˈbeːre] ‘the one speaking’ (Gen. 45.12)
As can be seen, the *pataḥ* of the article is lengthened by compensation. This can be analysed as the replication of the short /a/ phoneme to take the place of /m/, i.e.

/ham.mḏab.bē.r/ > /haa.mḏab.bē.r/

This compensatory lengthening is regularly marked by a *gaʿya* sign in the manuscripts. Yeivin (1980, 257–264) refers to the *gaʿya* in his context as a ‘phonetic *gaʿya*,’ i.e. it reflects lengthening for the sake of resyllabification rather than musical cantillation. A *pataḥ* in an unstressed syllable followed by *shewa* would otherwise be read as a short vowel in a closed syllable. As with the case of a *shewa* on *resh* after the article (§I.2.5.7.4.), here also the motivation for this syllabification is morphological. Placing the *mem* in the syllable following that of the article creates a prosodic division between the article and the stem of the word following it. The compensatory lengthening, moreover, makes the article bimoraic and so brings it into line with its normal weight in other contexts, i.e. [hVC] or [hVV].

This resyllabification and compensatory lengthening do not take place in all cases where the gemination in *mem* is lost after the article. According to *Hidāyat al-Qārī*, the length of the word is a conditioning factor:

In words containing not more than five letters the *shewa* is vocalic, as in הָרְוִָּ֔הַ מְס כַָּ֣ן ‘he who is impoverished in respect to offering’ (Isa. 40.20), הַ מְדַבֵָּ֥ר ‘the one speaking’ (Gen. 45.12, etc.), except for one case, namely הָרְוִָּ֔הַ מְשׁ גָָ֥ע ‘this madman’ (2 Kings 9.11).\(^{135}\)

In all such words in L a gaʿya occurs on the pataḥ after the he, with the exception of הַמשֵּׁע (2 Kings 9.11). In A the vocalic shewa in such forms with an article is represented by ḫatef pataḥ, e.g. אַשְׁפָּן (Isa. 40.20), לְפָנָי (2 Sam. 14.10), but in הַמשֵּׁע (2 Kings 9.11) simple shewa is marked, reflecting the fact that it was read as silent.

*Hidāyat al-Qāri* was referring to cases where the article is not preceded by a prefixed preposition. There are more exceptions among forms that have such prepositions before the article, e.g.

L, A: בַּמְצָֹּ֑ד ‘in the stronghold’ (1 Chron. 11.7)

L, A: לְפָנָי ‘to the stronghold’ (1 Chron. 12.9)

L, A: לְמַעֲצָּר ‘to the choirmaster’ (Psa. 4.1, and *passim*)

L, A: לְלַמְנַצֵָ֥ח ‘for destiny’ (Isa. 65.11)

As in הַמשֵּׁע, the shewa in these words without gaʿya was silent. The passage in *Hidāyat al-Qāri* continues:

As for words beginning with he and mem that have more than five letters, ... when the accent is on the fourth letter, the shewa is vocalic, for example, הַמְחַכִַ֣ים ‘those who wait’ (Job 3.21), הַמְנַדִִׂ֖ים ‘those who remove’ (Amos 6.3), and the like.136

Again A has ḫatef pataḥ in the cited words הַמְחַכִַ֣ים הַמְנַדִִׂ֖ים. In the medieval manuscripts words fitting the description in this passage have gaʿya and vocalic shewa (indicated by ḫatef pataḥ in the extant sections of A), with only a few exceptions, e.g. הַמְיַלֶּהַ דִּקְנֵי.

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‘the midwife’ (Gen. 35.17) and, if the vowel letter is ignored, מְשׁוֹרִֵ֔רהַַ ‘the singer’ (L and A, 1 Chron. 6.18), which do not have gaʿya and so the shewa was silent.

With regard to longer words, *Hidāyat al-Qāriʾ* states the following:

As for words beginning with *he* and *mem* that have more than five letters, the rule concerning these is that if the accent is on the fifth letter or later, the shewa is silent, for example מָדַבְּרֵיס ‘those who speak’ (Exod. 6.27), מָאָרֲרִִׂים ‘those that curse’ (Num. 5.19), apart from some exceptions that deviate from this rule, for example מַבַּקְשִים ‘those who seek’ (Exod. 4.19, etc.).

In a form such as מָדַבְּרֵיס the gaʿya reflects the lengthening of the *pataḥ* after the *he* but the shewa on the *mem* is silent. The key factor that conditions the reading of the shewa as silent emerges more clearly from *Diqduqe ha-TeVʿamim* (ed. Dotan 1967, §14), where a more detailed list of forms with silent shewa on the *mem* is given. The full list of these forms with silent shewa is as follows:

L: מָדַבְּרֵיס [ˌhɑˑmðabbaˈɾ̟iˑim] ‘those who speak’ (Exod. 6.27)

L: מְיַלְּדֹת [ˌhɑˑmjallaˈdoːθ] ‘the midwives’ (Exod. 1.17)

L, A: מְזַמְּרַ֣וֹת [ˌhɑˑmzammaˈɾ̟oˑθ] ‘the snuffers’ (2 Kings 25.14), מְזַמְּרָ֜וֹת (Jer. 52.18)

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138 A similar list is cited in the treatise on the shewa (ed. Levy 1936, וב).
As can be seen, A, in the portions that are extant, always marks the mem with a simple shewa sign.
The vast majority of the forms in this list have the syllable structure that is associated with the so-called minor gaʿya. This is a musical secondary stress that occurs predominantly in words with disjunctive accents on a short vowel in a closed syllable. It occurs predominantly on a syllable that is separated from the stressed syllable by another closed syllable, which in turn is followed by vocal shewa or by an open syllable followed by a ḥatef with an identical quality. These syllabic patterns may be represented thus: מַחֲנָה, מַחֲנָה, מַחֲנָה. Examples of each of these are:

- "הַכַּרְמָלִית [ˌhaˑkkʰaɾˈmaːliːθ] ‘the woman of Carmel’ (1 Sam. 27.3)
- "נִיתָחָכָמ [ˌniˑθ醭aˈmɔː] ‘let us deal wisely’ (Exod. 1.10)
- "הַמַּחֲנֶה [ˌhaˑmaːħaˈnɛː] ‘the camp’ (Gen. 50.9)
- "משתחוים [ˌmiˑʃˈʔaˑvɪːim] ‘prostrating (mpl) themselves’ (Gen. 37.9).\(^{139}\)

There is evidence that the duration of the vowel lengthened by minor gaʿya was less than that of a long vowel in an open syllable or of a vowel in a syllable with the main stress (§I.2.8.2.). It appears not to have been fully bimoraic and did not induce the insertion of an epenthetic vowel or resyllabification of the consonant in the coda with the next syllable. For this reason, the vowel is transcribed with the IPA symbol for half-long [CVˑC].

\(^{139}\) Yeivin (1980, 244–245). For more details concerning the minor gaʿya see §I.2.8.2.2.
Minor gaʿya also occurs less consistently on a range of other closely related structures, e.g.

**הָּ כְנַעֲנִֹ֑ית** (with vocalic shewa additional to the pattern) ‘the Canaanite woman’ (1 Chron. 2.3)

**וּ ִׂ֖וַי לָּּחֲמ** (with a vowel of different quality before the ḫaṭef) ‘and they fought’ (Josh. 10.36)

It very rarely occurs on a syllable that is separated from the accent by only one syllable, e.g.

וִּיִּנְטַצְּפֵּרַאִ֑שָּׁר ‘a conspiracy is found’ (Jer. 11.9).

Most of the cases where the shewa on the mem is silent after the gaʿya that are cited in Diqduqe ha-Ṭeʿamim have the syllabic patterns that are suitable for minor gaʿya, e.g. **הַּ מְצָּּא־קֶשֶׁר** ‘a conspiracy is found’ (Jer. 11.9), **הַּ מְדַבְּרִֵׂם** ‘those who speak’ (Exod. 6.27) and as **הַּ מְשַחֲקִּוֹת** ‘the ones (fpl) playing’ (1 Sam. 18.7). In such cases, therefore, it can be assumed that the gaʿya is the musical minor gaʿya. The reading with musical minor gaʿya in such forms evidently outranked the morphologically motivated syllabification that conditioned the reading of the shewa as vocalic.

Two of the forms cited by Diqduqe ha-Ṭeʿamim as cases with silent shewa under the mem have conjunctive accents, viz. **הָּ מְזַמְּרַ֣וֹת** (L and A) ‘the snuffers’ (2 Kings 25.14), **הָּ מְקַטְרִַ֣ים** (L and A) ‘those who burn incense’ (2 Kings 23.5). As remarked, minor gaʿya does not commonly occur on forms with conjunctive accents and so they must be considered to be not fully optimal for it. Some of the cited forms, moreover, have syllable structures that are not fully optimal for minor gaʿya, e.g. **הָּ מְאָּרֲרִִׂ֖ים** (L) ‘those that curse’
(Num. 5.19), המְשֹׁרְרִֹ֑ים (L) ‘the singers’ (Ezra 2.41), in which the vowel in the second open syllable is not of the same quality as the following vocalic shewa. Two of the cited cases have a syllable structure that deviates more radically from the one that is optimal for minor gaʿya, viz. the puʿal participles המְשֹׁרְרִֹ֑ים (L and A) ‘the oppressed’ (Isa. 23.12) and המְח לָּּל (L and A) ‘the one profaned’ (L and A, Ezek. 36.23). By contrast, the puʿal participle המְכָּס (A), Ezek. 48.11), which is identical in syllable structure to המְח לָּּל, has a vocalic shewa.

Forms cited by Diqduqe ha-Ṭeʿamim as cases that have vocalic shewa include a construction with a disjunctive accent that has the main accent on the fifth letter but has a syllable structure that is not optimal for minor gaʿya, viz. המְבַקְשִִׂ֖ים (L) ‘those who seek’ (Exod. 4.19), in which the shewa on the qof is silent. An analogous case is המְמַלְאִִׂ֖ים (L) ‘and those who fill’ (A המְמַלְאִִׂ֖ים, Isa. 65.11). The cited forms with vocalic shewa, confirmed by the occurrence of haṭef pataḥ in the extant portions of A, include also cases that have a syllable structure optimal for minor gaʿya but have a conjunctive accent, which is not optimal for minor gaʿya, e.g.

L: המְבַקְשִִׂ֖ים ‘those who speak’ (A: המְבַקְשִִׂ֖ים 2 Chron. 33.18)
L: המְמַלְאִִׂ֖ים ‘those that send’ (A: המְמַלְאִִׂ֖ים 2 Chron. 32.31)
L, A: המְתַעֲבִַ֣֑ים ‘the ones abhorring’ (Mic. 3.9)

Also cited is המְצֹרָּע (L) ‘the lepers’ (A המְצֹרָּע, 2 Kings 7.8), which has a conjunctive accent and a syllable structure that is not optimal for minor gaʿya. The list of forms with vocalic shewa includes המְלָכִים ‘those who lap’. A version of the rule
The Tiberian Pronunciation Tradition of Biblical Hebrew specifies המלכים הבור והבורי, which indicates that the two occurrences of this word in Jud. 7, (verses 6 and 7) are intended. In L and also L17, written by Samuel ben Jacob, the scribe of L (Phillips 2020), marks a ḥaṭef pataḥ on both occurrences, but A marks ḥaṭef pataḥ only on the form in Jud. 7.7:

L, L17: המלכים (A: המלכים, Jud. 7.6)

L, L17, A: המלכים (Jud. 7.7)

In Jud. 7.6 the form has a conjunctive accent and in Jud. 7.7 a disjunctive. It has a syllable structure that is suitable for minor gaʿya but has vocalic shewa even when it has a disjunctive accent. It is not clear why A vocalizes the form in Jud. 7.6 with a simple shewa sign.

A similar case is the following pair:

L: רַגְלִים (A: מרגלים, Josh. 6.22)

L: רַגְלִים (A: מרגלים, Josh. 6.23)

These both have a structure optimal for minor gaʿya but the shewa is vocalic in both occurrences even though the second occurrence (Josh. 6.23) has a disjunctive accent.

In conclusion, there is no absolute rule or consistency relating to places where the shewa under the mem was read as silent. The somewhat arbitrary distribution of forms with silent shewa was fixed in particular streams of the Tiberian tradition. The gaʿya on such forms should be identified as a musical minor

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140 The Treatise on the Shewa in the Genizah manuscript CUL Or 1080.13.3.2, fol. 2r; cf. Yeivin (1968, 27).
gaʿya, since the majority of forms have a structure that is optimal for minor gaʿya. The minor gaʿya was a secondary accent and so the short vowel was lengthened by stress rather than by the augmentation of the syllable at an underlying level. For this reason, the shewa was silent. The underlying syllabic structures of המדבר ‘the one speaking’ (Gen. 45.12) and המדברים ‘those who speak’ (Exod. 6.27) can be represented thus:

/haa.mðab.bē.r/ [ha:maðabˈbe:er]

/ham.ðab.brǐ.m/ [haˈmðabbəˑriˑim]

Some words beginning with the article + mem with shewa (המ) that consist of more than five letters and are stressed on the fifth letter or later are not marked with a gaʿya in the manuscripts, suggesting that the pataḥ was pronounced short and the shewa was silent, e.g.

L: המְַקשׇרִּים [hamʔɔːrəˈʃɔːrim] ‘the ones bound’ (Gen. 30.41)
L: המְַאןַרְרִים [hamʔɔːrəˈr̟im] ‘those dyed red’ (Exod. 39.34)
L: המְַארְרִים [hamʔɔːrəˈr̟im] ‘the cursing’ (Num. 5.22)
L: המְַארְשׇיִים [hamʔɔːrəʃɔːˑiˑim] ‘the betrothed one’ (Deut. 22.25)

According to Kitāb al-Khilaf, there were differences between Ben Asher and Ben Naftali regarding the reading of words beginning with המ with minor gaʿya. In Exod. 6.27, for example, it is reported that Ben Asher read המדברים without minor gaʿya whereas Ben Naftali read this המדברים with minor gaʿya (ed. Lipschütz 1965, י). In this case, L corresponds to the reading of Ben Naftali (המדברים ‘the ones who speak’). Ben Asher read the shewa on the mem in the word המְַארְשׇיִים in Josh. 6.22 and Josh. 6.23 as
vocalic, but Ben Naftali regularly read it as silent (ed. Lipschütz 1965, 20, הד).

When the *patah* of the article before ב has *gaʿya*, the Karaite Arabic transcriptions generally represent it as long by transcribing it with *mater lectionis ʿalif*, e.g.

\[
\text{הַמְזִמָּתָה} \quad \text{[haːmazimmacʰə]} \quad \text{(BL Or 2549 fol. 82r, 7 \mid L \[BHS]: חַיָּ֣ה, A חַיָּ֣ה, Jer. 11.15 ‘the wickedness’)}
\]

\[
\text{הַמְבַקְשִִׂים} \quad \text{[haːmavaqʃitim]} \quad \text{(BL Or 2544, fol. 111v, 12 \mid L \[BHS]: חַיָ֣ה, Exod. 4.19 ‘those who seek’)}
\]

\[
\text{הַמְיַלְדֹת} \quad \text{[haːmjalladoθ]} \quad \text{(BL Or 2542, fol. 43v, 6 \mid L \[BHS]: חַיָּ֣ה, Exod. 1.17 ‘these, who help to give birth’)}
\]

In the manuscript BL Or 2555, a vocalic *shewa* is explicitly marked with a *patah* sign and so forms with vocalic and silent *shewa* are distinguished. This corresponds to the distribution of vocalic and silent *shewa* discussed above, e.g.

\[
\text{הַמָּשָלָשַׁ֫ךְ} \quad \text{[haːmaʃulilɛn]} \quad \text{(BL Or 2555 fol. 29r, 3 \mid L \[BHS]: חַיָּ֣ה, phonetic *gaʿya* and vocalic *shewa*, Ecc. 4.12 ‘the threefold’)}
\]

\[
\text{הַמְחַלְלָחַ֣יִם} \quad \text{[haːmhallalɔːiim]} \quad \text{(BL Or 2555 fol. 33r, 3 \mid L \[BHS]: חַיָּ֣ה, minor *gaʿya* and silent *shewa*, Ecc. 4.15 ‘those who move’)}
\]
It is significant that in some manuscripts a phonetic gaʿya on הַַֽ on м הַַֽ is neither marked in the manuscript nor represented in the transcription where it occurs in L and A, e.g.

\[\text{הַמְַהַלֵּ} \text{[hamhalˈleːχ]} \text{(BL Or 2551 fol. 78v, 6 | L [BHS]:ךְ ֵ֗הַ ְ֝מַהַלֵּ, A:ךְ ֵ֗הַ ְ֝מֲהַלֵּ, Psa. 104.3 ‘he who walks’)}\]

\[\text{הַמְַשַׁלֵַ֣חַַ} \text{[hamʃalˈleːχ]} \text{(BL Or 2551 fol. 81v, 3 | L [BHS]:ךְ ֵ֗הַ ְ֝מַשַׁלֵַ֣חַַ, A:ךְ ֵ֗הַ ְ֝מֲשַׁלֵַ֣חַַ, Psa. 104.10 ‘he who sends’)}\]

This evidently reflects other variant streams of the Tiberian tradition in which the shewa was pronounced silent without lengthening of the pataḥ in these forms. Further evidence for this can be found in manuscripts with Babylonian vocalization that reflect a reading that has converged very closely with the Tiberian tradition. Of particular relevance is the manuscript I Firkovitch Evr. I B 3, containing the Latter Prophets, which distinguishes length of vowels in closed syllables by means of the compound Babylonian sign system (§1.2.5.1.).\(^{141}\) Where L and A have gaʿya on the pataḥ of the definite article, the pataḥ in I Firkovitch Evr. I B 3 is sometimes represented as long. In several cases, however, the pataḥ is represented as short (Yeivin 1985, 413), e.g.

\[\text{הַמְַלֵאָה} \text{[hamleːʔˈɔː] ‘the one full’ (L:ךְ ֵ֗הַ ְ֝מַלְַלֵאָה, A:ךְ ֵ֗הַ ְ֝מֲלֵאָה, Amos 2.13)}\]

\(^{141}\) Named the Codex Babylonicus Petropolitanus in the facsimile edition by Strack (1876).
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[hamvaq`ji:im] ‘those who seek’ (L: הַמְבַקְשִּׂים, A: הַמְבַקְשִׂים, Jer. 11.21)

[hamθa:sa`vi:im] ‘the ones abhorring’ (L, A: הַמְתַעֲבִּים, Mic. 3.9)

Such manuscripts with Babylonian vocalization, the Karaite transcriptions and the lists of differences between Ben Asher and Ben Naftali provide evidence of degrees of variation in the Tiberian tradition both within the Tiberian school and outside of the inner circles of the Tiberian Masoretic school. The variation relating to the particular feature in question appears to have been arbitrary. Also within the inner Tiberian tradition, as we have seen, there was some degree of arbitrariness in the distribution of the vocalic and silent shewa in this feature. A particular distribution containing some apparently arbitrary inconsistency (e.g. the silent shewa in הַמְשָׁגָע 2 Kings 9.11) became fixed in the tradition.

The gemination of a mem with shewa after the definite article is retained in numerous cases, e.g.

םֵלָכִים ‘the kings’ (Gen. 36.31)

םֵדוּ_posts ‘the doorposts’ (Exod. 12.7)

םֵמְנַו ‘the lampstand’ (Exod. 25.31)

םֵמְצֹר ‘the leper’ (Lev. 14.2)

The vocalization of the definite article exhibits different patterns before other consonants that have a tendency to lose gemination when vocalized with shewa, i.e. the sonorants nun, yod, lamed, the sibilants and qof.
Gemination is occasionally lost in nun and the patah is marked with gaʿya, e.g.

\[\text{vahaːnasəmˈmoːθ} \] ‘and the desolated ones’ (A תְּנַשְּׁמָות Ezek. 36.35)

The vocalization with ḥatef patah in A demonstrates that the shewa was vocalic.

The lengthening of the patah in such cases is represented by mater lectionis ʿalif in the Karaite transcriptions, even when a gaʿya sign is not marked in the transcription manuscript, e.g.

\[\text{həːnasəmˈmoːθ} \] (BL Or 2549 fol. 106v, 15 | L [BHS]: תְּנַשְּׁמָות, A תְּנַשְּׁמָות הַַ, Jer. 33.10 ‘those that are desolate’)

In בַּ נְח שְׁתִַ֔יִם ‘with bronze fetters’ (Jud. 16.21) both L and A have simple shewa, so the reading of the shewa is not clear. In many cases the gemination is retained, e.g.

גָּנַהְיוֹס ‘the young men’ (Gen. 14.24)

גָּנַפִּיל ‘the Nephilim’ (Gen. 6.4)

Gemination is sometimes lost in yod, but the shewa is silent and there is no compensatory lengthening, e.g.

גָּנַלָיִם ‘the children’ (Gen. 33.5)

גָּנָב ‘the Jebusite’ (Josh. 15.8, etc.)

לָיָשָׁר ‘for the upright’ (Psa. 112.4)

בָּיָרְיָה ‘on the curtain’ (Exod. 26.5)

In several places the gemination is retained, e.g.
‘the wild goats’ (1 Sam. 24.3)

‘the Jews’ (2 Kings 25.25)

‘the Greeks’ (Joel 4.6)

*Lamed* loses gemination after the definite article in the frequent phrase הַלְוִיִִּׂים ‘the Levites’ (Exod. 6.25, etc.) without compensatory lengthening. Elsewhere the *lamed* is geminated, e.g.

הלֹבֵנה ‘the frankincense’ (Lev. 6.8)

לֹבְנָן ‘Lebanon’ (Josh. 9.1)

The sibilants generally have gemination after the article. It is lost in a few words. In some such cases, the *shewa* is vocalic and there is compensatory lengthening, e.g.

L: בַּסְעָּרִָּׂה ‘by the whirlwind’ (A: בָּשָׁר בָּשָׁר 2 Kings 2.1, 11)

L: לַשְּפַנִּ ים ‘for the badgers’ (A: לָשְׁפַנִּים Psa. 104.18)

L: וְהַשְּפַטֵַ֗יִם ‘and the hooks’ (A: וְהַשְּפַטֵַיִם, Ezek. 40.43)

In other cases the *shewa* is silent and there is no compensatory lengthening, e.g.

L, A: הבַּשָּׁר ‘the frames’ (1 Kings 7.28)

L: הַזְקֵנִַּים ‘the elders’ (A: קֵנִַּים 1 Kings. 21.8)

L: בַּשְאֵת ‘in the swelling’ (Lev. 13.10)

As for the word ‘the frogs’ (Exod. 8.9, etc.), a surviving fragment of A of Exod. 8.9 has a *ḥaṭef pataḥ* under the *šade* of this
word (חָפְדִים), indicating that the *shewa* was vocalic despite the fact that its structure is appropriate for minor gaʿya.

Qof generally retains gemination, e.g.

הַפַּרְדְעִִ֔ים, ‘the harlot’ (Gen. 38.21)

הַקְּרָּשִִׁׂ֖ים, ‘the boards’ (Exod. 26.15)

There are a few exceptions, e.g.

L: הַקְטַנִֹ֑ים, ‘the small ones’ (A הקטנים Isa. 36.9)

L, A: בַּקְרָּב, ‘in the battle’ (2 Sam. 17.11)

L, A: לַקְרָֹּ֑ב, ‘for the battle’ (Psa. 144.1).

I.2.5.8.2. Interrogative *He*

When interrogative *he* is prefixed to a word beginning with a letter with *shewa*, the interrogative *he* is often vocalized with *pataḥ* and the *shewa* is silent, e.g.

הַמְעַט ‘Is it a small matter?’ (Gen. 30.15)

הַמְּעָּרַַ֣תַפָּרִצִֵ֗ים ‘Has this house become a den of robbers?’ (Jer. 7.11)

הַכְזוֹנֵָּּ֕ה ‘Should he treat our sister as a harlot?’ (Gen. 34.31)

לְהָּרְגֵ נִי ‘Do you intend to kill me?’ (Exod. 2.14)

וּהַלְיָּרְשֵֵּׁ֕נוַּקְרָּאתֶָ֥ם ‘Have you invited us here to impoverish us?’ (Jud. 14.15)

וּהַבְסַ֣וֹדַאֱלַ֣וֹה ‘Have you listened to the counsel of God?’ (Job 15.8)
‘Can he judge through the deep darkness?’ (Job 22.13)

On some occasions, a phonetic ga’ya is marked on the patah and the shewa is read as vocalic. One such case is listed in §14 of Diqduqe ha-TeX’amim:

L: [həməsˁɔːˈθaːniː] ‘have you found me?’ (A צָּאתִַ֖נִימֲַהַ 1 Kings 21.20)

As is the case with the phonetic ga’ya on the definite article, the purpose of this is likely to be to create a syllabic division between the interrogative particle and the following word in order to mark a clear morphological division. When the initial consonant of the word is syllabified in the onset of the following syllable, the patah is lengthened by compensation:

/ham.ˢ⁵.₀₅.ni/ > /haa.ms⁵.₀₅.ni/ [haːma.sˁɔː.'θaː.niː].

In the extant portions of A, the vocalic reading of the shewa is made explicit by a hatef sign. Further examples:

L: [həmaχaˈsɛː] ‘Shall I hide?’ (Gen. 18.17)

L: [haːvəʁ̟ɔːˈχɔː] ‘one blessing?’ (Gen. 27.38)

L: [haːnaqalˈlɔː] ‘Is it a little thing?’ (A: נֵּקַל, 1 Sam. 18.23)

L: [haːʃaχaˈθɛːm] ‘Have you forgotten?’ (A: חָשִׁית Jer. 44.9)

L: [hətaqafˈʃeːr] ‘Can you bind?’ (A: חָטֵית Job 38.31)
L: [həθaːləːəh] ‘Can you send forth?’ (A:  הגשתה Job 38.35)

L: [həθaməlˈleː] ‘Can you fill?’ (A: גתמהנה Job 40.31)

In a few cases where gaʿya is marked on interrogative he both L and A have a simple shewa on the following consonant:

L, A: [həθaləːeθ] ‘Will the Lord spurn forever?’ (Psa. 77.8)

L, A: [həθasəθ] ‘Will you play with him?’ (Job 40.29)

In the first case, the lack of a hatef in A is most likely due to the fact that there was no suitable hatef to represented the short [o] quality of the shewa before the guttural: [həlo-ʃoːləːim].

The lengthening of the pataḥ of the interrogative particle is reflected by mater lectionis ‘alif in the Karaite Arabic transcriptions, e.g.

 hauntasim [həθaːqəʃeːr] (BL Or 2552 fol. 81r, 15 | L [BHS]:  הגשותה, A גתמהנה, Job. 38.31 ‘will you bind?’)

 hauntamai [həθaməlˈleː] (BL Or 2552 fol. 85r, 9 | L [BHS]:  גתמהנה, A גתמהנה, Job. 40.31 ‘will you fill?’)

 hauntasakhaneθ [həθasəˈeːqˈboː] (BL Or 2552 fol. 84v, 11 | L [BHS], A גתשהקפר, Job. 40.29 ‘will you play with him?’)

The early Tiberian biblical codices exhibit some degree of variation, e.g.
L: המשורה פריצים ליה נשית [hamːʕɔːˈʀ̟aːʃaˈθaθ] ‘Has this house become a den of robbers?’ (A: המשורה [haːmac-ʕɔːˈʀ̟aːaθ], Jer. 7.11)

Some variation is found also in the Tiberian tradition reflected by manuscripts with Babylonian vocalization, such as I Firkovitch Evr. I B 3, containing the Latter Prophets, which distinguishes length of vowels in closed syllables by means of the compound Babylonian sign system:

L: נשבת [haʃaˈʃaθəm] ‘Have you forgotten?’ (A: נשבת, I Firk. Evr. I B 3 [haʃkaˈθaːm], Jer. 44.9)

Another strategy to mark clear a morphological division between the interrogative particle and what follows is to geminate the consonant following the particle (§I.3.1.8.), e.g.

השענה [hakkʰasˈaːʕaʃaˈθaθ] ‘whether it according to its outcry’ (Gen. 18.21)

הכריא הנחתה בנך היא [hakkʰaˈθoːːnɛθ] ‘acknowledge now whether it is your son's robe’ (Gen. 37.32)

המבнятиים [habbamaːhaˈniːim] ‘is it in camps?’ (Num. 13.19)

המכמות מפייהו בהוז [hakkʰamakˈkʰaːaθaθ] ‘Has he struck him as the one who struck him?’ (Isa. 27.7)

הראיתם [haʃaˈʁiʔiːθəːm] ‘Have you seen?’ (1 Sam. 10.24)
I.2.5.8.3. Two Identical Consonants

As remarked in §I.2.5.7.3., a shewa that occurs on the first of two identical consonants after a short vowel was read as silent in the Tiberian tradition, e.g.

*הִנְנִי* [hin’ni:] ‘behold me’ (Gen. 6.17)

On many occasions, however, the vowel before the identical consonants in such forms is lengthened and the shewa is read as vocalic. The lengthening of the vowel is, in principle, marked by a gaʿya sign in the early codices. In the extant portions of A, the vocalic reading of the shewa is generally indicated explicitly by marking a ḥaṭef pataḥ sign. A ḥaṭef pataḥ is sometimes found also in L, but most of these are misshapen and are clearly the result of a later correction, e.g.

L, A: וֹצִיל [sˁi:la’lo:] ‘his shade’ (Job 40.22)

L, A: קִילִית [qi:la’lo:oθ] ‘the curse of’ (Jud. 9.57)

L: מִילִאִי [mi:la’aj gi:la’aj] ‘Milalai, Gilalai’ (Neh. 12.36)

The main motivation for reading the shewa as vocalic was doubtless to ensure that the two identical letters in contact were given their full articulation and not slurred together. The insertion of a vowel between them would have made each more salient. This was achieved by augmenting the preceding syllable with a vowel mora, which would have conditioned a resyllabification. The gaʿya can be identified with what Yeivin calls a phonetic gaʿya. This was, in essence, a mark of ‘mora-augmenting’ lengthening:

/sˁil.lō/ > /sˁii.llō/ [sˁiː.laloː]
The normal practice in L, however, is for a phonetic gaʿya to be marked on the vowel and a simple shewa sign on the first of the identical consonants. In the extant portions of A, a ḥatef pataḥ is usually marked in such cases, e.g.

L: רִבְבִׂוֹת [‘the ten thousands of’ (Num. 10.36)]
L: בְּרִבְבִׂוֹת [‘with ten thousands of’ (A תרבבות, Mic. 6.7)]
L: בְּחַצְַסֶ�וֹת [‘in Hazazontamar’ (Gen. 14.7)]
L: וּפִ לְ[‘and he will mediate for him’ (A: ופל, 1 Sam. 2.25)]
L: חַלִי [‘the slain of’ (A: חלי, 1 Sam. 17.52)]
L: בָּקָל [‘when he cursed’ (A: בָּקָל, 2 Sam. 16.7)]
L: מְחַהַתְהַלִי [‘why do you boast?’ (A: מחלה, Jer. 49.4)]
L: בָּרָכֶל [‘the dung of’ (A: ברך, Ezek. 4.12)]
L: שְׁמַמְחָה [‘devastations of’ (A: שְׁמַמְח, Ezek. 35.9)]
L: הַלַּי [‘the howling of’ (A: הַלִי, Zech. 11.3)]
L: בָּשַׁנִי [‘when I bring clouds’ (A: בָּשַׁנ, Gen. 9.14)]
L: נִנְנִי [‘be gracious to me’ (A: ננני, Psa. 9.14)]

In a few cases, a gaʿya is marked but a simple shewa is written instead of ḥatef pataḥ in both L and A, e.g.
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L, A: לְחֶנֵה [lehe:na'ʁe:nəh] ‘in order to favour it (fs)’ (Psa. 102.14)

L, A: הַלְלָה [ha:la'lu:] ‘praise’ (Jer. 20.13)

L, A: וּהַלְלִ֥ה [vihi:la'lu:] ‘and pray’ (Jer. 29.7)

L, A: הַלְלִ֥י [ha:lu:-'ʁe:nəh] ‘praise the Lord’ (Psa. 106.48)

Sporadically the ga’ya is omitted, though A has a ḥaṭef patah, e.g.

A: נהֶשָּׁה [na:ʁa'ʃa] ‘we grope’ (L: נְגַשְׁשַה, Isa. 59.10)

L: גֶלֶל [ge:la'le:] ‘the dung of’ (A: גֶלֶל, Ezek. 4.15)

L: יְהַלְלֶךָ [jaha:la'le:kʰɔ:] ‘and it will praise you’ (A: יְהַלֲלֶךָ, Isa. 38.18)

In the following example, the ga’ya is omitted in both L and A, with a ḥaṭef patah indicating the vocalic shewa. There is a musical ga’ya on the shewa at the beginning of the word, which is normally associated with syllabic structures with a vocalic shewa before the main stress, i.e. פַלְפְילֵמְא, פַעֲלוֹמְא (§I.2.9.).

L, A: קולְלֶל [kʰa:la'lo:] ‘like his dung’ (Job 20.7)

In such cases, the ḥaṭef patah is often omitted in L, e.g.

L: קְלָלָה [ja:'ha:la'lu:] ‘they praise’ (A: קְלָלָה, Psa. 74.21)

L: קְלָלָה [ja:'ha:la'lu:] ‘they praise you’ (A: קְלָלָה, Psa. 84.5)

L: קְלָלָה [ja:'ma:la'lu:] ‘they grope’ (A: קְלָלָה, Job 5.14)

When the word contains a musical minor ga’ya, in L there is often no marking of either the phonetic ga’ya or the ḥaṭef patah. Likewise in A the phonetic ga’ya is omitted and also the ḥaṭef
pataḥ in some examples. As was the case with the musical gaʿya on shewa, the musical minor gaʿya is associated with syllabic patterns that have a vocalic shewa before the main stress, i.e. חתموظف, חת�폭ים (§I.2.8.2.2.), so the marking of the minor gaʿya was evidently felt by the vocalizers to be sufficient to ensure that the reader read the shewa on the first of the two identical consonants as vocalic:142

L, A: [ˌvaˑq̟aˑlaˑluː] ‘and they cursed’ (Jud. 9.27)
L, A: [viˑjiˑθaˑlaˑluː] ‘and they will glory’ (Isa. 45.25)
L: [ˌvaˑjhaˑlaˑluː] ‘and they praised’ (A: לוּ ַוַ ִֽיְהַלְל, 2 Chr. 29.30)
L: [ˌhiˑθaˑlaˑluː] ‘glory!’ (A: לוּהִ ֶ֭תְהַלֲַ, Psa. 105.3)

Some early manuscripts do not mark minor gaʿya in a number of the forms just listed, but mark the shewa as vocalic either by a phonetic gaʿya before the shewa or by a haṭef pataḥ, e.g.143

JTS 232/ENA 346: [vijiθaˑlaˑluː] (Isa. 45.25)
C: [vijiθaˑlaˑluː] (Isa. 45.25)

Both phonetic gaʿya and haṭef pataḥ are omitted in L and A in some words that do not have a musical gaʿya but which elsewhere are normally read with a vocalic shewa. This applies to some words that are attested in both L and A, and to some that are attested only in L, e.g.

142 See the discussion concerning the lack of phonetic gaʿya in such forms in Phillips (2020).
L, A: יְהַלְלָההוּ ‘they praise him’ (Psa. 107.32)

L: מְקַלְלֶך ‘he who curses you’ (Ecc. 7.21)

In a few cases, the vowel before the first of two identical consonants is lengthened by a retracted accent. The shewa was pronounced vocalic here also, as demonstrated by its being represented by a hatef patah:

L: [ʔaːlalaj] ‘woe is me’ (A: אַַלֲלַי, Mic. 7.1)

L: [ˈhaːlalu:] ‘praise the Lord’ (A:וּהַָ֥לֲל, Psa. 135.1)

In all these cases, the Karaite transcriptions represent the lengthened vowel preceding the first of the two identical consonants as long by an Arabic mater lectionis. This includes cases in which L and/or A do not mark a gaʿya or hatef patah, e.g.

[maːqːaːlɛːχɔː] (BL Or 2555 fol. 72v, 12 | L [BHS]: מְקַלְלֶך Ecc. 7.21 ‘he who curses you’)

[ʒaːhəlɛːɛkkɔː] (BL Or 2548 fol. 32v, 12 | L [BHS]: יְהַלְלָההוּ, A: יְהַלֲלָהוּ, Isa. 38.18 ‘and it (msg) will praise you’)

[ɡɛːlɛː] (BL Or 2549 fol. 149r, 11 | L [BHS]: גֶלְלֵַ֣י, A: גֶלֲלֵַ֣י, Ezek. 4.15 ‘dung of’)

Lengthening by retraction of the accent is likewise represented in the transcriptions, e.g.
The manuscript I Firkovitch Evr. I B 3 (Codex Babylonicus Petropolitanus), which represents the Tiberian tradition in compound Babylonian vocalization, represents as long some vowels before a pair of identical consonants in forms that do not have a phonetic ga‘ya in L and A, e.g.\textsuperscript{144}


The Kitāb al-Khilaf records some differences between Ben Asher and Ben Naftali in the lengthening of the short vowels before two identical consonants, e.g.\textsuperscript{145}

Ben Asher:  קִלְלָּתְךִַׂ [ˌki̞l̞ːlaˈtʃeːk] ‘your curse’ (Gen. 27.13)

Ben Naftali:  קִלְלָּתְך [ki̞l̞ːlaˈtʃeːk]

Some differences are found across the manuscripts. In I Firkovitch Evr. I B 3, which represents the Tiberian tradition with compound Babylonian vocalization, for example, some of the vowels that are marked as long by a phonetic ga‘ya or haṭef pataḥ in A and/or L are represented as short, e.g.\textsuperscript{146}

L:  לַשְׁמֵמָה [laʃimˈmaː] ‘into a desolation’ (A לַשְׁמֶמָה, I Firk. Evr. I B 3 הַשְּׁמֶמָה [laʃimˈmaː], Ezek. 35.7)

\textsuperscript{144} Cf. Heijmans (2018, 102).

\textsuperscript{145} Ed. Lipschütz (1965, 7).

\textsuperscript{146} Cf. Heijmans (2018, 103–4).
L: נְַנֶַּקִ נְַ נְַנֶַּקִ נְַ [q̟iːnaˈnuː] ‘they nested’ (A וּנְַנֶַּקִ נְַ, I Firk. Evr. I B 3 קֽנְַנֶַּקִ נְַ [q̟iːnˈnuː:], Ezek. 31.6)

In some cases, I Firk. Evr. I B 3 marks a dagesh in the following consonant, indicating explicitly that it was closed syllable:

L: מְקַלְלַ וְנִי [maq̟aːlaˈlaːavniː] ‘they curse me’ (A מְקַלְלַ וְנִי, I Firk. Evr. I B 3 מְקַלְלַ וְנִי [maq̟aːlaˈlaːavniː], Jer. 15.10)

L: מְחַלְלֶ יך [maħaːlaˈlɛːχɔː] ‘those who slay you’ (A מְחַלֲלֶ יך, I Firk. Evr. I B 3 מְחַלֲלֶ יך [maħallalaːχɔː], Ezek. 28.9)

Conversely, some vowels that are short in L and A are represented as long in I Firk. Evr. I B 3, e.g.

L, A: חַלְלֵי [ˈħalleː] ‘the slain of’ (I Firk. Evr. I B 3 חַלְלֵי [ˈħalleː], Isa. 22.2)

In I Firk. Evr. I B 3 this word is marked with a retracted accent (לַחַלְלֵי) rather than being unstressed as in L and A, which would have lengthened the vowel.\footnote{Cf. Heijmans (2018, 102).}

I.2.5.8.4. Conjunctive Vav

A silent shewa after a word-initial conjunctive vav is sometimes made vocalic by lengthening the vav with a phonetic gaʿya, e.g.

L: רִָּ֔אוּוּ קְַ [wuːq̟aˈʁ̟ɔːʔuː] ‘and read’ (A וּוּ קֲרִָּ֔א, Isa. 34.16)

In such cases, A regularly marks the vocalic shewa with ḥatef pataḥ. A ḥatef pataḥ is sometimes marked also in L.
The marking of an Arabic sukūn in some transcriptions after vav without a gaʿya demonstrates that the shewa in such forms was pronounced silent, e.g.

ورَعَي [wuʾr̟ʿi:] (BL Or 2554 fol. 35r, 2 | L [BHS]: Cant. 1.8 ‘and graze!’)

وُقَذَوْش [wuʾq̟́d̟ωʃ] (BL Or 2548 fol. 50v, 8 | L [BHS]: Isa. 41.20 ‘and holy of’)

The reading of the shewa as vocalic after a lengthened vav separates two consonants that are relatively weak by their nature. These include sonorants, fricatives (frequently sibilants), gutturals and qof. The motivation, therefore, appears to have been orthoepic. Two weak consonants in contact do not constitute an optimal boundary between syllables (Vennemann 1988). They were split by a vowel to ensure that they were maximally salient:

L, A: קָנָיִיּוּ ‘and regarding Zion’ (Psa. 87.5)

L, A: קָרָב לֵבָּוֹ ‘the war of his heart’ (Psa. 55.22)

L, A: קָרָב ‘and capture’ (Jud. 5.12)

L, A: קָרָב ‘and seven’ (1 Kings 14.21)

L: קַחִי ‘and to divide’ (Gen. 1.18)

L: חָבִל ‘and the gold of’ (Gen. 2.12)

L: קִנְא ‘and like a garden’ (A: קִנְא, Isa. 1.30)

L: קְכַלָּר ‘as far as I was able’ (A: קְכַלָּר, 1 Chron. 29.2)

L: קְכַלָּר ‘and when they had finished’ (A: קְכַלָּר, 2 Chron. 24.14)
When the vocalic shewa occurs before a guttural with qameṣ, it is represented in A and sometimes also in L by ḥaṭef qameṣ, reflecting the assimilation of the shewa to the quality of the following vowel, e.g.

L, A: וּטֳהָּר־יָָ֜דֵַ֗יִם ’and clean of hands’ (Job 17.9)

L: וּסְעָֹ֑דָּה ’and refresh yourself’ (A וּסֳעָֹ֑דָּה, 1 Kings 13.7)

L: וּצְעִָ֔קִי ’and cry out’ (A וּצֳעִָ֔קִי, Jer. 22.20)

According to some medieval sources, the shewa after a vav with gaʿya is silent in some phrases consisting of words joined by maqṣef. The examples mentioned in these sources and several other cases with maqṣef do not have ḥaṭef pataḥ in L or A, e.g.

L: דְמֵה־לְךַַּוּ [ˌwuˑðmeː–laˈχɔː] ’make yourself similar’ (Cant. 8.14)

L, A: לִי ַ־וּשְׁלַח [ˌwuˑʃlaˑχ–ˈliː] ’and send me’ (1 Chron. 2.7)

L, A: בָּנֶָ֛יהַָּ־וּלְכָּל [ˌwuˑlχɔˌliː–bɔːˈnɛːχɔː] ’and to all her sons’ (1 Sam. 1.4)

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L, A: הַמְּקֹמָות־וּ לְכָּל [ˌwuˑlχɔ l-hammaˑq̟oˑmoˑθ] ‘and to all the places’ (1 Sam. 30.31)

L, A: גִבָּוֹר־וּ לְכָּל [ˌwuˑlχɔ l-gibˑboˑor] ‘and every warrior’ (1 Chron. 28.1)

L, A: וְשֵׁבֶט יְרָבָּוֹ [ˌwuˑvaˑr yˑroˑvəz] ‘and full of trouble’ (Job 14.1)

The maqqef, however, is unlikely to be the key conditioning factor for the reading of the shewa as silent, since there are examples where a word with maqqef has a vocalic shewa after vav with gaʿya, e.g.

L, A: יְרָבֹ וּ קָרָּב [wərəv qərˑəb] ‘and the war of his heart’ (Psa. 55.22)

L: שָׂהוּרֵכֶר [wəsahəʳ kʰəɾəf] ‘and the merchandise of Ethiopia’ (A וְ סְחַר, Isa. 45.14)

It appears that in those cases where the shewa is silent the gaʿya is a musical minor gaʿya, which requires that the syllable in which the gaʿya occurs be closed (§1.2.8.2.2.). Minor gaʿya also occurs on vav in some cases that are single words, especially in those with a syllable structure that is suitable for minor gaʿya. In such cases A has a simple shewa sign, reflecting its reading as silent, e.g.

L, A: בְּלֵבְךָ [ˌвуˑlχibˑboˑθ] ‘and according to your heart’ (2 Sam. 7.21)

L, A: בְּמַגְזְרַת [ˌвуˑvmaʁzaˑrˑəθ] ‘and with axes of’ (2 Sam. 12.31)

149 Yeivin (1980, 247).
Kitāb al-Khilaf mentions several differences between Ben Asher and Ben Naftali regarding the reading of the vav and the following shewa in the types of constructions discussed above. In some cases, the difference seems to be between reading a word or phrase with or without musical minor ga’ya. Minor ga’ya was, indeed, the subject of the majority of differences in Kitāb al-Khilaf. Examples:  

Ben Asher: וּבְכָלָּהשת (L: בְכָל־חַיַּ֥ת) ‘and in every beast of’ Gen. 9.10

Ben Naftali: וכל היחת

Ben Asher: וּבְהַעֲלֹתַאַהֲרֹן (L: וּבְהַעֲלֹ תַאַהֲרֹ ן) ‘and when Aaron set up’ Exod. 30.8

Ben Naftali: בהעלות

In some cases, Ben Naftali read the vav with a phonetic ga’ya and the following shewa as vocalic where Ben Asher read vav without a ga’ya and the shewa as silent, e.g.  

Ben Asher: וּקְטָרְתִִ֔י (L, A: וּקְטָרְתִִי) ‘and my incense’ Ezek. 16.18

Ben Naftali: קָטִיעֲרִית בֵּיתת

In the case of the following example it appears that Ben Asher read the vav with a minor ga’ya and the shewa as silent

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150 Ed. Lipschütz (1965, ה, ב).

151 Ed. Lipschütz (1965, ה, ל).
whereas Ben Naftali read the vav with phonetic gaʿya and the shewa as vocalic: 152

Ben Asher: ושבערגז (L, A; ‘and full of trouble’ Job 14.1)
Ben Naftali: שבע

I.2.5.8.5. Elsewhere

Also in other contexts, a silent shewa preceded by a short vowel is sometimes converted into a vocalic shewa by imposing a resyllabification by lengthening the short vowel by a phonetic gaʿya. As in the case of shewa after vav, which was discussed in the previous section, this typically occurs where the two consonants are relatively weak, in that they are sonorants, fricatives (especially sibilants), gutturals or qof. The motivation, therefore, is to repair a suboptimal syllable contact, by splitting the consonants with a vowel to make them more salient and syllabifying them as onsets, i.e. CVC.C > CVV.CV.C. In A the vocalic shewa is generally represented by hatef pataḥ. The lengthened vowel before the shewa is in most cases hireq or pataḥ. In some sporadic cases it is segol. Examples:

L: ייֵשׁשָחַק [jiːsˤɑħaq̟'-liː] ‘will laugh at me’ (Gen. 21. 6)
L: בְּשִׁקְאוֹת [baʃiq̟aʔoːoθ] ‘in the troughs of’ (Gen. 30.38)
L: לִוכְהֲתִמְַ [haθiːmaːloːoχ] ‘are you a king?’ (A: כְַלֹהֲתִמְ, Jer. 22.15)

152 Ed. Lipschütz (1965, 1).
When the vocalic shewa occurs before a guttural with hireq, A sometimes represents the shewa with a hatef hireq sign, which reflects the regular assimilation of the quality of vocalic shewa to that of the vowel after the guttural (§1.2.5.1.), e.g.

A: הָשַׁתָּהוּ הָבְעַבַּוּ [hi:ʃi hi:θu hi:θi hi:vu:] ‘they have acted corruptly and have done abominable deeds’ (L: הָשַׁתָּהוּ הָבְעַבַּוּ, Psa. 14.)

Examples occur in which a vocalic shewa before a guttural with qames is represented by hatef qames, likewise reflecting vowel assimilation, e.g:

L: אַלְכֹּכְכֵל [ni:v hi:θu] ‘hastening’ (A: בְּבַל, Prov. 28.22)

In one case a hatef patah occurs in A before a guttural with qames, instead of the expected hatef qames, e.g.

A: שָׁמַע ‘hear!’ (L: שָׁמַע, Psa. 39.13)

153 Forms such [haːjəsaθ-маjim] ‘and I remained’ (Ezek. 9.8) and [בְּמֹצַאֲכִם] ‘when you find’ (Gen. 32.20), in which, it seems, an original contact between two weak consonants has been split, may be related to this phenomenon.
Diqduqe ha-TeV‘anim (ed. Dotan, 1967, §19), however, refers to the practice of some scribes to vocalize this word with ḥaṭef qames (שמعة).

The Treatise on the Shewa refers to the reading of the vocalic shewa in כַּלָּי ‘my rock’ (2 Sam. 22.2, Psa. 18.3) as a ḥireq [sa:li'i:].

Where L has a simple shewa and A is not extant, the vocalic reading of the shewa can sometimes be established from Karaite transcriptions that mark vocalic shewa with an Arabic fatha vowel sign, e.g.

אֵֽמֵ֣֔תֶּ֖֫ים [ma:maθaq'qi:im] (BL Or 2554 fol. 65v, 1 | L [BHS]: נמתקים Cant. 5.16 ‘sweet things’)

In some cases, the weak consonant with the vocalic shewa has lost original gemination, e.g.

L, A: וַתְאַלָּם [vatta:la's:e:hu:] ‘and he urged him’ (Jud. 16.16, < קַנְָּתָה)

L, A: זַיְרֹוֹר [kʰiːna'ɾːoːθ] ‘Chinneroth’ (Josh. 11.2, < בְּרֹוֹר)

In many cases in the three books, A has a slanting merkha accent where L has a vertical ga‘ya, e.g.

L: חַַ֣רב [tʰiːva'haːr] ‘you choose’ (A: תבַּר, Psa. 65.5)


L: לָשְׁאֹל [liːs'ʔoːol] ‘for Sheol’ (A: לָשְׁאֹל, Psa. 49.15)

L: זְֹּבַה [ziːve'heː] ‘the sacrifices of’ (A: זְֹּבַה, Psa. 51.19)

154 Ed. Levy (1936, הכ).


L: אֶקֶר [ʔeqa’k̟er] ‘I call’ (A: אוּקר, Psa. 18.7)

In a few cases where A has a merkha, an original ga’ya has been corrected to a merkha in L, e.g.

L, A: אַנְשֵׁי ‘the men of’ (L first hand: וּנְשֵׁי, Job 34.10)

L, A: וְלִשְׁכֵנֵי ‘and to my neighbours’ (L first hand: וְלִשְׁכֵנֵי, Psa. 31.12)

In the parallel passages of 2 Sam. 22 and Psa. 18, both manuscripts have ga’ya in the 2 Sam. 22 passage whereas in the Psa. 18 passage L has ga’ya and A has merkha:

L, A: סַלְעִי ‘my rock’ (2 Sam. 22.2)

L: סַלְעִי ‘my rock’ (A סַלְעִי, Psa. 18.3)

Examples such as these with merkha in A from the three books are referred to in §13 of Diqduqe ha-Ṭe‘amim (ed. Dotan 1967). The most satisfactory reading of this passage is the variant text that Dotan cites in the apparatus of his edition:

כַּל הַתִּבְּחָנָה בָּמַעְרָכָה אֲרוֹחָה וּבָגְרִישׁ תִּבְּחָנָה בָּפַתְחָה מְשֻׁבוּה

‘Every word that occurs that is lengthened by merkha and is stressed with an accent is extended by pataḥ’
This, apparently original,\(^{155}\) version of the rule states that in words in the three books that have a *merkha* before a *shewa* in addition to a following main accent\(^{156}\) the *shewa* is read as a *pataḥ* (i.e. vocalic).\(^{157}\) The passage in *Diqduqe ha-TeV‘amim* goes on to give four exceptions to this rule, in which the *shewa* is silent:

- **L:** ʃɔːɔmˈr̟ɔː ʃemple nemše  ‘*preserve my life*’ (A: ʃeμr̟e, Psa. 86.2)
- **L:** ʃɔːɔvˈr̟ɔː ʃeβer le βi  ‘*it has broken my heart*’ (A: ʃeβeर, Psa. 69.21)
- **L:** ˌtˁɔːɔmˌnuː-ʁeˈʔiːim  ‘*arrogant men have hidden*’ (A: ʷנע, Psa. 140.6)

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\(^{155}\) This formulation of the rule is cited in the *Treatise on the Shewa* (ed. Levy, 1936, ר). When discussing one of the examples, moreover, al-Fāsī uses the term *merkha*; cf. *Jāmiʿ al-ʾAlfāẓ* (ed. Skoss 1936, vol. 2, 684), which, he states, brings about ‘a strengthening of the accents’ (תקויה ללאלחאן).

\(^{156}\) The term *גרש* and the verbal root *גר׳׳ש* is used elsewhere in *Diqduqe ha-TeV‘amim* as a generic term to refer to the main accent, e.g. §6, line 6 (ed. Dotan, 1967).

\(^{157}\) A later version of the passage, which Dotan adopts as his preferred text, refers to *gaʿya*:  לכל תיבה ורובה ומטרפה ואורכה וונניא תומות פחה מושכבה  ‘Every word that occurs made long with a softening (of vocalic *shewa*) and stressed with *gaʿya* is extended by *pataḥ*’. This version cannot easily be accommodated with the exceptions to the rule listed at the end of the passage. It appears to have arisen due to the fact that many scribes, such as Jacob ben Samuel in L, marked *gaʿya* rather than *merkha* in such words.
L: יִרְאַתי [ˌjiːʀ̟ˈʔaθ] ‘the fear of the Lord’ (A: תֶרְאִיתָי, Prov. 8.13)

In A all of these have merkha rather than gaʿya on the first syllable, and the rule in Diqduqe ha-Teʿamim is referring specifically to such cases with merkha. The first example (A: שָׁמְרָּה, Psa. 86.2) is an imperative form with a lengthened originally short qameṣ after the shin. On account of this lengthening and the silent shewa, it would have been pronounced in the same way as the 3fs. past verbal form שָּׁמְרַָּ֣ה, since this also had a silent shewa. Such past forms in A all have gaʿya on the first syllable: שָׁמְרָּה (Psa. 119.167), שָׁמְרַָּ֣ה (Job 10.12). It is for this reason that they were not included in the exceptions, since the rule is referring only to forms with merkha.158 The merkha evidently marks a secondary stress. The second two exceptions (A: שָׁבְרָּה, Psa. 69.21; A: טָָּ֥מְנ, Psa. 140.6) are past forms. As remarked, such past forms regularly had silent shewa after the long vowel. The exceptional feature here, therefore, is the fact that they contain merkha. The fourth exception (A: תֶרְאִיתָי, Prov. 8.13) is evidently listed since a

158 Hidāyat al-Qāriʾ states that in some codices gaʿya is written slanting either to the right or to the left (Eldar 2018, 76-77). This would result in signs resembling the shapes of tifḥa and merkha respectively. See also short version, edition in vol. 2 of this book, §II.S.9.0. Moreover, gaʿya is sometimes referred to as maʿarikh in some sources (Wickes 1887, 24; Ben-David 1957b, 390–91). Given the exclusion of the forms שָׁמְרָּה (Psa. 119.167) and שָׁמְרַָּ֣ה (Job 10.12) from the list of exceptions to the rule discussed by Diqduqe ha-Teʿamim, however, it appears that the discussion concerns the accent merkha.
merkha occurs on an originally short hireq without the shewa being made vocalic as happens elsewhere.

*Kitāb al-Khilaf* reports differences between Ben Asher and Ben Naftali with regard to the occurrence of phonetic gaʿya and the reading of shewa in forms of the type discussed in this section, e.g.159

Ben Asher:  כִּקְסַַָּ (L: כִּקְסַַָּ וָּשָּׁוְא 'like a false divination’ Ezek. 21.28)

Ben Naftali: כִּקְסַַָּ שָּׁוְא

In some cases, manuscripts with compound Babylonian vocalization that represent the Tiberian reading tradition such as I Firk. Evr. I B 3 mark a vowel as short where L and A have a gaʿya, e.g.


I.2.5.9. **Marking of Shewa at the End of a Word**

The shewa sign marks a vowelless consonant in the coda of a syllable in the middle of a word, but a vowelless consonant at the end of a word is generally not marked by a shewa sign, e.g.

ברזאש[ע]ה [baɾeː'ʃiːiθ] ‘in the beginning’ (Gen. 1.1)

אלהים [ʔeloː’hiːim] ‘God’ (Gen. 1.1)

הא[ר]וּ [haɾeːʃeː] (Gen. 1.1).

159 Ed. Lipschütz (1965, הל).
In the following circumstances, however, a *shewa* sign occurs on the final consonant of a word.

**I.2.5.9.1. In Word-final Consonantal Clusters**

When a word ends with a cluster of two vowelless consonants, both consonants are marked with a *shewa* sign, e.g.

- לָ֣בָ֑ךְ [vaˈɟˈɟeː evk] ‘and he wept’ (Gen. 45.15)
- בָּ֣עוּשְּׁן [vaˈɟˈɟiːiʃ] ‘and he captured’ (Num. 21.1)
- הָֽשְׁתְּ֣ן [vaˈɟˈɟeʃtʰ] ‘and he drank’ (Gen. 9.21)
- בָּ֣שוּה [ˈjaːəftʰ] ‘may he enlarge’ (Gen. 9.27)
- תָּֽשְׁתְּ֣ן [vaˈɟˈɟiːiftʰ] ‘and [my heart] has been enticed’ (Job 31.27)
- זָּדְּר [viˈjeːɛɾd] ‘and may he have dominion’ (Psa. 72.8)
- נָּד [ˈneːɛɾd] ‘nard’ (Cant. 4.14)
- הָֽדְּר [ˈjaːəɾd] ‘he causes him to dominate’ (Isa. 41.2)
- הֶלֶכֶת [ʔalˈtʰoːɔspʰ] ‘do not add’ (Prov. 30.6)
- מַשְׁתָּ֣ן [vatˈtʰaːʃq̟] ‘and she gave to drink’ (Gen. 21.19)
- מַשְׁתָּ֣ן [vaˈɟˈɟaːʃq̟] ‘and he watered’ (Gen. 29.10)
- וְלֶש [ˈq̟oɔoʃt̟] ‘truth’ (Prov. 22.21)
- מִש [ˈjeːʃt̟] ‘let [not your heart] turn aside’ (Prov. 7.25)

As can be seen, such word-final clusters have falling sonority, in that the first consonant is sonorant or fricative and the second an obstruent. The Tiberian Masoretic sources state that
both shewas at the end of such words were silent.\textsuperscript{160} According to some western medieval sources, the final shewa was vocalic in such words when they were not in major pause.\textsuperscript{161}

In a number of manuscripts, including some of the earliest model codices, the shewa is marked on the final consonant in words of this structure only when it is a בגדכפת consonant with dagesh but is omitted in final qof or tet, e.g.\textsuperscript{162}

\textit{שְׁקוַתִַַׂ֖} (A, S, Gen. 29.10)

\textit{יֵַ֣שְט} (Parma di Rossi 3214 [1278 C.E.], Prov. 7.25)

This practice of omission of the shewa by some scribes is referred to in the \textit{Treatise on the Shewa}, where all the examples cited have final tet or qof:

It is the practice of some people (to mark shewa) under other letters at the end of words like \textit{וַיֵַּּ֕שְׁקְַ} ‘and he watered’ (Gen. 29.10, etc.), \textit{יֵַ֣שְטְַַׂ} ‘let it not turn aside’ (Prov. 7.25), and like \textit{קֶֹ֭שְׁטְַַלְהוֹדִיעֲךֵַ֗} ‘to inform you of the truth’ (Prov. 22.21) .... All of these do not have a function and they are not necessary. They are only for embellishment so that the


\textsuperscript{161} Cf. Chomsky (1952, 16–17).

letters do not remain bare of pointing, and some people do not mark them.163

In the following examples an original word-final cluster of a *het* and a plosive *dalet* has been split by an epenthetic vowel:

L: וַיִַּחַדְַ [vaˈɟːɟiːɦad] ‘and he rejoiced’ (Exod. 18.9)

L: אַל־יִֶ֭חַדְַ [ʔal-ˈjiːɦad] ‘let it not rejoice’ (Job 3.6)

The *dalet* remains plosive, despite the preceding vowel, indicating that the *het* must originally have been vowelless and the epenthetic vowel was inserted at a late period after the rule of fricativization of בּוֹדָכְּסָה consonants following vowels had ceased to operate. The *shewa* is marked on the final *dalet* by analogy with the vocalization of words with clusters such as וְֶ֭יֵרְדְַ, etc. Segolate forms with a medial *het* such as יִַ֔חַד ‘together’ (2 Sam. 14.16), פַַ֣חַד ‘fear’ (Job 4.14) and שֹׁ חַד ‘bribe’ (Deut. 10.17), by contrast, have an epenthetic before the *dalet* that must have been inserted at an earlier period, when the *bּוֹדָכְּסָה* fricativization rule was still operating.

I.2.5.9.2. **Before a Final `Alef in the Orthography**

When a consonant that closes a syllable at the end of a word is followed by an `alef` that is not read as a consonant or vowel letter, a *shewa* sign is placed on this consonant, e.g.

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163 וַיִַּחַדְַוַקְַיָסְַטְַוַחְַקְַ)](ed. Levy. 1936, כה, and CUL Or 1080.13.3.2, fol. 2r).
The purpose of marking the shewa on the penultimate letter and omitting it on the final ʾalef was to ensure correct reading, alerting the reader to the fact that only the penultimate letter should be read. This contrasts with vocalizations such as וַיִּשְׁבְּ, in which the final letter was read.

The common spelling of the name ‘Artaxerxes’ exhibits a word-final consonant cluster followed by an ʾalef that is not read:

Here there is a difference between qere and ketiv, whereby the ketiv represents a reading with a final vowel, as attested in Ezr. 4.7: אַרְתַּחְשֵַׁ֗שְתָּאאַַ (Ezr. 4.7), and the qere is a reading without the final vowel, as attested in the qere note to the second occurrence of the name in Ezr. 4.7: אַרְתַחְשֵׁשְתָּאאַַ, שַתָּאאַ, i.e. the correct orthography of the qere ends in שַת, without final א. Throughout the rest of the book of Ezra the name is written אַרְתַחְשַַׁ or אַרְתַּחְשַַּ, without a qere note, but the vocalization is still clearly intended to correspond to an orthography without a final ʾalef. The vocalization, therefore, corresponds to that of a word with a final cluster such as בַּגֵֹיְא, in which the final ʾalef is considered part of the appropriate orthography of the word, although
not pronounced. The *shewa* would, therefore, occur on a vowel-less consonant in the middle of the orthographic word, which follows normal vocalization practice.

In Biblical Aramaic, a vocalization similar to that of אֲתַשְַאַרְתַחְשַַׁ is found before a final *he* that is not read in the word מחנה ‘you (ms)’ (Dan. 2.29). Here again, the vocalization corresponds to that of an orthography without a final vowel letter.

In L a *shewa* is marked on the word-final *yod* in בַגַי ‘in the valley’ (A בַגַי, Deut. 34.6) by analogy with the normal orthography with final *’alef* אָלֶף.

**I.2.5.9.3. Second Person Feminine Singular Pronominal Suffix**

When the *tav* of the 2fs verbal suffix follows a consonant with silent *shewa* and is pronounced as a stop, a *shewa* sign is marked under the suffix, e.g.

L: וְיֹלַַ֣דְתְַ [vijoːˈlaːdətʰ] ‘and you shall bear [a son]’ (Gen. 16.11)
L: צָּחָּ קְתְַ [sˁɔːˈħɔːɔq̟tʰ] ‘you (fs) laughed’ (Gen. 18.15)
L: וְאָּמַָ֥רְתְַ [vɔʔɔːˈmaːʁtʰ] ‘and you (fs) will say’ (Jud. 4.20)
L: קַַּ֤טְתְַלִַ [liq̟ˈqaːt̟ʰtʰ] ‘you gleaned’ (Ruth 2.19)
L: וְהָּלַכְתְ ַ [vɔhɔːˈlaːkʰtʰ] ‘and you should go’ (Ruth 2.9)

This is analogous to the marking of *shewa* on the final consonant in clusters in words such as וַיֵָּ֥שְׁית [vajʔiʃtʰ] and וַיִָּ֥שְׁבְַּ [vajʔiʃbʰ] (§I.2.5.9.1.) except that clusters ending in the *tav* of the 2fs suffix regularly oc-
cur in verbs ending in a strong consonant and they are not restricted to clusters with falling sonority, as shown by cases such as קַטְל. It is possible that the practice of marking a shewa on a final consonant in all contexts originated in the 2fs plosive verbal suffix and the primary motivation for this was to distinguish it clearly from the 2ms verbal suffix תִּ. It was then extended to word-final root consonants with dagesh, probably first to tav in forms such as רָשִּי, and subsequently elsewhere, in forms such as גָּשִּי and שָׁבִי. Finally, it was extended to other word-final consonants in clusters, as in יָשִׁי, by analogy with forms such as יֲשִׁי.164

The form רָשִּי ‘and (you) will give birth to’ (Gen. 16.11) should be interpreted as a feminine singular participle (equivalent to יֹלֶדֶת), and so the final tav is the feminine nominal inflection rather than a verbal suffix. In יִשָּׁב ‘dwelling in’ (Jer. 22.23) and יִמֶּק ‘nested’ (Jer. 22.23), which are likewise participles, there is a difference between ketiv and qere, the final yod being the orthography of the ketiv but not read in the qere.

When the 2fs suffix follows a vowel in a final weak verb, the tav is fricative and is not marked with shewa, e.g.

L: רָשִּי [ʁɔːˈsiθ] ‘you have done’ (Gen. 3.13)
L: רָשִּיחַ [vaʃɔːˈθiθ] ‘and you should drink’ (Ruth 2.9)
L: רָשִּיחַ [vaʃɔːˈmiθ] ‘and [when] you are thirsty’ (Ruth 2.9)

164 For this argument see Ofer (1993, 115-117).
Sporadically in L, however, a shewa is marked on a final fricative 2fs suffix in weak verbs, by analogy with the marking of the shewa on the suffix in strong verbs, e.g.

L: יִַ֣ית [hɔːˈjiːθ] ‘you were’ (A יִַ֣ית, Jud. 11.35)
L: וְיִָ֛ית [vɔhɔːˈjiːθ] ‘and you shall be’ (A וְיִָ֛ית, Isa. 62.3)

This is found more regularly in some other early manuscripts, e.g.

S: בָּאת [vɔːθ] ‘you have come’ (L: בָּאת, Gen. 16.8)\(^{165}\)

II Firk. Evr. II B 94: וְשָׁתִֵּ֕ית [vaʃɔːˈθiːθ] ‘and you will drink’ (L: וְשָׁתִֵ֕ית, Ruth 2.9)\(^{166}\)

In the early model manuscript codex known as C3, shewa signs that were originally marked on several cases of fricative tav were erased by Mishaʾel ben ‘Uzziʾel, who corrected the manuscript in many places. This suggests that the marking of shewa on a fricative 2fs suffix was an earlier layer of tradition.\(^{167}\)

In manuscripts with Babylonian vocalization, the tav of the suffix after vowels in final-weak verbs is generally fricative, as in Tiberian, but there is an isolated case of it being marked with dagesh in an Old Babylonian (OB) manuscript (Yeivin 1985, 350). This reflects its pronunciation as a stop by analogy with the form of the suffix on strong verbs:

\(^{166}\) Cf. Yeivin (1968, 370).
\(^{167}\) For this manuscript and the correction work of Mishaʾel ben ‘Uzziʾel see Penkower (1989). For the erasure of the shewa signs see Ofer (1993, 116).
In verbs with final guttural radicals a late insertion of an epenthetic vowel has occurred before the final suffix leaving the tav a stop, similarly to the process we have seen above in the form גְּדוּלָה (Exod. 18.9), e.g.

L: תָּה בָּדֵיָה [jɔːˈðeːjə] ‘you (fs) know’ (1 Kings 2.15)

L: תָּה בָּדֵיָה [jɔːˈðeːjə] ‘you have laboured’ (Isa. 62.8)

L: תָּה בָּדֵיָה [jɔːˈðeːjə] ‘you have forgotten’ (Isa. 17.10)

L: תָּה בָּדֵיָה [humˈlaːẖatʰ] ‘you were [not] rubbed with salt’ (Ezek. 16.4)

The shewa sign is marked on the tav by analogy with verbs with a final strong radical, such as הָלַכְתָּ (Ruth 2.9), etc. The dagesh in the tav indicates that the consonant was a stop. It was an ungeminated stop and the dagesh was read as a dagesh lene. This is shown by Karaite transcriptions that mark geminated consonants with an Arabic shadda sign but omit the shadda on בגדכפת consonants with dagesh lene, e.g.

םָנָאָבֵעַ [sɔːˈvɔːjə] (BL Or 2549 fol. 234r, 5 | L [BHS]: שָבָּעַ Ezek. 16.29 ‘you were [not] satisfied’)

It should be noted that in this manuscript the shewa is omitted on the tav transcribing the tav.
The plosive tav and vocalization with shewa of the 2fs independent pronoun אַתְַ (in pause אָּ תְַ, e.g. Gen. 12.11)\textsuperscript{168} has, likewise, arisen by analogy with the form and vocalization of the 2fs suffix on strong verbs. As is the case with the dagesh in the suffixes, the dagesh in the independent pronoun אָּ תְַ was read as dagesh lene and the tav was not geminated.\textsuperscript{169} The lack of gemination is shown by Karaite transcriptions that mark geminated consonants with Arabic shadda. In these manuscripts, the shadda sign is not marked on the tāʾ that transcribes the tav, e.g.

\begin{quote}

בַּת־מִַ֣יַאִַ֔תְַהַגִָ֥ידִי

\end{quote}

The reading of אַתְַ with ungeminated tav is found also in modern oral reading traditions that distinguish between geminated and ungeminated consonants.

In the Karaite transcriptions, the shewa sign is sometimes omitted on the tāʾ that transcribes the tav of אָּ תְַ, e.g.

\begin{quote}

וְאִַ֖תְַ

\end{quote}

\textsuperscript{168} In L the shewa is omitted in אָּ תְַ (Ruth 3.9).

\textsuperscript{169} Some reference grammars, such as Berghäuser (1918, 141), Bauer and Leander (1922, 219–20), erroneously claim that the final tav of the independent 2fs pronoun was geminated by analogy with the 2ms independent pronoun נַתְַן. The analogy, however, was with the 2fs verbal suffix, which was not geminated.
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[ʔaːatʰ] (BL Or 2549 fol. 238v, 2 | L [BHS]: אָת Ezek. 16.45 ‘you’)

A similar type of vocalization is found in the 2fs suffix conjugation of the verb נָתִן ‘to give’, e.g. L: נָתִתְַ (Ezek. 16.36)

In contrast to the independent pronoun אָת, the final tav in this form was pronounced geminate, as demonstrated by Karaite transcriptions, e.g.

כִלְחִֹׂשֶ (BL Or 2549 fol. 235r, 2 | L [BHS]: נָתִית Ezek. 16.36 ‘you (fs) gave’)

This form, therefore, had a final consonant cluster.

I.2.5.9.4. Final Kaf

A shewa sign is regularly written on a vowelless word-final kaf, e.g.

L: כְוָּ (and darkness) (Gen. 1.2)
L: כְּ (and he blessed) (Gen. 1.22)
L: כְּ (within) (Gen. 2.9)

This practice is likely to have originated as a means of clearly distinguishing the 2fs possessive suffix from the 2ms possessive suffix, both of which are written without a final vowel letter, e.g.

L: כְָּ (your (fs) brother) (2 Sam. 13.7)
L: כְָּ (your (ms) brother) (2 Sam. 2.22)
The marking of the shewa was then extended to all occurrences of final kaf. This explanation is found already in the Mikhlol of David Qimhi (1160–?1235):\(^{170}\)

But the kaf of the feminine pronoun, as in חֹדַּר, ‘your (fs) hand’, מִרְפֵּל, ‘your (fs) leg’, נְעֵינָה, ‘your (fs) eye’, נְאַזְּנָה, ‘your (fs) ear’, is pointed with shewa since there is a possibility of erring and reading games, although a soft letter (i.e. mater lectionis) is not written after it. Therefore, they always pointed the kaf that designated the feminine with shewa. In conformity with the way they customarily pointed this kaf they regularly pointed also a root letter kaf at the end of a word, as in בַּשֶַׁךְ, ‘pouring’, מִשְׁקֶשׁ, ‘darkness’, נְרַךְ, ‘way’.

The kaf in these are the like the resh of אָמַר and the lamed of אָכַל, but they did not point the resh and the lamed whereas they pointed the kaf (with shewa).\(^{171}\)

I.2.5.9.5. Further Cases in L

In L there are two cases where a shewa sign is marked at the end of a word that is linked to the following word by maqqef and does not fall into any of the categories mentioned above:

L: הֲדַדְרִימֵם ‘Hadadrimmon’ (A, C: מִדֵַדְרִימֵם, Zech. 12.11)


\(^{171}\) David Qimhi, Mikhlol (ed. Rittenberg, 1862, 139b), Chomsky (1952, 17): אָמַר וַתֹּאמֶר לִשְׁמֹר וְאַשֶּׁר אָכַל וַתֹּאמֶר לִשְׁמֹר לִשְׁמֹר וְאָכַל וַתֹּאמֶר לִשְׁמֹร
I.2.5.9.6. Non-Standard Tiberian Manuscripts

Many manuscripts with Non-Standard Tiberian vocalization exhibit patterns of occurrence of shewa on word-final letters that can be regarded as further extensions of the principles of marking shewa.

In some manuscripts with Non-Standard Tiberian vocalization, a shewa sign is marked regularly on the fricative tav of the 3fs verbal suffix, e.g.

- תְַבִָּּׂ֖א ַ (T-S A12.1, Blapp 2017, 80 | L [BHS]: תְַבִָּּׂ֖א ַ Ruth 2.12 ‘you have come’)
- לִָּ֥יתְַֿוְגִַ (T-S A12.1, Blapp 2017, 80 | L [BHS]: יָּּתְַּֿוְגִַ Ruth 3.4 ‘and you will uncover’)
- תְַֿמ ִֵַ֗וְצ ַ (T-S A12.1, Blapp 2017, 80 | L [BHS]: תְַֿמ ִֵַ֗וְצ ַ Ruth 2.9 ‘and [when] you are thirsty’)

The shewa is often written on a word-final guttural consonant that is preceded by a vowel, especially ḫet and ʿayin (§I.1.8., §I.1.16.), e.g.

- חְַשְכַַָ֛תִַוַָּ (T-S A11 .1, Blapp 2017, 48 | L [BHS]: חְַשְכַַָ֛תִַוַָּ Job 39.14 ‘and she forgot’)
- חְַרַַָּּ֤וַיִּבְַ (Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: חְַרַַָּּ֤וַיִּבְַ 1 Kings 11.40 ‘and he fled’)
- עְַהוֹדַַֹ֑ (T-S A13.18, Blapp 2017, 127 | L [BHS]: עְַהוֹדַַֹ֑ Psa. 90.12 ‘teach!’)
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The purpose of the shewa here appears to be to ensure that the weak guttural letter was read and not slurred over. It marks explicitly that the letter closes a syllable, and is therefore consonantal.

Similarly, shewa in Non-Standard Tiberian manuscripts is often marked on final consonantal vav that is preceded by a vowel, to ensure that they are read as consonantal (§I.1.6.), e.g.

šewa (T-S A13.18, Blapp 2017, 125 | L [BHS]: עליו Psa. 89.46 ‘on him’)

ןושאר (Codex Reuchlinianus, Morag 1959, 219 | L [BHS]: נשאר ‘and his train’ Isa. 6.1)

Some Non-Standard Tiberian manuscripts occasionally mark shewa on other word-final consonants that are preceded by a vowel and not in clusters, e.g.

נושאר (JTS ENA 2640 f. 11, Díez Macho 1971, 293-4 | L [BHS]: נשאר Psa. 10.18 ‘man’)

בהכיל (JTS ENA 2640 f. 11, Díez Macho 1971, 293-4 | L [BHS]: בכיל ‘in the temple of’)

אשְׂנָר (JTS ENA 2118 f. 14, Murtonen 1961, 55 | L [BHS]: אשור ‘Ashur’)

(2 Sam. 22.7 ‘and he heard’)

(תָּנָא Job 39.17 ‘God’)

(Codex Reuchlinianus | L [BHS]: לא(Job 39.17 ‘God’)

God’)}

(Does not] give light’)

(Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: they heard’)

(Codex Reuchlinianus | L [BHS]: אָלַו[God]’)}

(T-S A11.1, Blapp 2017, 47 | L [BHS]: לַוֹא Job 39.17 ‘God’)

(T-S A13.18, Blapp 2017, 125 | L [BHS]: עליו Psa. 89.46 ‘on him’)

(Codex Reuchlinianus, Morag 1959, 219 | L [BHS]: נשאר ‘and his train’ Isa. 6.1)
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In a number of Non-Standard Tiberian manuscripts of non-biblical texts vocalizers have marked *shewa* on all word-final consonants, e.g. in the liturgical text Mahzor Vitry: הַּ נַאַכַּ ל, קַשַּׁ, אָוָּד ב, ב (Eldar 1975, 194).

In some Non-Standard Tiberian biblical manuscripts *shewa* is marked on word-final *he* and *’alef* that are *matres lectionis* and are not realized as consonants, e.g.

- בָּּ ב ל (T-S A13.20, Blapp 2017, 156 | L [BHS]: ב ל Psa. 69.21 ‘has broken’)
- יֶּּ ל (T-S A13.20, Blapp 2017, 156 | L [BHS]: י ל Psa. 70.6 ‘hasten’)
- לְּּ פָּּ (T-S A13.20, Blapp 2017, 156 | L [BHS]: ל פ Psa. 71.3 ‘to come’)

It seems that this practice arose by extending the use of *shewa* that marks syllable closure to letters that are pronounced as vowels without consonantal realization. A similar development is attested in Non-Standard Tiberian manuscripts in the use of *mappiq* on *he* and *dagesh* on *’alef*, which are in some cases extended from marking consonantal *he* and *’alef* to the marking also of *matres lectionis he* and *’alef* (§I.1.1., §I.1.5.). This type of extension of the marking of *shewa* is sometimes applied also to word-internal *matres lectionis*, e.g.

- מְּי מַּ (T-S NS 18.5, Arrant 2020 | L [BHS]: מ מ Num. 14.40 ‘we have sinned’)

'Take' (T-S A13.20, Blapp 2017, 155 | L [BHS]: take Psalms 71.7 'like a sign')
Vowels and Syllable Structure

Such a marking of shewa on word-internal matres lectionis has been identified in manuscripts of European provenance containing non-biblical Hebrew texts with a Non-Standard Tiberian type of vocalization, e.g. שַעֲדוֹן, מַלְאָכָה, מְלֶאָכָה, רָאָשׁ, לֵאָמְר, מֶרוֹתָאֶ. In some European manuscripts, mater lectionis ʾalef is marked by ḫaṭef pataḥ instead of shewa, e.g. בָּאָתִי, רִאֲשִׁי, רָאָשׁ, רָאֵיתִי, לֵאָמְר. This is unlikely to reflect a consonant realization of the ʾalef but rather has arisen by analogy with the use on matres lectionis of the shewa sign, which alternates with ḫaṭef pataḥ in other contexts.

Another Non-Standard Tiberian vocalization practice found in non-biblical texts is to mark shewa on a consonant preceding a mater lectionis that is marked by a vowel sign. This is found before shureq, which is always marked on mater lectionis vav, e.g. in Mishnaic texts: אֲבֹדֵה, אֶבֹדֵה (Sharvit 1968, 24), and also before other matres lectionis on which a vowel is marked contrary to the standard Tiberian system, e.g. כֹּן (Bar-Asher 1980, 48). Alternatively, when the mater lectionis has a vowel sign, the preceding

---


consonant is sometimes also marked with a vowel sign, e.g. בְצֵאֵתִי, וּבַצֹאֹן, כָאָּן.\textsuperscript{174}

\textbf{I.2.6. SYLLABIFICATION AND METRICAL STRUCTURE OF WORD-FINAL SYLLABLES}

The syllable structure of words with final consonantal clusters such as ובך ‘and he wept’ (Gen. 45.15), ובך ‘and he captured’ (Num. 21.1) and כאת ‘you gleaned’ (Ruth 2.19) can be analysed as having extra-syllabic consonants. These would have the underlying structure /vaj.jev.k/, /vaj.jiʃ.b/ and /liq.qatˁ.t/, in which the final consonant of the cluster at the periphery of the word is extrasyllabic. This can be compared to the analysis of the underlying syllable structure of a word such as קול as /q̟ō.l/ with an extrasyllabic final consonant (§I.2.4.). In both cases the extra-syllabicity of the final consonant is conditioned by the fact that a syllable should not have more than two morae. Words with final consonant clusters such as /vaj.jev.k/, /vaj.jiʃ.b/ and /liq.qatˁ.t/ have in their final syllables a vowel without inherent length. On the phonetic level, however, the final vowel would be lengthened by stress and so it would split into a C\textsuperscript{VC} structure with an epenthetic vowel after the long vowel, as is the case with /q̟ō.l/ [ˈq̟oːl] and /lev/ [ˈleːev], viz. [vaj.ˈjeː.ev.k], [vaj.ˈjiː.iʃ.b] and

\textsuperscript{174} Eldar (1975, 195), Bar-Asher (1980, 48). These three types of double vocalization of vowels marked by \textit{matres lectionis} are also found in medieval Judaeo-Arabic texts that are vocalized with Tiberian vowel signs, see Khan (1992a).
[liq.ʿqa:at.t]. The consonant on the word-final periphery would remain extrasyllabic at the phonetic level.

As is the case with words such as [ˈqoːol] and [ˈleːev], on the level of metrical parsing the unstressed epenthetic in words such as [vaːj.ˈjeː.ev.k], [vaːj.ˈjiː.i.b] and [liq.ʿqa:at.t] would belong together with the preceding long vowel in a trochaic foot. The final consonant can be considered to have been extrametrical:

\[ [\text{vaːj. ˈjeː.ev.k}] \]
\[ (*) \quad (^{*} \cdot) \]

Word-final extrasyllabic consonants can be posited to exist also in segolate forms, e.g. ־מֶֶ֫לֶךְ [ˈmɛː.lɛχ] ‘king’, רֶפֶַ֫ר [ˈseː.fer] ‘book’,  שעַֹ֫דֶש [ˈqoː.ðɛʃ] The underlying forms of these would be /mɛl.χ/, /sef.r/, /qoð.ʃ/, and the final extrasyllabic consonant would be syllabified by an epenthetic on the phonetic level. As is the case with other epenthetics, we should assume that these epenthetics did not stand in an independent foot. They would be analogous to the epenthetic of words such as [ˈqoː:ol] and be weak syllables bound prosodically to the previous strong syllable in a trochaic foot:

/\text{mɛl.χ}/

\[ [ˈmɛː.lɛχ] \]
\[ (^{*} \cdot) \]

\[ 175 \] Such underlying representations without the epenthetic vowel are adopted in analyses of Tiberian Hebrew made within the framework of generative phonology and optimality theory, e.g. Prince (1975), Greenstein (1992), Malone (1993), Coetzee (1999), Edzard (2013).
The vowel in the underlying syllable structure /mɛl.χ/ is short. After the insertion of the epenthetic, it has become lengthened. A stressed vowel would have been lengthened. A further factor that brought about this lengthening is likely to have been a metrical constraint on having a sequence of a light CV syllable and a following weak epenthetic syllable.

A similar analysis would apply to forms such as אַל־יִֶ֭חַדְַ 'let it not rejoice' (Job 3.6) and שָּׁכַ חַתְ ַ 'you (fs) have forgotten' (Isa. 17.10), which also end in trochaic feet:

\[ /jih.d/ \quad \text{|} \quad /ʃɔːχa.ħ.t/ \]
\[ [ˈjiː.ħad] \quad \text{|} \quad [ʃɔːˈχa.ː.ħat] \]
\[ (ˈ*.) \quad (ˈ*) (ˈ*.) \]

Some nouns that derive historically from a *CVCC pattern have stress on the syllable containing the vowel that breaks the final cluster. This applies, for example, to nouns with a medial ʾalef, e.g.

\[ בְּאֵר ‘well’ < *biʾr \]
\[ בְּאֹ ‘wolf’ < *diʾb \]
\[ שׁבְּא ‘stench’ < *buʾš \]

In such forms an original epenthetic takes the main stress. The original short lexical vowel is left without stress and comes to be in a metrically weak CV syllable, and so is represented by shewa. Since the second vowel is stressed it should be assumed that, although originally an epenthetic, it has become reanalysed as a lexical vowel in the underlying form of the word:

\[ *biʾr > בְּאֵר [beʾe:er] /bʔe.ɾ/ \]
This process of shifting the stress to the epenthetic is regular with medial-ʾalef nouns, in which it may have been motivated by an effort to preserve the weak ʾalef. By making the ʾalef the onset of a strong stressed syllable of a foot, i.e. בֵּית [beʾʔeːә] (ʼ* .) rather than of a weak unstressed syllable of a foot, as in מֶלֶך [ˈmɛː.lɛχ] (ʼ* .) the articulation of the ʾalef is strengthened. The same orthoepic metrical principle is likely to have given rise to the šere on initial ʾalef in forms such as גִּרְדָּל ‘girdle’ and אֵבֶס ‘crib’, which have a קְטוֹל and קְטוּל morphological pattern respectively. The ʾalef with šere is a metrically strong syllable (*), whereas an ʾalef with hatef segol, which would have been expected according to the morphological pattern, would have been a metrically weak syllable. The same explanation holds for the vocalization of ʾalef with šere in verbal forms such as כְּמוֹ ‘you love’ (Prov. 1.22), where a hatef segol would be expected (cf. כְּמוֹ Zech. 8.17). Note also the form יָאָכְל ‘it consumes him’ (Job 20.26), where this process has preserved the ʾalef, which is normally weakened and after prefixes (cf. יָאָכְל isa. 62.9 ‘they will eat it’).

Stress shifts to the epenthetic syllables also in many nouns with a final weak radical, e.g.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>English</th>
<th>Hebrew</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>פְרִי</td>
<td>‘fruit’</td>
<td>פְרִי</td>
<td>*pary</td>
</tr>
<tr>
<td>גְדִי</td>
<td>‘kid’</td>
<td>גְדִי</td>
<td>*gady</td>
</tr>
<tr>
<td>בְּכִי</td>
<td>‘weeping’</td>
<td>בְּכִי</td>
<td>*baky</td>
</tr>
</tbody>
</table>

In such cases, the motivation for the stress shift appears to be that the long vowel created by the combination of the epenthetic and the final weak radical was favoured for stress placement over the short vowel in the first syllable.
Clusters of two consonants on the phonetic level occur in principle on word peripheries. This includes the word-final periphery, as in the forms discussed above, and the word-initial periphery, as in the isolated case of the numeral ‘two’ שְׁתַיִם / שְׁתֵי, in which the shewa is silent: [ˈʃtaːjim], [ˈʃteː]. As with word-final clusters, the initial consonant of the word-initial cluster in this word can be analysed as extrasyllabic on the underling and phonetic level, viz. /ʃ.te/ [ʃ.teː] (§I.2.5.3.).

It has been shown (§I.2.5.6.) that the parsing of a form such as /q̟oːl/ [q̟oːl] with a long vowel followed by an extrasyllabic consonant, which is realized phonetically as a strong syllable followed by a light epenthetic syllable in a trochaic foot (* .), has been extended by analogy into word-internal position in cases where a long vowel is followed by silent shewa, e.g. שָּׁמְר /ʃɔ̄.m.ru/ [ʃɔː.ɔm.ˈruː] (* .) (*).

There are a few cases of the extension of the syllabic structure and/or metrical pattern of underlying word-final consonantal clusters to word-internal position. One such case is that of forms with word-internal gutturals in a closed syllable such as וּיַעַמְדֶַ֫ /jaː.ʕam.ˈðuː/ ‘they stand’. The metrical structure of this can be represented as follows:

[jaː.ʕam. ˈðuː]

(* .)  (*)

The word would consist of two feet, the first of which is trochaic. Evidence for this is the fact that the accent can be retracted to the vowel before the guttural by the process of nesīga (Revell 1983), e.g.
Vowels and Syllable Structure

נַעַמְדָה [ˈnaː.ʕ am.ð] ‘let us stand’ (Isa. 50.8)

The normal rule of *nesiga* is that the accent cannot be retracted further than the first syllable before the final syllable that has a full vowel sign, so long as this syllable has a long vowel. This means that the accent in a word such as הָאַמָּה [hɔː.am.mɔː] ‘the cubit’ cannot be retracted to the initial syllable. We propose that the reason *nesiga* is possible in a form such as נַעַמְדָה [ˈnaː.ʕ am.ð] but not in a word such as הָאַמָּה [hɔː.am.mɔː] is that *nesiga* takes account of metrical feet rather than phonetic syllables. The rule is that the accent cannot be moved back further than the foot immediately preceding the word-final foot. These two words have different metrical structures, נַעַמְדָה has two feet, whereas הָאַמָּה has three:

naː. ʔam. ðɔː

(*)  (*)

hɔː. ʔam. mɔː

(*)  (*)  (*)

*Nesiga* can take place in a word such as רַחֲקָהַמֶּ נִי [ˈʀ̟ɔː.ʔa.ʔam.mɔː] ‘it is far from me’ (Job 21.16) since it too consists of two feet:

[ˈרɔː. ʰa.ʔɔː]

‘(*) (. *)

The trochaic foot in a word such as [jaː.ʔam.'ðuː] (* .) (*) is analogous to that of a segolate form such as מֶֶ֫לֶךְ [ˈmɛː.lɛχ] (* .) ‘king’ or נֶַעַר [ˈnaːʕaɾ] (* .) ‘youth’, in which the final syllable is unstressed.
A form such as [jaː.ʕam.ˈðuː] can be assumed to have the underlying phonological form /jaʕmðū/, which would correspond to the syllable structure of the equivalent morphological form in strong verbs, e.g. [jiʃmrū]. The process of derivation would be as follows:

/jaʕmðū/ > (i) [ja.ʕam.ðū] > (ii) [ja.ʕam.ˈðuː]

In stage (i), an epenthetic is added after the guttural in the phonetic form and the guttural is syllabified in a closed syllable with the following consonant. In stage (ii), the vowel of the preceding syllable is lengthened due to a metrical constraint against having a sequence of a light CV syllable followed by weak un-stressed epenthetic syllable. This would be similar to the proposed derivation of forms with gutturals such as /heʕ.lū/ > (i) [he.ʕɛ.ˈluː] > (ii) [he.ʕɛ.ˈluː] (§I.2.5.4.).

Another case of a word-internal trochaic foot is in proper names such as [bɛː.ɾɛχˈjɔːhù] ‘Berechiah’ (1 Chron. 2.24). Here the syllabification and metrics of a word-final segolate pattern have been extended to word-internal position:

/ber.χ.j5.hū/ 
[beː.ɾɛχ ˈjɔː  huː] 
(*.) ˈ(*)  <(*)>

In the Babylonian reading tradition, the vowel before the epenthetic has not been lengthened but rather reduced (Yeivin 1985, 1082):

בְּרַכְיָּהו [braχˈjɔːhù:]
This can be compared to the lack of lengthening in Babylonian pronunciation of the vowel before the epenthetic of gutturals in forms such as הצעב ‘young woman’, which was read as [nəaˈɾe] or [naʔaˈɾe] (§I.2.5.4.).

One possible case of a word-internal syllable-final consonant cluster is reflected by the vocalization of the Hebrew gentilic ‘the Jerahmeelite’ in L. In most cases this is vocalized יהיֶרְחְמְאֵל [haj.ɾa.ɾah.me.ʔe.ˈliː]. In 1 Sam. 27.10, however, it is vocalized in L as follows:

L: יהיֶרְחְמְאֵלִ (A: יהיֶרְחְמְאֵל, 1 Sam. 27.10)

This was also the original vocalization of the form in 1 Sam. 30.29, though it has been corrected to יהיֶרְחְמְאֵל. The vocalization יהיֶרְחְמְאֵל is found in 1 Sam. 27.10 and 1 Sam. 30.29 also in other manuscripts written by the scribe of L, Samuel ben Jacob, showing that it is unlikely to be a random error (Phillips 2017, 16). This vocalization, therefore, may be a case of a word-internal consonant cluster at the end of a syllable analogous to word-final clusters in words such as נִֵַֽרְדְַ ‘nard’ (Cant. 4.14) and יִַ֔רְדְַ ‘he causes him to dominate’ (Isa. 41.2). As in the word-final clusters, the word-internal cluster in יהיֶרְחְמְאֵל would have falling sonority. The cluster would come before the boundary between the stem of the name and the theophoric element (cf. the remarks concerning the name Eliphelehu in §I.2.5.7.6.).

I.2.7. LEXICAL ḤATEF VOWELS

Some short vowels in open syllables are lexical vowels rather than epenthetic vowels. This applies mainly to a set of vowels
represented by ḫaṭef qames. In such cases, the ḫaṭef qames [ɔ] preserves the rounded quality of a historical lexical vowel of the morphological form and there has not been quality reduction and neutralization. They should be represented as the phoneme /o/ with unspecified length in the phonological form of the word. In conformity with the normal rule, this phoneme is realized as [ɔ] in unstressed syllables, and [oː] in syllables with the main stress, e.g.

In the examples cited above the ḫaṭef qames is the reflex of a short round historical vowel. In some cases ḫaṭef qames in an
open syllable is the result of the shortening of an original [oː] /ō/ or [ɔː] /ɔ̄/ in an unstressed syllable, e.g.

\[\text{s̱ip.pʰɔ.ɾ̟iː} \text{im}] /\text{s̱ip.pʰo.r̟i.m}/ (Lev. 14.49 ‘birds’) < *\text{šippōrim}; \text{cf. sing.} [\text{s̱ippʰo:ɾ̟}]

\[\text{kʰut.tʰo.no.θ} \text{/kʰut.tʰo.nō.θ}/ \text{(Exod. 29.8 ‘tunics’)} < *\text{kuttōnōθ}; \text{cf. sing.} \text{kʰut tên [kʰutʰo.neθ]}

\[\text{bɔ̄.mo.θē} \text{/bɔː.mo.θē}/ \text{(Isa. 14.14 ‘the heights of’) < *\text{bōmōθē}; \text{cf. sing.} \text{bɔt mo.θō} \text{‘heights’}

\[\text{heː.ho.al.tʰiː} \text{/heɛ.ho.ðal.tʰi}/ \text{(Jud. 9.9. ‘shall I cease?’) < *ḥəðālti}

There are some cases where the qere has a lexical haṭef qames where the ketiv has a mater lectionis vav, e.g.

Neh. 13.23: ketiv אָשֶׁר דִּבְרַיָּה, qere אָשֶׁר דִּבְרַיָּה ‘Ash-dodite, Ammonite (women)’

The ketiv, in such cases, would seem to reflect a variant reading in which a historical long /ō/ had not been shortened.

Some words with haṭef qames in an open syllable exhibit variants in which the reduction to an epenthetic has taken place. This is seen, for example, in the vocalization הַקְּדָּשִׁים ‘the holinesses’ (Ezek. 44.13) instead of the more common הַקְּדָּשִׁים. Compare also אֶצְרֶָ֥נָּה (Psa. 119.33 ‘and I will keep it’) to אֶצְרֶָ֥נָה (Isa. 27.3 ‘I guard it’), and שִׁבֲּלֵַ֣י (Zech. 4.12), which seems to be the same lexical item as שִׁבֳּלִֵ֗ים (Gen. 41.5). In some cases, the variants are differences between Masoretic authorities. Misha’el ben ʿUzziʾel, for example, in his Kitāb al-Khilaf records a variation between the reading of Ben Asher
Yeivin (1980, 283) identifies some cases of *ḥaṭef segol* on non-guttural consonants as a lexical vowel (‘morphological use’ in his terminology). These are found mainly in Biblical Aramaic, e.g. לִבְנַתָּה (Dan. 4.27 ‘I built it’), יְרָ הָ (Ezra 4.18 ‘it was read’), גְלָי (Dan. 2.30 ‘it was revealed’). A Hebrew example is הָבָ הָ לִאָלָי (A, C 2 Sam. 6.5 ‘and with cymbals’). L has simple *segol* here: הָבָ הָ לִאָלָי. It is not clear, however, whether any of these preserve the original quality of a lexical vowel or whether they reflect some kind of assimilation to the phonetic environment.

The qualities of *ḥaṭef qames* [ɔ] and *ḥaṭef segol* [ɛ] share the property of being lax vowels, in that they were produced in the central vowel space. Phonetic studies of other languages have shown that, all other things being equal, unstressed lax vowels are shorter than unstressed tense vowels.¹⁷⁶ This feature of the lax vowels [ɔ] and [ɛ] could have been the principal reason why the retention of their qualities was allowed in conditions where tense vowel qualities were reduced.

In some manuscripts, a *shewa* sign is marked where L has a lexical vowel represented by *ḥaṭef qames*. In MS Sassoon 507 (S), for example, the plural form כְּתֹנָת is vocalized כְּתֹונָת.¹⁷⁷ The treatise *Diqduqe ha-Ṭeʿamim* (ed. Dotan 1967, §19) states that some scribes wrote *shewa* rather than *ḥaṭef qames* in the words מָרְדֵּכַי and תָּנוֹתָן, where the *ḥaṭef qames* represented a lexical vowel. The following passage from *Hidāyat al-Qāriʿ* also refers to the practice

¹⁷⁶ For example, Delattre and Hohenberg (2009).

of some scribes to mark short lexical vowels in open syllables with *shewa* rather than a *ḥaṭef* sign:

It is said ... that some scribes wanted to remove uncertainty from places that may lead to error and have combined a vowel with *shewa* ... because they thought that people would err in the reading of (for example) מָּרְדֳּכַי. When some people saw *shewa* without *qames* in מָּרְדֳּכַי, they read it as *patah*. If they saw *qames* alone, they were at risk of giving the *qames* its full length. So, the scribes decided to combine them so that this degree of uncertainty be removed. This applied also to similar cases. This is an exception to their customary practice. What supports the claim that this is the view of only some of them with regard to letters not belonging to the group of the four (guttural letters) is that in most codices one does not find what has been presented as counterevidence (i.e. the marking of *ḥaṭef* signs on non-guttural letters), but all codices are uniform in the combination of *shewa* with a vowel under the four (guttural) letters.¹⁷⁸

These variations in vocalization whereby the *shewa* sign is written instead of *ḥaṭef qames* representing lexical vowels in words such as מָּרְדֳּכַי and תָּנֹוכַי are variations in notation of the lexical vowel rather than its reduction to an epenthetic.

The form רָאִי [ʀ̟ɔ.ˈʔiː] (Gen. 16.13 ‘seeing’) indicates that a *ḥaṭef qames* that represents a lexical vowel does not assimilate to the quality of the vowel after a following guttural, unlike epenthetic vowels.

The status of these lexical vowels represented by *ḥatef qameš* involved not only the resistance to neutralization of their historical vowel quality and to assimilation to the quality of adjacent vowels but also retention of a stronger metrical structure than epenthetics. This is demonstrated by the distribution of the allophones of *resh*. In the medieval sources, the *resh* was said to have its default uvular realization in a word such as בָּ֑לי [sˁɔ.ˈɾ̟iː] ‘balm’ (Gen. 43.11), i.e., after an alveolar consonant with *ḥatef qameš*. As remarked in §I.1.20., when the alveolar has vocalic *shewa* in this environment, as in the word בְּרִֽזְּרַֽפִּ֔ה [sˁɑ.rˁuː.ˈfɔː] ‘refined (fs)’ (2 Sam. 22.31), the *resh* was in the same foot as the alveolar and had a pharyngealized apico-alveolar realization. This reflects the fact that the domain of the conditioning of the allophones of *resh* was the foot rather than the syllable:

\[
\begin{align*}
(s^{ː}a\cdot r^{i}u\cdot.:) & \quad (\text{ˈfoː}) \\
(\ast) & \quad (\text{ˈs})
\end{align*}
\]

The realization of the *resh* in בָּ֑לי [sˁɔ.ɹiː] as an uvular can be interpreted as reflecting the fact that such a *ḥatef qameš* on a non-guttural consonant was in a separate foot from that of the following syllable:

\[
\begin{align*}
(s^{ː}o\cdot.) & \quad (\text{ˈriːi}) \\
(\ast) & \quad (\text{ˈs})
\end{align*}
\]

The foot containing the *ḥatef qameš* consists of light monomoraic syllable CV. Metrical phonologists term this a ‘degenerate

---

foot, since feet would normally be expected to be bisyllabic or bimoraic (Prince 1990; Kager 2007, 200–201). Such degenerate feet are tolerated in some languages, but often only under certain conditions, such as peripheral position or main stress. In Tiberian Hebrew, a degenerate foot consisting of a light CV syllable is only tolerated with a lax vowel quality of qameṣ or segol. Furthermore, it is only allowed if it is immediately followed by a stronger bimoraic syllable (CVV or CVC). This is analogous to the fact that a light epenthetic CV syllable, represented by a shewa or a ḥaṭef vowel, is only allowed if it is bound prosodically with a following bimoraic syllable in the same foot. This can be captured by proposing metrical tree structures such as the following:

\[
\begin{align*}
\text{Word} & \quad \text{Word} \\
\phi & \quad \phi \\
\text{w} \quad \text{s} & \quad \text{w} \quad \text{s} \\
\phi & \\
\text{w} \quad \text{s} & \\
\end{align*}
\]

\[
[(s^\prime a. \quad r^\prime u:\) (‘fɔː)] \\
[(s^\prime o. \quad (ˈr̟iː)]
\]

Key: w = weak, s = strong, φ = foot

These trees show that CV syllables with lexical vowels have at a higher metrical level the same rhythmic relationship with what follows as does a CV epenthetic vowel within a foot. The bimoraic syllable following a lexical vowel is stronger than the
lexical vowel on a higher metrical level, just as a bimoraic syllable is stronger than a preceding epenthetic CV within a foot.

A series of two light CV syllables is not tolerated, and a foot with the syllabic structure CVCV is not licit. So a degenerate CV foot cannot be combined with a preceding monomoraic syllable of a vocalic shewa of a preposition or a short /u/ of the conjunctive vav. In such cases the haṭef qames vowel is elided and in this respect it behaves like a vocalic shewa, e.g. 

דְמִָ֥יבִַּּ֣ (Isa. 38.10 ‘in the silence of’ versus דֳמִִׂ֖י (Isa. 62.6)

וּצְרִַ֣י (Gen. 37.25 ‘and balm’) versus צֳרִי ַ (Gen. 43.11)

Another repair strategy is to lengthen a preceding short vowel, as is found when the degenerate foot is preceded by interrogative he, e.g.

הַצֳרִי ַאֵַ֣ין (Jer. 8.22)

Another way in which syllables with lexical vowels behave like vocalic shewa is in the retraction of the accent (nesiga). It was established in §1.2.6. that nesiga operates within the domain of metrical feet rather than syllables and the general rule is that it retracts not further than the foot that immediately precedes the word-final foot. In a construction such as עָֹּ֑בַבַָּּ֣מֳתֵי ‘the heights of the clouds’ (Isa. 14.14) with a CV syllable containing a lexical haṭef qames vowel, the foot of this syllable is ignored and the stress retracts back to a syllable that is the third foot from the end:
It would seem, therefore, that a degenerate foot containing a short CV syllable with a lexical short vowel was ignored by nesiga and so such a syllable behaves like the syllable of an epenthetic vowel that does not have its own foot, as in רחוקה מני ‘it is far from me’ (Job 21.16):

\[
\text{[ˈʁ̟ɔː\又能]}
\]

Nevertheless, there is evidence that such haṭef qames and haṭef segol lexical vowels where metrically stronger than vocalic shewa due to their being parsed in a separate foot. Some reflections of the higher degree of metrical strength of a haṭef qames on non-guttural consonants in words like דומי include the following.

These short [ɔ] vowels represented by haṭef qames can receive a secondary stress, in which case they are lengthened and are represented by a simple qames sign in the vocalization, e.g., קדשין (Exod. 29.37 ‘holinesses’)

\[
\text{[ˌq̟ɔː.ðɔː.ʃi.im]}
\]

Such secondary stress, marked in this case by a major gaʿya, occurs, in principle, two syllables back from the main stress at the end of the word (§1.2.8.2.1.). Secondary stress does not occur in words with vocalic shewa in this position, since the vowel is epenthetic and is metrically weak, e.g.
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עַדְרִים ‘words’
[da.ˈvrə:ˈriːm]
( . * ) (* .)

In some early Tiberian Masoretic manuscripts, moreover, quesṣ is written in place of haṭef qames also in pretonic syllables that do not take secondary stress, e.g.,

II Firkovitch Evr. II B 10: צָּרִי ‘balm’ (Gen. 43.11, most manuscripts have צָּרִי)
L: וּיִגֶָפֶֹ֑נּ ‘he will strike him’ (1 Sam. 26.10, A and most manuscripts have פֶֹ֑נּוּיִגֳַ)

The same applies to cases of haṭef segol that sporadically occur under non-guttural consonants, e.g.,

L: וּבְצֶלְצֶלִ ים ‘and with cymbals’ (2 Sam. 6.5, most manuscripts have בְּצֶלְצֱלִ ים)

I.2.8. VARIATION IN THE DURATION OF LONG VOWELS

I.2.8.1. Syllables with the Main Stress and Unstressed Syllables

According to the general principles of vowel length (§I.2.2.), vowels represented by basic vowel signs are long when they are either (i) in a stressed syllable or (ii) in an unstressed open syllable. There was, however, some variation in the relative duration of such long vowels. Some details of this variation can be reconstructed from the medieval sources.
I.2.8.1.1. Stressed and Unstressed Vowels

We learn from some sources that vowels in stressed syllables were longer than long vowels in unstressed syllables. This was most clearly formulated in the grammatical treatises of the Qimḥi family, e.g. Joseph Qimḥi, *Sefer Zikkaron*:

The big vowels are always long unless the stress is adjacent to them [i.e. they are in an unstressed syllable], e.g. שָׁמַר: the stress is on the mem, so you do not lengthen the qameṣ of the shin.\(^{180}\)

David Qimḥi, *Sefer Mikhlol*:

If adjacent to the ‘big’ vowel there is another vowel, either ‘small’ or ‘big’, and the stress falls on the letter next to it, you shorten the first vowel even though it is ‘big’, e.g. זַכַּּ֤רְתִי לָּךְ ‘I remember for you’ (Jer. 2.2): here the stress is on the *kaf* and you lengthen the stressed vowel despite the fact that it is ‘small’ Just as you lengthen this vowel, so you shorten the vowel of the *zayin*, although this is *qames*.\(^{181}\)

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\(^{180}\) Bacher (ed.) (1888, 17): הגדולה יה לה עקוב ויאזור בכל קרייתא חיות אס וטע ענה הבinic מסוי ליה כמור שוקר הטעה במשי אל תארד קמעה הישין. The Qimḥis classified the Hebrew vowels into ‘big’ vowels and ‘small’ vowels according to their quantity. The ‘big’ vowels were *šere*, *ḥolem* and long *qames*, *shureq*, and *ḥireq*. The ‘small’ vowels were *patah*, *segol*, *qames ḡaṭuf*, short *ḥireq* and *qibbuṣ*.

\(^{181}\) Ed. Rittenberg (1862, 137b–138a): ואם תהיה בצד התנועה הגדולה תנועה אחורית קמעה רגלה ואחרי מעדנה תנועה אחרית מעדנה התנועה ההארוהה אציע פשריה גירלה כל poo יוצרת ליה תנועה בכּ׳ הוא תנועה קמעה אציע בتنوعה המני תנועה שבבוד לעפי שתחמזה משל קריאת היהי פכיר ישיא קמוצי.
Given that the Karaite transcriptions and other medieval sources\textsuperscript{182} clearly indicate that vowels in unstressed open syllables were long, these statements by the Qimḥiṣ were probably not intended to mean that the unstressed long vowels were reduced completely to short ones but rather that these were still long relative to the short vowels although they were not as long as vowels that were lengthened by stress. This relative quantity difference between stressed and unstressed long vowels can also be inferred from other grammatical works, e.g. the epitome of Saadya’s grammatical work known as Kitāb Naḥw al-‘Ibrānī ‘The Book of the Grammar of Hebrew’, which was published by Eldar (1981, 128):

In the words: קֵֽוֹרִיַּקָ֝וּמִי ‘Arise! Shine out!’ (Isa. 60.1) you lengthen the beginning of the word because it is feminine, but when it is masculine, you say לְעַֹדַקּוּמִַלְיִׂוֹם ‘for the day that I arise as a witness’ (Zeph. 3.8), lengthening the end of the word because it is masculine.\textsuperscript{183}

This tendency to reduce the duration of the long vowel in unstressed syllables may explain the occurrence of ĥaṭef qameṣ in place of the expected qameṣ in the form בָּמֳתֵי ‘shall I cease?’ (Jud. 9.9) or in place of the expected holem in בָּרַא הַלִּיתוֹם.

\textsuperscript{182} E.g. Saadya’s commentary on Sefer Yeṣira (ed. Lambert 1891, 76–77).

\textsuperscript{183}执法人员或法官意指法庭或权威的命令。《字林西典》(ed. Lorant 1891, 76-77). The concept of lengthening vs. non-lengthening/shortening in this passage and also in the extracts from the Qimḥiṣ corresponds to the use of the terms madd and qasr in the Arabic tajwid literature to denote ‘extra length’ and ‘normal length’ respectively, cf. Bravmann (1934, 76).
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[ˈbɔːmɔθeː] ‘the heights of’ (Isa. 14.14) (cf. §I.2.7.). It is likely that orthoepic efforts were made to keep the relatively weak un-stressed open syllables long and cases such as נַחֲלֵיהַ and הבַּמְתֵי reflect lapses in this orthoepy.

In the Karaite transcriptions, an unstressed holem within words is sometimes represented without a mater lectionis, reflecting its shortening. This applies to the following example, in which a holem occurs in an unstressed syllable before the secondary stress:

וּתְפוֹצַ֣וֹתִיכִֶ֔ם (BL Or 2543 MS A, fol. 7r, 8 | L [BHS]: וּתְפוֹצַוֹתִיכִֶם Jer. 25.34 ‘and your dispersions’)

In less careful reading, the duration of these unstressed long vowels was regularly reduced. This is reflected, for example, by a Karaite transcription of the Psalms (Khan 1990a, Genizah MS 13), in which long qames in unstressed open syllables is not transcribed by an Arabic mater lectionis, e.g.

עָּלַָּ֣יו (Genizah MS 13, Khan 1990a, 13 | L [BHS]: עָלִיוּ Psa. 109.6 ‘against him’)

שֵָּּׁ֨לַַּ֤ח (Genizah MS 13, Khan 1990a, 13 | L [BHS]: שֵלָח Psa. 111.9 ‘he sent’).

In this manuscript and also in other Karaite transcriptions a long vowel in a closed syllable in an unstressed word bound by maqqef to what follows is, likewise, sometimes transcribed without a mater lectionis, e.g.
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As has been remarked in §I.2.7., in some manuscripts words that normally have *ḥatef qameš* in a pre-stress syllable are vocalized with *qameš*, such as II Firkovitch Evr. II B 10: צָּרִי ‘balm’ (Gen. 43.11, most manuscripts have צְרִי), לֵב פַּרְעֹה ‘the heart of Pharaoh’ (Exod. 7.22, A and most manuscripts have פֶּנּוּיִגֳַ), and בֵּית אֲבֹתָֹ֑ם ‘the house of their fathers’ (Exod. 6.14). This could reflect the application of this orthoepic measure to these vowels also, which resulted in their being lengthened. Moreover, in some medieval manuscripts with Non-Standard Tiberian vocalization this orthoepic tendency is reflected by the frequent marking of *gaʿya* on the pre-stress unstressed syllable, e.g. Vatican MS Urbinati 2 (Yeivin 1980, 250–51), e.g.

בִּשְׁלֹשִַׁים (L [BHS]: בִּשְׁלֹשִים Ezek. 1.1 ‘in the thirtieth [year]’)
In the Masoretic literature it is reported that a long vowel in word-final position is shortened by the phenomenon known as deḥiq (Aramaic: ‘compressed’). The long vowel in question is usually qameṣ [ɔː] or segol [ɛː], which are lax, rather than the tense long vowels shureq [uː], holem [ɔː] and hireq [iː]. The compression takes place typically when (i) the final lax vowels qameṣ and segol occur in a word that has the stress on the penultimate syllable and is read with a conjunctive accent or when the word has maqqef and (ii) the following word has stress on its initial syllable, or at least on a full vowel after an initial shewa, i.e. on the initial metrical foot. On account of the conjunctive accent or the maqqef, the first word is closely bound prosodically with the following word. When a vowel is in deḥiq, the consonant at the beginning of the following word has dagesh, e.g.,

L: אֶּנֶּשׁ יִדְדֵיהָּ ‘I shall cause to witness against them’ (Deut. 31.28)
L: שֵׁלֵי יִרְמְיָה ‘(you breached) for yourself a breach’ (Gen. 38.29)
L: אֵרְצָהָּ כְנָנָּ ‘to the land of Canaan’ (Gen. 12.5)
L: מְיָרָאְלָהָ ‘who are these to you?’ (Gen. 33.5)

Phonetic studies of other languages have shown that, all other things being equal, unstressed lax vowels are shorter than unstressed tense vowels; cf., for example, Delattre and Hohenberg (2009).

For further details concerning deḥiq see Yeivin (1980, 292–93).
L: בְּמִרְעֶה־טוֹב ‘in good pasture’ (Ezek. 34.14)

L: תִּהוֹרַב ‘will be in it’ (Josh. 2.19)

L: תִּפְעַשֵּל ‘you make for yourself’ (Prov. 24.6)

According to *Hidāyat al-Qārī*, the final vowel here ‘is not dwelt upon or prolonged in pronunciation,’ it does not have an exhalation of breath but is very compressed.’ In an anonymous Masoretic treatise, the syllable containing a vowel in *dehīq* is described as ‘shortened’ (*makhṭūf*). The vowel can be represented, therefore, as half-long, e.g. בִּםַוְאָּעִידָּה [בִּםַוְאָּעִידָּה].

When the first word is connected by *maqqef* without an accent, *Hidāyat al-Qārī* refers to the construction as ‘athe me-raḥiq (Aramaic: ‘coming from far’). This is because the conjunctive accent before the *dehīq* is further away, on the second word before the main accent, e.g.

L: הוָּּ֔אַיִבְנֶה־בִַּׂ֖יִתַלִשְׁמִֹ֑י ‘He will build a house for my name’ (2 Sam. 7.13)

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188 Bod. Heb. d 33, fol. 16: ‘calloc אולוהא אליי חתוח אתה אולתקחה נקס מקטוומ. ‘the letter under which the segol occurs is shortened’.

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L: דעך טֵשַׁשֶּה פֶֶ֑לֶא ‘Do you work wonders for the dead?’ (Psa. 88.11)

L: סָוּרָּהַשְׁבָּה פִֹׂ֖ה ‘Turn aside, sit here’ (Ruth 4.1)

Some cases that are identified as ’are me-raḥiq have a disjunctive on the second word before the main accent, e.g.

L: אוֹלָָ֥הַאֵלִֶׂ֖יהַָּ ‘that I may go to her and inquire of her’ (1 Sam. 28.7)

This suggests that the main conditioning factor for the compression of the vowel is not the preceding accent but rather the status of the word with maq̂ef as prosodically subordinate to the following word. So these types of cases reflect the same basic phenomenon as cases of deḥiq where the word with the main accent is preceded by a word with a conjunctive accent. Some Masoretic treatises, indeed, use the term ’are me-raḥiq to refer to all cases of deḥiq.¹⁹⁰

When unstressed tense vowels, such as the high vowels shureq and hireq, occur at the end of a word in the configurations for deḥiq that have just been described, the vowel is generally not compressed and there is no dagesh on the following word, e.g.

L: [hoːɾ̟aðˈtʰeːnuː ˈvoː] ‘through which you let us down’ (Josh. 2.18)

L: [voːɬɐːɾ̟iː ˈvoː] ‘I have chosen him’ (1 Chron. 28.6)

¹⁹⁰ E.g. the treatise published by Baer and Strack (1879, §29). See the remarks of Dotan (1969).
In such cases where the first word ends in a tense vowel, a gaʿya is sporadically marked on this vowel in early manuscripts, alerting the reading to the fact that the vowel should be given its full length and should not undergo compression through deḥiq, e.g.

L: יַשַׁ עַר הֵילִּ֤ילִ ַ'wail, oh gate' (Isa. 14.31)

This gaʿya is most commonly marked when the second word begins with a guttural consonant and cannot take a dagesh. In such cases, compression of the final vowel does not occur whatever its quality, e.g.

L: דברָּך אלוה ‘these servants of yours’ (2 Kings 1.13)
A: נָשָּׁהֵ תְָּקָּד ‘you did a kindness’ (1 Sam. 15.16)
A: ראָּית אָּמש ‘I saw yesterday’ (2 Kings 9.26)
L: יֲעַלֶּּֽהַ יַַּּֽPhiladelphia ‘the people hide’ (Lev. 20.4)

It is also marked on lax vowels before non-guttural consonants that do not take an expected dagesh in conditions suitable for deḥiq, e.g.191

L: וְעַָּּ֤שָּ הַפֶ סַח ‘and he keeps the Passover’ (Num. 9.14)
A: מָּ וֶתעֲּּּֽלָּ ה ‘death has come up’ (Jer. 9.20)

The dagesh that occurs on the first letter of the second word in deḥiq constructions, such as וָּאָּעִיָּּ֤דָּה, marked the gemination of the consonant. This is likely to have been a strategy to mark clearly a boundary between the two words, which was in danger

191 For details of the occurrence of the gaʿya after the stress see Yeivin (1968, 188–91).
of being lost due to the shortening of the vowel (§I.3.1.9.). A short vowel was not licit in word-final position. The gemination of the consonant was a repair strategy that compensated for the loss of duration in the preceding vowel and closed the word-final syllable. This was a fortition of the onset of the syllable in the second word. This fortition, it seems, was facilitated by the fact that the syllable was strong due to the incidence on it of the main stress:

אֵנְעַרְדָה בֵּם
[מ.כ.מ.ח. י.כ.ז.כ.ו.מ.ו.

Such a process applied also to constructions in which the interrogative word מָה is joined to the following word by maqqef such as the following:

L: מָה־תִתֶן־לִי ‘what will you give me?’ (Gen. 15.2)

The fact that the vowel in the interrogative word in such constructions is pataḥ can be interpreted as reflecting a complete shortening of the vowel at an early period. The long Tiberian qames vowel /ɔ̄/ developed historically from a long */ā/. A short */a/, on the other hand, retained its non-rounded quality of /a/

192 A parallel to such a process of compensatory gemination of a word-initial consonant is the so-called raddoppiamento sintattico in spoken Italian, e.g. città bellissima [tʃiˈtəˌbbelˈlissima] ‘beautiful city’ (Nespor and Vogel 2012, 165–74). A parallel to the restriction of compensatory gemination to consonants following lax vowels is found in Neo-Mandaic (Häberl 2009, 76).
in the Tiberian tradition. The *pataḥ* quality in the interrogative word reflects the shortening of */ā/* to */a/* at a period before */ā/* shifted to */ə/*. The fact that *deḥiq* constructions such as בִָּּ֔םַוְאָּעִַ֣ידָּה have *qames* in the final syllable of the first word rather than *pataḥ* either reflects a later date of the shortening, after */ā/* had shifted quality to */ə/*, or reflects a process whereby the long vowel did not reduce completely to a short vowel and remained sufficiently long to undergo the quality shift.

The Karaite Arabic transcriptions, most of which indicate long vowels by Arabic *matres lectionis*, represent the final *qames* and *segol* in *deḥiq* constructions, with a *mater lectionis*, e.g.

(BL Or 2551 fol. 41r, 8 | L [BHS]:�ְ ֹ֑ ָּ בּ וְאָּעִַ֣ידָּה Psa. 81.9 ‘I shall testify for you’)

(BL Or 2549 fol. 145r, 1 | L [BHS]:וְשִים־עָּלֶָּ֥הַָּכָּרִִׂ֖ים Ezek. 4.2 ‘and set up against it the battering rams’)

(BL Or 2549 fol. 64r, 1 | L [BHS]:וְנִדְמָּה־שָֹּּׁ֑ם Jer. 8.14 ‘and let us be silent there’)

These show that in the Tiberian reading tradition, which is what most of the transcriptions reflect, the final vowel was not fully reduced to a short vowel. This is likely to have been an orthoepic measure to prevent complete shortening.

The Babylonian tradition exhibits a lesser tendency than the Tiberian tradition for such an orthoepic measure. In many manuscripts with compound Babylonian vocalization, the vowel at the end of the first word in a *deḥiq* construction is marked with
a hi̞fa sign, which indicates that it was pronounced as a short vowel (Yeivin 1985, 338), e.g.¹⁹³

[hi̞ʃʃɔː vʔɔlli:] ‘swear to me’ (Gen. 21.23 | L [BHS]: הרשה ל)

[gaˈrtʰɔ bboː:] ‘[the land] where you have sojourned’ (Gen. 21.23 | L [BHS]: הפרה ב)

[bmarʔa ttːoːv] ‘in good pasture’ (Ezek. 34.14 | L [BHS]: במרותיו)

[tihya bboː] ‘will be in it’ (Josh. 2.19 | L [BHS]: תיהיה ב)

Greek transcriptions also reflect a full shortening of the vowel. This is seen in the transcription of the vowel corresponding to Tiberian qames with epsilon in the following example.¹⁹⁴

ὡςειεννα (Klostermann 1933, Heikel 1913, Gaisford 1842) | L [BHS]: ἡσίαννα Psa. 118.25 ‘save, I pray!’

Likewise, in modern reading traditions the vowel in dehiq constructions is read as short, e.g.

Baghdad

waʔqbe're:haɾʃam (Morag 1977, 37 | L [BHS]: ואַקְבָּרַה שָׁמ Gen. 48.7 ‘and I buried her there’)

Aleppo

¹⁹³ Data supplied by Shai Heijmans.
¹⁹⁴ Data supplied by Ben Kantor.
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The Karaite transcriptions show that also the pataḥ of the interrogative word מַה in constructions such as מַה־זֹֹ֑את (Exod. 13.14) was pronounced long. *Hidāyat al-Qāriʾ* refers to the compression of this long vowel (see below), so it can be represented as half-long, like other long vowels compressed in *deḥiq*,\(^{195}\) e.g.

\[\text{ما لاخ} \quad \text{ما تتن لى} \quad \text{ما شمو} \quad \text{ما زوث} \]

In this light, we can understand the *qere* note in Exod. 4.2:

\[\text{מה זה קרמ} \]

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\(^{195}\) Constructions with מַה מֵשׁוֹת followed by *dagesh* are considered to be *'athe me-raḥiq* in the Masoretic treatise published in Baer and Strack (1879, §29).
This was pronounced [ma-izzɛː] in the reading tradition, as shown by the Karaite transcriptions, e.g.

(BL Or 2540, fol. 10v, 3 | L [BHS]: qere המה וה, ketiv מַהָּזֶַ֣ה Exod. 4.2 ‘What is this?’)

The qere note indicates that the appropriate orthography for the reading [ma-izzɛː] is מַהָּזֶַ֣ה, not מזה.

There are some Karaite transcriptions that reflect a less careful reading tradition and represent the pataḥ in המה as short, e.g.

מיאファー (Genizah MS 13, Khan 1990a, 156 | L [BHS]: וַהַיְּקָר ‘How precious!’ Psa. 36.8)

מלוח (Genizah MS 13, Khan 1990a, 156 | L [BHS]: וַהַקְּפֶץ ‘What ails you?’ Psa. 114.5)

Manuscripts with compound Babylonian vocalization indicate that the pataḥ continued to be pronounced short in the Babylonian tradition (Yeivin 1985, 338–39):

[ma ˈzzoːθ] ‘What is it?’ (Exod. 13.14 | L [BHS]: וַהַזִּות)

[ma jje:ˈsaː] ‘What will be done?’ (Exod. 2.4 | L [BHS]: וַהַשַּׂעְשָׂע)

Furthermore, there is an extant Greek transcript in Origen’s Hexapla that represents the vowel corresponding to the Tiberian pataḥ with epsilon, indicating that it was read short:196

196 Data supplied by Ben Kantor.
μεββεσε` (Ambrosiana palimpsest | L [BHS]: Psa. 30.10 ‘what profit?’)

The lengthening of the *pataḥ* in מַהְּ-בֶָּצַע appears, therefore, to be an orthoepic measure in some core streams of the Tiberian tradition to keep the written word prosodically separate from the following word.

*Hidāyat al-Qāri* classifies constructions with מַה followed by *dagesh* as *deḥiq*:

The compression [of a long vowel] may occur in a word that does not have an accent but is a small word, as in מַהְּ-תֹאמַר ‘whatever (your soul) says’ (1 Sam. 20.4), זֶה-בְּנִי ‘This is my son’ (1 Kings 3.23), מַה-בְֶ֭רִי ‘What, my son?’ (Prov. 31.2).\(^{197}\)

According to *Hidāyat al-Qāri*, therefore, the *pataḥ* in מַהְּ-תֹאמַר (1 Sam. 20.4) and the *qames* in בִּםְ-אִיָּד (Deut. 31.28) in the Tiberian tradition are both long vowels that have undergone compression. The status of the *pataḥ* in מַה as a long vowel must have been the result of later orthoepic lengthening, since the presence of the *pataḥ* clearly shows that it had undergone shortening at some earlier period. Likewise, despite the compression described in the *Hidāya* of other vowels in *deḥiq*, efforts were made in the Tiberian tradition to retain their length, to keep them clearly separate from what follows. In traditions that had less concern for orthoepy, such as the Babylonian tradition, the vowels were read as short in both contexts.

\(^{197}\) Long version, edition in vol. 2 of this book, §II.L.1.7.4.
When constructions with מַה have the configuration that is optimal for minor gaʿya, the pataḥ is marked with minor gaʿya and is lengthened by this musical gaʿya rather than by orthoepic lengthening. These constructions have disjunctive accents and the pataḥ in the מַה in the closed syllable is separated from the stressed syllable either (i) by another closed syllable, followed by vocal shewa or (ii) by an open syllable followed by a ḥaṭef with an identical quality (i.e. patterns that may be represented thus: מִ תְפַלְפְלִִַ֔ים, מִ תְקַטְלִִ֔ים and מִ תְפַעֲלִִַ֔ים, e.g.198

L: מַ ה־נַּעֲבֹד ‘What we will serve?’ (Exod. 10.26)
L: וּמַ ה־תַעֲשִֵׂ֖ה ‘and what will you do?’ (Josh. 7.9)

*Hidāyat al-Qāri* includes the last example מַ ה־תַעֲשִֵׂ֖ה (Josh. 7.9) in the section on deḥiq indicating that the pataḥ vowel was compressed. It can be represented, therefore, [um-aˑ-ttaːʕaːseː] with half-long [aˑ]. This would be compatible with minor gaʿya, which results in only half-lengthening of the vowel it falls on (§I.2.8.2.2.). Karaite transcriptions transcribe the pataḥ in these circumstances with a mater lectionis, e.g.

מַ ה־נַּעֲבֹד (BL Or 2542, fol. 56v, 10 | L [BHS]: מַ ה־נַּעֲבֹד Exod. 10.26 ‘What we will serve’)

I.2.8.1.3. The Impact of Musical Accents on Duration

The duration of a given stressed vowel relative to another stressed vowel clearly varied according to the musical accent it

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198 For more details concerning the minor gaʿya see Yeivin (1980, 244–245).
carried. It may be assumed that words with disjunctive accents, which marked a syntactic boundary, were chanted at a slower tempo than words with conjunctives. This is reflected by several phenomena connected with the occurrence of the secondary stress that will be discussed in §1.2.8.2. Stressed vowels with disjunctives were, therefore, generally longer than those with conjunctives. Moreover, the phenomenon of pausal forms suggests that the lengthening of stressed syllables of words occurring at a major syntactic division has deep historical roots in the reading tradition.

The duration of a vowel also varied according to the musical motif of each accent. There are a number of allusions to differences in the length of the various accents in the Masoretic sources. Merkha, as its name suggests, is said to be a relatively

199 The practice of speakers of a language to lengthen the final word in a syntactic phrase has been discussed in several places in the literature on phonetics, e.g. O’Connor (1973, 256–60), Klatt (1975; 1976), Wightman (1992), Berkovits (1993; 1994, referring to Modern Hebrew), Turk and Shattuck-Hufnagel (2007), Gabriel and Lleó (2011). It functions as an important signal of the grammatical structure of the utterance. In the Biblical Hebrew reading tradition the musical accents underscored prosodic features which were inherent in the language (Dresher 1994).

200 Cf. the words of the thirteenth-century naqdan Yequti’el bar Yehudah: ‘There is no lengthening on the conjunctive accents as there is on the disjunctives and it is not correct to make them long’ (Gumpertz 1958, 145).

201 The occurrence of qames in place of pataḥ in pausal forms such as in ‘he guarded’ (Hos. 12.13), for example, must date to a period before the */a/ > /5/ quality shift took place.
long accent.\textsuperscript{202} According to \textit{Hidāyat al-Qāri’}, the low, sustained accents,\textsuperscript{203} viz. \textit{pashta}, \textit{zaqef}, \textit{tifha}, \textit{'atnah} and \textit{silluq}, were lengthened with a concomitant modulation (\textit{hazz}) and rise in tone (\textit{raf} \textsuperscript{\textsuperscript{c}}) if the syllable upon which they fell was followed by another syllable, e.g. ‘heaven’ (Gen. 1.1), ‘the earth’ (Gen. 1.1). If, however, they fell on the final syllable of a word, they were chanted quickly without a modulation or rise in tone.\textsuperscript{204} Durational differences of the stressed vowel were

\begin{itemize}
\item \textsuperscript{202} Cf. \textit{Diqduqe ha-Te’amim} (ed. Dotan 1967, 106): ‘joined to its partner with a long tone’, also Wickes (1887, 24), Ben-David (1957b, 390).
\item \textsuperscript{203} The early sources divided the accents into three groups according to the nature of their tone, two of the groups contained high tone accents and the third low tone accents; cf. Yeivin (1980, 168), Eldar (2018, 85–88).
\item \textsuperscript{204} \textit{Hidāyat al-Qāri’}, long version (ed. Eldar 2018, 86–87): ‘Every accent that has a vowel remaining after it in the word you should give its full quantity and dwell on it. Every accent after which there is no vowel remaining, however, you should read quickly and not dwell on it’. The Hebrew \textit{Maḥberet ha-Tījān}, a derivative of \textit{Hidāyat al-Qāri’} uses the Hebrew term \textit{hanada} (הנדאה) as the equivalent of \textit{hazz} to denote ‘modulation’ (ed. J. Derenbourg 1871, 97); cf. also Hommel (1917, 95). \textit{Hidāyat al-Qāri’} and its derivative texts only lists \textit{pashta/yetiv}, \textit{zaqef} and \textit{'atnah} in the category of low tone accent (Arabic \textit{waḍ}, Hebrew \textit{niṣṣav, šehiyya}). The accents \textit{silluq} and \textit{tifha} are stated to have had the same properties as the low tone accents in so far as they were lengthened with a concomitant modulation and rise in tone if they fell on a penultimate syllable. See \textit{Hidāyat al-Qāri’} (ed. Eldar 2018, 85),
\end{itemize}
doubtless occasioned also by the musical structure of the other accents, but these cannot be established from the sources with any certainty.

The conjunctive accent preceding the disjunctive accent *pashṭa is merkha* when the two stressed syllables are not separated by another syllable (Yeivin 1980, 196), e.g.

L: יֹצֵָ֥רַאוֹר = ‘creating light’ (Isa. 45.7)

L: הָּיְתָָ֥הַתֹ הוּ = ‘was without form’ (Gen. 1.2)

*Hidāyat al-Qāriʾ* states with regard to such combinations:

When its word (i.e. the word with *pashṭa*) has only one vowel (as in יֹצֵָ֥רַאוֹר), you give the merkha its full value and lengthen it, but when there are more (vowels) than that in the word (with the *pashṭa*) (as in הָּיְתָָ֥הַתֹ הוּ), the merkha is not lengthened’. 205

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The reduction in the duration of the vowel with merkha was evidently correlated with the increased length of the vowel with pashta and the concomitant rise in tone. We learn from the descriptions of the three different categories of tone in the orthoepic treatises that the high tones had a greater intensity (magnitude of sound) than the low tones. This is clearly expressed in the following passage from the Arabic Mahberet ha-Tījān. The two high tones are termed ʾiṅlān (‘announcing’) and rafʿ (‘raising’) and the low tone wadʿ (‘laying down’):206

The meaning of the term ʾiṅlān is that you ... raise the pitch of the voice and ‘make it known’ forcefully ... The meaning of the term wadʿ is that you lower the pitch at which you chant the word that has them [i.e. the low tone accents] and you do not ‘make the voice known’ nor raise its pitch, but rather you reduce its sound intensity .... The meaning of the term rafʿ is that it is intermediate between ʾiṅlān and wadʿ.207

In physiological terms, when pashta occurred on a word with two vowels and penultimate stress such as תֹ הוּ ַ, it required a greater volume of lung air, both due to its increased duration and to the rise in subglottal pressure necessary to bring about an increase in intensity. One may, therefore, explain the reduction

206 For similar terminology in the surviving sections of Hidāyat al-Qāri’ see Eldar (2018, 85-88).

207 Ed. Neubauer (ed. 1891, 28): וּמוּעִיָּכָּלָאֶעַלָאֶהוּ אַנָּכ ... וְרָפְעָת אַלָּכָה וּתְעַלָּנָה וּתְעַלָּנָהוּ אַלָּכָה פֶּקֶּבֶּהוּ ... וּמוּעִיָּכָּלָאֶעַלָאֶהוּ אַנָּכ וּבוּכֶּלָאֶכָּלָא
in the duration of the vowel with *merkha* as a means of decreasing air expenditure to counterbalance the increase in air expenditure elsewhere in the same expiration or ‘breath group’. It will be shown in the next section that this physiological factor also conditioned the length of vowels with secondary stress.

**I.2.8.2. Syllables with the Secondary Stress**

**I.2.8.2.1. On Open Syllables with Long Vowels**

In general, a secondary stress falls on a long vowel in an open syllable that is separated from the main stress by at least one other syllable, i.e. there is a eurhythmic alternating sequence of prominent and non-prominent syllables. The secondary stress in these contexts may be marked by certain conjunctive accents, e.g.

L: ḥaddām ‘and the man’ (Gen. 4.1)

L: ḫik̄alothem ‘in their lamentations’ (2 Chron. 35.25)

L: ḫalalānī ‘my comfort’ (Jer. 8.18)

In many cases the secondary stress is marked by a gaʿya sign, e.g.

L: ḥadām ‘the man’ (Gen. 2.7)

If the second syllable before the main stress syllable has a short vowel and is closed but some preceding syllable is open, then the secondary stress, in principle, falls on that syllable, e.g.

L: ḫamōmor ‘the columns’ (Exod. 38.11)

L: ḥasūmah ‘who are with them’ (1 Chron. 5.20)
Similarly, if a vocalic shewa or ḥatef occurs two places back from the accent, the major gaʿya is placed on a preceding syllable, e.g.

L: הַדוֹמֵה ‘the ground’ (Gen. 9.2)

An additional secondary stress may be marked by a gaʿya on an open syllable that is separated from the first secondary stress by at least one syllable, though such gaʿyas are rare in the early manuscripts, e.g.

L: יִנְשָׁר ‘the Asrielite’ (Num. 26.31)

A long vowel which is separated from the main stress syllable by a ḥatef vowel or shewa also takes secondary stress, e.g.

L: יִעָל ‘goes up’ (Gen. 2.6)

L: וְעַבְד ‘and they will serve’ (Jer. 30.9)

L: שֶׁחָר ‘they have kept’ (Deut. 33.9)

We have seen that shewa after a long vowel is generally silent (§I.2.5.6.). The secondary stress does not, however, clash with the main stress since there is an intervening epenthetic syllable before the consonant with the silent shewa. e.g. [ʃoːom.ˈɾi.iːm]. A secondary stress may also occur on a long vowel that is separated from the main stress by a geminated consonant, e.g.

L: הַבַּתִּים ‘the houses’ (Exod. 12.7)

L: או ‘Oh!’ (Exod. 32.31)
In such words, too, a syllable formed by an epenthetic vowel separates the syllable with the secondary stress from main stress: [hab.ˌbɔː.tʰi.im].

In the metrical structure, secondary and main stresses in words such as נְבֵיתִים and שָּׁמְרוּ would occur in adjacent feet, whereas in a word such as הָאָדָם there is an intervening foot between those of the stresses:

[ʃɔː.ɔm. ˈʀ̟uː]  
(ˌ*) (ˈ*)

[hab. ˌbɔː.tʰi.im].

(* ) (ˌ* . ) (ˈ* . )

[ˌhɔːʔɔː.ðɔː.ɔm]

(ˌ*) (*) (ˈ* . )

The stress rhythm is, therefore, based on the sequence of phonetic syllables rather than the sequence of feet.

In the early Masoretic sources, the gaʿya was not regarded as one of the accents but rather a sign to denote the slowing down of the reading. It appears, however, that it acquired a musical motif of its own in some cases. This is seen in the following passage on the gaʿya from Hidāyat al-Qārī:

[The gaʿya] should not be considered to belong either with the disjunctive accents or the conjunctive accents, since it is only an exhalation in speech, which carries the words forward ... Its distinctive property is the imparting of a
melody to the reading so that joy is diffused in the heart, in order to conduct the reading along.\textsuperscript{208}

The term in the early sources is vocalized גְּעָיָה, reflecting its origin as an Aramaic active participle of the verb ההעָָּגְַ to roar, to low’, or, occasionally, גִיעְיָּה. In Hidāyat al-Qāri’ גְּעָיָּה has an Arabic broken plural גואעי gawāʿī. The sign later came to be known as the המֶתֶג meteg, a term that was introduced by Yequti’el ha-Naqdan (first half of the thirteenth century) (Gumpertz 1958) and still widely used today.

Yeivin, who carried out detailed studies of the gaʿya in the early manuscripts, classified it into two main categories (Yeivin 1968, 89–194; 1980, 240–64):

(i) Musical gaʿya. This type of gaʿya is related to the musical cantillation and generally marks some kind of secondary stress preceding the main accent. It is dependent on the syllable structure of the word and the type of accent that is adjacent to it.

(ii) Phonetic gaʿya. This slows down the reading of vowels in various places to ensure the correct pronunciation of the word, usually to indicate that a following shewa should be made vocalic or to ensure that certain consonants were not slurred over.

The musical gaʿya is divided into a variety of categories. The type that marks a secondary accent on open syllables, as in

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In the early Masoretic codices, major gaʿya is not marked on all words that have a syllable structure suitable for it. Moreover, there are differences across the early manuscripts with regard to the frequency with which it is marked. This reflects the fact that the marking of major gaʿya was not standardized in the Tiberian tradition and it is rarely mentioned in the Masoretic treatises. It is marked infrequently in A, about 30% of the possible cases, mainly on words with the disjunctive accents pashta or zaqef. It is marked slightly more frequently in L, in about 40% of the possible cases. The other early manuscripts mark it in different proportions, some quite frequently (e.g. C marks it in about 75% of the possible cases). In general, however, the early manuscripts mark it less frequently than later ones and some printed editions regularly mark it on every open syllable that is suitable for it.

Mordechai Breuer (1971) has shown that some accent sequences are determined by the number of intervening full vowels without taking into account mobile shewas or hatefs. In these systems, a vowel with secondary stress counts as two unstressed vowels. For instance, munah before zaqef is transformed into pashta if the accent syllable of the word with zaqef is preceded by at least two full vowels: וַתֵּאמֶר אֶל שֵׁהָר (Gen. 21.6), וַיֹּאמֶר אֶל אֲבָרָהִם (Gen. 20.9).

In some Masoretic sources the terms שַׁגַּרְשׁ garesh, גָּרְשָּׁה garsha ‘extending’ and מַאֲרִיק maʾarikh ‘lengthening’ are used as general terms to refer a secondary accent in an open syllable marked either by a conjunctive accent or by a gaʿya; cf. Dotan (1967, 163, 342), Yeivin (1980, 86).
20.11 ‘you will know by this’ (Num. 16.28—the šere with secondary stress counts as two full vowels), בְּזֹאת תֵ דְעִ֔וּן ‘and they will be blessed in your seed’ (Gen. 22.18—the shewa and the ḥāṭef vowel are not counted).

Major gaʿya, as we have seen, often signals the occurrence of a secondary stress. The fact that some manuscripts do not always mark a gaʿya in a syllable that one would have expected to take the secondary stress does not necessarily imply that in the reading tradition the secondary stress was not pronounced. When the presence of a gaʿya on an open syllable has an effect on the distribution of the accents or of other gaʿyas, the effect is often sustained even when the gaʿya is not marked, the necessary condition being only that the open syllable could have been marked by a gaʿya (i.e. it is appropriate for secondary stress). A couple of examples of this will suffice:

(i) If zarqa has two conjunctive servi and the word bearing the zarqa has a major gaʿya, then the first servus before the zarqa is merkha. If, however, the word bearing the zarqa has no gaʿya, then the first servus is usually munah. The merkha occurs even if the following word does not explicitly mark the gaʿya on the open syllable that is suitable for it.210

(ii) In word structures that are suitable for taking either a minor gaʿya or a major gaʿya, such as וָּאֶשְׁתַמְרִָּׂה ‘and I kept myself’ (2 Sam. 22.24), the fact that the word can take a major gaʿya (in this case on the open syllable at the beginning of the word)

210 Yeivin (1980, 206–7). If, however, the second servus before zarqa is munah, the first is always munah.
obviates the occurrence of the minor gaʿya, even if the major gaʿya sign is not marked (Yeivin 1968, 141).

Compare also some of the statements concerning the major gaʿya in the Masoretic literature with reference to a gaʿya on a word with zarqa:

‘The reader pronounces the gaʿya, whether it is written or not written.’

In some books the gaʿya is written whereas in others it is not written but rather the knowledge of the reader is relied upon.

It may be assumed, therefore, that the secondary stress fell on the appropriate syllable irrespective of whether it was marked graphically. A long vowel that had secondary stress was longer than an unstressed long vowel. This may be inferred from the statements in the early Masoretic and grammatical literature that a vowel with gaʿya is lengthened, e.g. Hidāyat al-Qāri:

‘Its distinctive property is the extension of the melody.’

\[211\] Sefer Ṭaʿame ha-Miqra (ed. Mercerus, 1565, Eiii): ויהו לוח ואלה חונך אלא חונך.


\[213\] Long version, edition in vol. 2 of this book, §II.L.3.1. Cf. the orthoepic works derived from the Hidāyat al-Qāri, e.g. the Hebrew Maḥberet ha-Tījān (ed. J. Derenbourg, 77) and the Arabic Maḥberet ha-Tījān, (ed. Neubauer 1891, 27), and also the references given by Yeivin (1968, 142).
It has been shown above, moreover, that in some accent sequences a syllable with secondary stress was treated as equivalent to two unstressed syllables, implying that the duration of the vowel nucleus of the syllable with secondary stress was increased by virtue of the stress. The \(\text{ga'ya}\) sign was, in fact, called \(\text{ma’arikh}\) in some sources (Wickes 1887, 24; A. Ben-David 1957b, 390–91).

Joseph and David Qimhi say explicitly that a long vowel in a syllable that is not adjacent to the accent syllable (i.e. one that takes secondary stress) is lengthened, but not one that is in a syllable adjacent to the accent (and so does not take secondary stress), e.g. the \(\text{qames}\) on the shin in the word \(\text{שָּמַר}\) is longer than that in \(\text{שְָםַר}\).\(^{214}\)

It has been remarked above that the early Tiberian manuscripts differ in their consistency of marking the secondary stress by \(\text{ga'ya}\). Those manuscripts that marked major \(\text{ga'ya}\) consistently emanated from a scribal circle that tended to give graphic expression to a relatively greater number of the phonetic details of the reading tradition. The trend towards a more complete graphic notation reached its apogee in many of the Non-Standard Tiberian manuscripts, which in addition to the abundant marking of \(\text{ga'yas}\), also indicate subtle differences in the strength of consonants according to their phonetic environment (§I.3.3.). Yeivin has shown that in A, in which major \(\text{ga'yas}\) are marked inconsistently, their notation is not random but follows certain trends. If the difference between the \(\text{ga'ya}\)

\(^{214}\) Cf. the passages from the \textit{Sefer Zikkaron} and the \textit{Sefer Mikhlolo} quoted by Yeivin (1981b, 48–49).
notation of A and that of early manuscripts that mark them more consistently arises from a tendency to indicate less phonetic minutiae, we may postulate that the selective ga’ya notation of A corresponds to differences in the duration of vowels with secondary stress. That is to say, some vowels with secondary stress were longer than others and only the longer ones tended to be marked. This seems plausible, since the medieval sources state that the ga’ya was essentially a marker of vowel duration.

The words that are marked with major ga’ya in A nearly all have disjunctive accents. It is very rarely marked on words with conjunctives (Yeivin 1968, 147–48). In conformity with the foregoing discussion, this may be interpreted as a reflection of the fact that vowels with secondary stress were generally shorter in words with conjunctives than in those with disjunctives. Such durational differences are not alluded to in the early Masoretic and grammatical literature. It should be pointed out, however, that the thirteenth-century naqdan, Yequtiel ha-Kohen bar Yehudah, the first scholar to deal systematically with the question of ga’yas and secondary stress, states explicitly that ‘metegs (= ga’yas) of disjunctives are greater than metegs of conjunctives’.215 This can be explained by the fact that words with disjunctive accents were read slower than words with conjunctives and so the relative duration of the constituent syllables was increased.

Within the set of words with disjunctive accents, A marks major ga’ya most frequently on those with pashta. After pashta the accents with which it occurs most often are, in descending

215: מַתֵּיגִיתַהֶמלְפִּיכָנִיםַגדולִיתַהֶמשרִיתִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶמלְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּיגִיתַהֶ멜ְפִּיכָנִים מַתֵּギ
order, zaqef, ʿatnah, ʾifḥa and revia (Yeivin 1968, 148–60). The major gaʿya, therefore, is marked predominantly with the low sustained tone accents. With regard to the accents with which gaʿya is marked most frequently, pashta and zaqef, Yeivin notes that the gaʿya generally does not occur if the word is milʿel, i.e. has the accent on the penultimate syllable (Yeivin 1968, 152, 156). It is reasonable to assume that the omission of the gaʿya before pashta and zaqef on milʿel words was connected with the fact that the low tone accents were lengthened with a concomitant rise in pitch and intensity when they fell on a penultimate syllable (see above). The duration of the vowel with secondary stress was evidently reduced in the same way as the duration of a vowel with merkha was reduced before a pashta on a milʿel word. In both cases, the reason for the reduction was that the increase in lung air required to sustain the longer duration and greater intensity of the pashta (and zaqef) necessitated a decrease in air expenditure elsewhere in the same breath group. Similarly, gaʿya was seldom marked on words with the high tone accents since these required a larger volume of air to sustain the greater subglottal pressure necessary for their higher intensity. The vowel with the secondary stress before such accents was, therefore, of shorter duration. When, however, the low tone accents pashta, zaqef, ʿatnah and tifḥa were on the final syllable of a word, they required relatively little air expenditure since they were pronounced quite short and with low intensity (see above). There was, consequently, more air available for the articulation of other segments in the same breath group and so
the secondary accent was pronounced with a relatively long duration.

In his study of accent retraction (*nesiga*), Praetorius suggested that in word pairs in which the expected retraction of the accent did not take place, the accent of one or of both of the words was weak and so the clash of the two stress syllables was felt to be more acceptable. The circumstances in which the stress was weakened include:

(i) Long accent groups, i.e. a disjunctive preceded by two or more words with conjunctives (Praetorius 1897, 11, 43);

(ii) When a word pair in a short accent group has a close syntactic connection to a following accent group, e.g. when the second accent group is a complement of a verb contained in the preceding accent group (Praetorius 1897, 39), e.g. the prepositional phrase in:

\[
\text{יהוּדָּבְּדָּמִים}
\]

‘Woe to him who builds a town with blood’
(Hab. 2.12)

(iii) When one of the words of a short accent group has strong contrastive stress (Praetorius 1897, 51–58), e.g.

\[
\text{חַוָּסֶָ֥בִי}
\]

‘but he who takes refuge in ME will inherit the earth’ (Isa. 57.13)

*Nesiga* sometimes also fails to occur in a short accent group when it is in close syntactic connection with the preceding accent group and contrastive stress falls on the last word of this accent group (Praetorius 1897, 51–58), e.g.

\[
\text{יְהוָּ֞הַהֱסִיַָ֥בִי}
\]

‘If (it is) THE LORD (who) has incited you against me’ (1 Sam. 26.19)
In all these cases, it is plausible to assume that the stress was reduced due to a diminution in the supply of lung air. This diminution arose in the first two cases as a result of the fact that the breath group was relatively long. In the third case, a large proportion of the air of the breath group was expended on the word with strong contrastive stress and so the amount of air available for the rest of the breath group was correspondingly reduced. The reduction in the volume of air expended on a stressed syllable would have resulted in a decrease not only of the intensity of the vowel but also of its duration. Consequently, we may infer that the aforementioned factors that conditioned the occurrence patterns of *nesiga* were also conditioning factors of vowel duration. The reduction of vowel duration in the environment of contrastive stress arose for essentially the same reason as did the reduction of the duration of vowels with *merkha* or with secondary stress before high tone disjunctives.

There is one feature of the distribution of major *gaʿyas* in the Aleppo Codex that may have been conditioned by the length of the breath group. Major *gaʿya* occurs with some accents more frequently when there are no preceding words with dependent conjunctives.\(^{216}\) The absence of preceding words with conjunctives may have motivated a shorter breath group and so given rise to a corresponding increase in the duration of the stressed vowels. It is, of course, not possible to establish with absolute certainty where the boundaries of breath groups occurred in the medieval Tiberian reading tradition. Nevertheless, it is

\(^{216}\) Yeivin (1968, 150 [*ʿatnah*], 151 [*zaqef*]).
reasonable to assume that they coincided to some extent with the 
boundaries of accent groups and/or of syntactic units.

I.2.8.2.2. On Closed Syllables with Short Vowels

(Minor Gaʿya)

Gaʿya also marked secondary stress on closed syllables with short 
vowels, i.e. vowels that are unspecified as to length in their pho-
nological features (viz. pataḥ /a/, segl /e/, hireq /i/, 
qibbus/shureq /u/, /o/, /e/), as opposed to a vowel that is inher-
tently specified by a phonological feature as long (long qames /ɔ̄/, 
ḥolem /ō/, sere /ē/, long shureq /ū/, long hireq /i/) (for details of 
this classification of vowels see §I.2.3.). This occurs most consist-
tenly on the first syllable of words with disjunctive accents that 
have the following patterns: כִּתְפַּלְפְּלִים [ˌmiˑθpʰalpʰaˈliːm],
כִּתְקַטְלִים [ˌmiˑθq̟ɑttˁɑˈliːm] (with a geminated consonant) and 
כִּתְפִּעֲלִים [ˌmiˑθpʰaːʕaˈliːm] (with a ḫatef preceded by a vowel of 
the same quality). These are patterns in which the main accent 
syllable is preceded by sequences of two closed syllables with 
short vowels followed by a mobile shewa or by a sequence of one 
closed syllable with a short vowel and an open syllable followed 
by a syllable with a ḫatef vowel that is the same quality as the 
vowel of the preceding open syllable.

Such vowels of unspecified length with gaʿya in words in 
these patterns are generally transcribed in the Karaite transcrip-
tions with an Arabic mater lectionis, which indicates that they 
were lengthened by the secondary stress, e.g.

---

217 Cf. Yeivin (1980, 244).
In the Masoretic literature, this type of gaʿya was termed ‘minor gaʿya (געיה קטנה) whereas the gaʿya that marked the incidence of secondary stress on an open syllable was termed, as remarked, ‘major gaʿya’ (געיה גדולה). This implies that when secondary stress fell on a short vowel in a closed syllable, the vowel was not lengthened as much as a vowel in an open syllable with secondary stress. Evidence for this lesser degree of duration is the fact that some Karaite manuscripts that transcribe long


219 Yequtiʾel ha-Naqdan refers to the gaʿya in a closed syllable as ‘heavy’ (כבד) and the gaʿya in an open syllable as ‘light’. These terms of Yequtiʾel do not denote the way the gaʿyot were pronounced. He states that he called the gaʿya in closed syllables ‘heavy’ since: ‘The heart of many sages is heavy for not having understood them … and the door [of understanding] which is open for the light ones is closed for those which are heavy’ (Gumpertz 1958, 142).
vowels in open syllables or syllables with the main stress with an Arabic *mater lectionis* omit a *mater lectionis* in a syllable with secondary stressed marked by a minor *ga’ya*, e.g.

[ˌvaˑɟɟiʃ stalled] (BL Or 2542, fol. 43r, 6 | L [BHS]: וּבָ֛שַּׁלְעַם Exod. 1.7 ‘and they swarmed’)

[ˌniˑθħakkʰa’mɔː] (BL Or 2542, fol. 43r, 9 | L [BHS]: מֶרֶעְבָּה Exod. 1.10 ‘let us deal wisely’)

[ˌwuˑljaːʕaˈq̟ oʊv] (BL Or 2542, fol. 49r, 13 | L [BHS]: לְיַעֲקֹב Exod. 6.8 ‘and to Jacob’)

For this reason, the vowel with minor *ga’ya* is represented as half-long in my phonetic transcription of the forms, e.g. [aˑ], [iˑ], [uˑ].

Some Karaite transcriptions regularly omit a *mater lectionis* only when the minor *ga’ya* is on one of the high vowels *hireq* [i] or *shureq* [u], but transcribes lower vowels that have minor *ga’ya* with a *mater lectionis*, e.g.

[ˌvaˑɥittʰa’nus] (BL Or 2549 fol. 18v, 9 | L [BHS]: וּתָאְנוּוּו Jer. 4.16 ‘and they gave’)

[ˌliˑmnaʔa’sˤaːqj] (BL Or 2549 fol. 87r, 6 | L [BHS]: לְמֹעַדְיָא Jer. 23.17 ‘to those who despise me’)

[ˌwuˑχmisrʔa’foːθ] (BL Or 2549 fol. 112r, 14 | L [BHS]: וּכְמִשְרְפַוֹת Jer. 34.5 ‘and like the burning of’).
This appears to reflect the universal phonetic phenomenon whereby, all other things being equal, high vowels tend to be of shorter duration than low vowels. This difference in duration can be above the threshold of perception (Lehiste 1970, 18–19). Evidently, the scribes of the Karaite transcriptions perceived the high vowels with minor gaʿya to be of shorter duration than the low vowels. Since many other transcriptions represent the high vowels with minor gaʿya with matres lectionis, we can assume that the high vowels with minor gaʿya were not completely short, but half-long vowels of a shorter duration relative to low vowels.\textsuperscript{220}

Attempts were made to standardize the distribution of the minor gaʿya in the Tiberian Masoretic tradition and there is general agreement among the early manuscripts in its marking. This standardization is reflected by the fact that a large proportion of the differences between Aharon ben Asher and Moshe ben Naphtali that are recorded in Kitāb al-Khilaf of Mishaʾel ben ʿUzziʾel relate to the minor gaʿya.

Minor gaʿya occurs in the patterns described above across the boundary of words that are connected by maqqef, e.g. נָעַל הָחֲמִר on the ass’ (Exod. 4.20). Minor gaʿya also occurs less consistently on a range of other related structures in which the syllable with the gaʿya is separated from the main accent syllable by at least one other syllable and a vocalic shewa, e.g.

L: נָעַל הָחֲמִר (with vocalic shewa additional to the pattern) ‘the Canaanite woman’ (1 Chron. 2.3)

\textsuperscript{220} For further details concerning the representation of minor gaʿya in the Karaite transcriptions, see Khan (1992c).
L: וּוָּלַחֲמ (with a vowel of different quality before the ָּֽהֲטֶף) ‘and they fought’ (Josh. 10.36)

It very rarely occurs on a syllable that is separated from the accent by only one syllable, e.g.

L: נִמְצָּא־קֶשֶׁר ‘a conspiracy is found’ (Jer. 11.9).

Yeivin (1968, 89–194; 1980, 240–64) classifies major gaʿya and minor gaʿya as musical gaʿyas and it is reasonable to assume that the secondary stress that they represented was adorned by a short musical motif. The frequent use of conjunctive accents on open syllables to mark the secondary stress supports this view. *Hidāyat al-Qāriʾ* described gaʿya as bringing about ‘the extension of the melody so that joy is diffused in the heart, ... animating the reader and moving him to read more’.

One may interpret this as referring to some kind of melismatic embellishment. The *Diqduqe ha-Ṭeʿaimim*, moreover, classifies gaʿya among the accents, presumably on account of its musical value.

Secondary stress normally fell on a long vowel in an open syllable since it was a feature of long vowels that they were more amenable to being stretched (‘dehnungsfähig’, according to the terminology of Trubetzskoy 1936; 1938) than short vowels and so could accommodate the musical contour of the secondary stress more easily. When secondary stress fell on a short vowel, the vowel was lengthened but its duration was less than that of a long vowel.

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in an open syllable that had secondary stress. It was for this reason that short vowels in closed syllables were not usually suitable for secondary stress, since they were not lengthened enough to accommodate the melisma of the stressed syllable.

The occurrence of the secondary stress of minor gaʿya on short vowels in closed syllables in the patterns מִתְפַלְַם, מִתְקַטְלִים and מִתְפַעֲלִים can be explained by the hypothesis that the sequence of two CVC-CVC syllables with short vowel nuclei functioned, under certain conditions, analogously to a single syllable with a long bimoraic nucleus CVV. Secondary stress was allowed to fall on a short vowel in such patterns since the motif associated with the stress was spread over both the stressed syllable and the syllable that followed it. There subsequently followed a buffer syllable in the form of a mobile shewa or haṭef, which separated the melismatic unit of the secondary stress from the main stress syllable. Just as the most prominent component of the CVCCVC sequence accommodating the secondary stress of minor gaʿya was the first syllable, reflected by the lengthening of its vowel, so in a bimoraic CVV syllable the main prominence was on the first vowel mora, which is the most sonorous segment of the syllable (Kager 1993).

It would be more precise to say that the melisma of the secondary stress spread across the strong syllables of two metrical feet. This explains why minor gaʿya is frequently found also on structures such as הַכְנַעֲנִית ‘the Canaanite woman’ (1 Chron. 2.3) and אֲשֶׁר־תְבַשְּלוּ ‘what you cook’ (Exod. 16.23) (Yeivin 1980, 246), in which the syllable with secondary stress is separated from the
buffer syllable by two phonetic syllable nuclei (vocalic shewa + 
pataḥ) but only one metrical foot:

\[
\begin{array}{ccc}
(ˌ, hae.k.) & (kʰa.na.ː) & (ʕa.ˈni:θ) \\
(., *) & (., *) & (., ː*) \\
\end{array}
\]

\[
\begin{array}{ccc}
(ˌ, ʔa.ˈʃɛˑr̟) & (tʰa.vaf) & (ʃa.ˈluː) \\
(., *) & (., *) & (., ː*) \\
\end{array}
\]

A form such as מִפְנֵיכֶם ‘from before you’ (Lev. 18.24) was
unsuitable for minor gaʿya since the shewa belongs to the second
foot and the strong syllable of this foot is not separated from the
main stress by the statutory buffer syllable:

\[
\begin{array}{ccc}
(mip.) & (pʰa.ne.ː) & (ˈχɛˑɛm) \\
(*, *) & (*, *) & (*, .) \\
\end{array}
\]

It is for this reason that the separation between minor gaʿya
and the main stress had to be a full vowel + mobile shewa/hatef
vowel (מִפְנֵיכֶם אָשָׁר) but could not be the same in reverse sequence
(מִפְנֵיכֶם אָשָׁר).

A secondary accent marked by minor gaʿya does not occur
on all closed syllables that are separated from the main stress by
a second foot and a buffer syllable. It tends to occur only in those
circumstances in which the vowel of the syllable under secondary
stress was maximally long. In conditions in which the duration
of the vowel was reduced, the minor gaʿya tends not to be marked. It is not clear whether the absence of the minor gaʿya
indicates that the secondary stress was omitted or whether it
denotes that the vowel was still under secondary stress but of
shorter duration and, consequently, unable to accommodate a melisma.

There were two major conditioning factors of vowel duration that affected the duration of the vowel with minor gaʿya. One of these was the tempo at which the word containing minor gaʿya was read. When chanted at a slower tempo, the vowels were stretched. Consequently, the vowels of words that had disjunctive accents were generally longer in duration than the vowels of words with conjunctives. This factor has already been inferred from the distribution of major gaʿyas. From the distribution of minor gaʿyas one may infer another factor, viz. there was a strong tendency to make the interval between the secondary stress and the main stress in all words isochronous, irrespective of differences in the number of syllables that separated them. This meant that the duration of the syllables between the two stress beats including those on which the stress occurred varied according to their number. The more intervening syllables there were, the shorter was their duration. The variation in duration of the syllable would doubtless have been achieved by lengthening or shortening of the vowels that were the most ‘stretchable’ constituents of a syllable. It is not clear whether this affected all the vowels, both long and short, or just the long vowels, which, by their nature, had a more flexible duration.

In the conditions in which minor gaʿya was regularly marked, the vowel under secondary stress was maximally long according to these two aforementioned criteria: (i) The gaʿya normally occurs when the word has a disjunctive accent but not when it has a conjunctive; (ii) Apart from the syllable that was
necessary to carry part of the melisma of the secondary stress, the material constituting the unstressed buffer between the two stress beats was the absolute minimum, viz. an open syllable with a short vowel nucleus (vocalic shewa or a ḥaṭef vowel): מִ תְפַלְפְלִִַ֔ים, מִ תְקַטְלִִ֔ים and מִ תְפַעֲלִִָֽלִים. When the buffer between the two stresses was longer, the duration of the vowels of the word was reduced out of an effort to keep the time interval between them the same and so the gaʿya was usually omitted. This explains the phenomenon described in the Diqduqe ha-Ṭeʿamim whereby the gaʿya was omitted if the structures that regularly had it were attached to a following word by maqqef, e.g. מִ תְקַטְלִִ֔ים וַיִּפְלוּ־שָֹּׁ֑ה ‘and they fell there’ (Gen. 14.10). Even forms that have no more than an additional vocalic shewa between the two stress syllables, such as אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלֹּּולָלְּהָה ‘the Canaanite woman’ (1 Chron. 2.3) and אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלוּ ַ אֲשֶׁר־תְבַשְּׁלֹּּולְּהָה ‘what you cook’ (Exod. 16.23) exhibit slightly less consistency in the placement of minor gaʿya than the ‘fully regular structures’ (Yeivin 1968, 107). Forms which have a bimoraic syllable as a buffer, i.e. an independent foot, rather than a light monomoraic syllable with mobile shewa or ḥaṭef, such as לַמִּלְחָּמִָּׂה ‘to war’ (Num. 21.33) do not have gaʿya with any degree of regularity (Yeivin 1968, 117; 1980, 247). By contrast, additional syllables preceding the secondary stress fell outside the isochronous interval between the two stress beats and so had no influence on the duration of the vowels, e.g. וְאֶת־הַ מַּאֲכֶֹ֑לֶת ‘and the knife’ (Gen. 22.6).

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Minor gaʿya was marked with equal consistency before all the disjunctives. The duration of a vowel with minor gaʿya, unlike that of a vowel with major gaʿya, was not reduced significantly as the result of greater air expenditure on a subsequent high tone accent. This was most likely because the relatively short duration of a vowel with minor gaʿya required by its very nature far less air expenditure than a long vowel with major gaʿya. As remarked above, however, the Karaite transcriptions reflect differences in duration in the vowel with minor gaʿya according to intrinsic differences in duration between high and low vowels.

If an open syllable preceded the syllable that took minor gaʿya in a form of regular structure, the secondary stress fell on this open syllable and was either marked with major gaʿya or was left without graphical representation, e.g. יָאָשֶׁת מַמְרִָּׂה ‘and I kept myself’ (A, 2 Sam. 22.24; cf. Yeivin 1968, 98). A long vowel in an open syllable was, all other things being equal, more suitable for taking the melisma of the secondary stress than a sequence of two short syllable nuclei. The duration of a stressed vowel in an open syllable, moreover, was not reduced by the pressure of isochrony between stress beats to the extent that it could not accommodate the melisma.

By this argument, in the structure מִתְפַעֲלִים מִַ one would have expected that the vowel in the open syllable before the haṭef could have accommodated the melisma of the secondary stress, since this vowel was long, as shown by the Karaite transcriptions, e.g.
When a long vowel in this position is followed by an ordinary shewa, minor gaʿya generally does not occur (Yeivin 1968, 111), e.g. וּוְיִכָּלְמ ‘so they may be ashamed’ (Ezek. 43.10). Here the secondary stress evidently generally fell on the syllable before the shewa: [vi.jikˌkʰɔː.ɔl.ˈmuː]. When the long vowel is followed by a laryngeal/pharyngeal with a vowel of a different quality, e.g. וַיִּ לָּּ֖חֲמ ‘and they fought’ (Josh. 10.5), the tendency for the word to have minor gaʿya is greater than when it is followed by a non-guttural consonant with shewa (וְיִכָּלְמ) but less than when the vowel preceding the hatef is of the same quality (וַּיִּעֲקֹד). If the word has pashta, for example, there is a preference to have secondary stress in the form of a major gaʿya on the syllable before the guttural rather than minor gaʿya on the preceding syllables, e.g. וַיִּצָּ עֲקוּ ‘and they were called’ (Jud. 10.17; cf. Yeivin 1968, 109).

These facts can be explained by the assumption that the duration of the vowel varied in each of these three structures, those of shorter duration being less suitable for taking the full secondary stress melisma than those of longer duration. In some
manuscripts that exhibit a selective notation of major gaʿya, there is a greater tendency for the major gaʿya to be omitted on a vowel before a ḥaṭef than on a long vowel before a shewa.  

This was probably motivated by the shorter duration of the vowel before a ḥaṭef.

A vowel in an open syllable that is followed by a ḥaṭef of the same quality must be considered to have been the shortest of the three types of vowel. The rules for accent sequences that treated a syllable with secondary stress as two syllables counted a vowel preceding a ḥaṭef of the same quality as only one syllable (M. Breuer 1971, 184, n.45). Consequently, if any secondary accent at all fell on such vowels, it could not have increased the vowel duration to the full length of other vowels in open syllables under secondary stress. One may also adduce as evidence of the relatively short duration of vowels of this type the fact that they do not usually take munah before zaqef where the occurrence of munah would have been expected (Yeivin 1968, 201–2; Breuer 1971, 184, n.45). It is plausible to interpret this as being due to the unsuitability of the vowels to accommodate the necessary melismatic structure of the accent due to their short duration.

The relatively short duration of a vowel before a ḥaṭef of the same quality was conditioned by two factors.

First factor: A number of phoneticians have shown that in some languages the duration of a vowel varies according to the

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224 Menachem Cohen (1982a, 66, 67, 69, 70, 73) has found this feature of gaʿya notation in the manuscripts L, C and in the later medieval Spanish manuscripts BL Or 2201 (dated 1246) and BL Or 2626-8 (dated 1483).
extent of the movement of the speech organs required in order to come from the vowel position to the position of the following phonetic segments. The greater the extent of movement, the longer the vowel.\textsuperscript{225} It may be inferred that this principle influenced vowel duration in Tiberian Hebrew. In the sequence of a vowel, a laryngeal/pharyngeal, and a $\text{ḥaṭef}$ of the same quality, no significant movement of speech organs in the oral cavity was required to make the transition from the first member to the last. There were two relevant processes involved: the tongue position for the two vowels, and the speech organ movement and muscle activity required to articulate the intervening consonant. Phonetic segments are not produced in speech as independent units, but rather the sounds overlap and flow into one continuously changing stream of sound. Several phoneticians have postulated on the basis of studies of gestures in the vocal tract that the tongue moves from vowel shape to vowel shape with the consonantal gestures superimposed, overlapping in time with the articulatory gestures for the vowels.\textsuperscript{226} Therefore in a sequence of vowel + consonant + vowel when the two vowels are of the same quality the speech organ movement necessary to pass from the first vowel to the second would always be less than when the two vowels were of different quality, irrespective of what the intervening consonant might be.

Second factor: In Tiberian Hebrew the patterns of stress and the distribution of the accents only reflect a consistent reduction

\textsuperscript{225} E.g. Lehiste (1970, 20).

\textsuperscript{226} E.g. Öhman (1966), Browman and Goldstein (1989).
in the duration of the first vowel when the intervening consonant is a pharyngeal/laryngeal. There is no evidence for a similar reduction when an oral consonant intervenes between two vowels of the same quality, except, occasionally, when the consonant is a lax continuative, especially sonorants. An important factor contributing to the reduction of duration must, therefore, have been the phonetic nature of the pharyngeals/laryngeals. It is relevant here to draw attention to a phenomenon that is attested in North African Arabic dialects whereby long vowels are shortened before pharyngeal consonants, Moroccan, Jewish Algiers: draʿ ‘arm’ < *dhiraʾ, jnaḥ ‘wing’ < *jinâḥ (Brockelmann 1908 vol. 1, 64; Marcel Cohen 1912, 135). Brockelmann explains this as the result of the articulation of the pharyngeal taking away part of the duration of the vowel. This was no doubt due to the weak vowel-like nature of non-oral consonants.\textsuperscript{227} We may, therefore, identify this as a second factor that

\begin{footnotesize}
\begin{enumerate}
\item Another relevant parallel can be found in stress placement patterns in the Modern South Arabian languages. Dufour (2017) has demonstrated that in the history of these languages syllables attracted stress according to a hierarchy of vowel qualities thus: *a > *i > *u. This means that a syllable with an *a was favoured over syllables with higher vowels for stress placement. What is of interest is that a syllable with an *a vowel that was followed by a guttural consonant was less favoured for stress than one that containing an *a vowel that was not followed by a guttural. This can be interpreted as showing that the duration of the vowel was reduced when followed by a guttural and thus the vowel in this context was less suitable for stress. Cf. also Hayward et al. (1988).
\end{enumerate}
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is likely to have reduced the duration of Hebrew vowels before gutturals.\footnote{There is some evidence that the duration of a vowel in an open syllable was also reduced when it was separated from a subsequent hatef of the same quality by a sonorant oral continuant. When the position of the laryngeal/pharyngeal in the form נִשְׁפָּלָה is taken by one of the sonorant consonants that characteristically do not tolerate dagesh in a syllable with shewa, minor ga’ya regularly occurs (Yeivin 1968, 112–13), e.g. אֵלֶּה אֱחֹ֞ז 'and he took \( \text{vowel} \) and they praised’ (L וַיֶּאֱחֹ֞ז, 2 Chr. 29.30) (§I.2.8.2.2.). Again we may assume that the vowel-like sonorant took away some of the duration from the preceding vowel, making it unsuitable for secondary stress.}

Although the articulation of אָּהֳחַע in Tiberian Hebrew was weak, it was only reduced completely to zero in the case of א and ה in a number of word forms, such as אֵלֶּה אֱחֹ֞ז, בָּנָּו אֵלֶּה and forms that used ה as a mater lectionis for a final long vowel. Where אָּהֳחַע were articulated, they often caused a lowering of adjacent vowels, in many cases to the quality of patah, the lowest vowel. This was evidently occasioned by the narrowing of the pharynx, which was achieved by pulling the back of the tongue into the pharynx and this, in turn, was facilitated by the lowering of the tongue. The association of אָּהֳחַע with a low vowel shape may explain the following phenomenon of ga’ya distribution in the early manuscripts that has been noted by Yeivin (1968, 99-100). Among the cases of words of regular structure for minor ga’ya that, contrary to expectation, do not take minor ga’ya with a disjunctive accent, there is a large proportion of forms of the pattern מָּצָּא with segol + hatef segol, e.g. וַיֶּאֱחֹ֞ז 'and he took

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hold of’ (Jud. 16.3), ‘and I will do it’ (Isa. 46.11). This can be interpreted as indicating that a long vowel preceding with a hatef vowel of the same quality tended to be shorter in proportion to the lowness of the vowel quality. The tongue position for pataḥ was the closest to that which was appropriate for the narrowing of the pharynx and so less movement of articulatory organs was required. We may again draw a parallel with North African Arabic, where the vowel shortening before pharyngeals is restricted in principle to long low ā vowels.

Finally, if a long vowel was followed by a closed syllable beginning with āḥaẓ and containing a vowel nucleus of the same quality, it was apparently longer than a long vowel followed by āḥaẓ with a hatef of the same quality. This is shown by the regular occurrence of munah on the long vowel before the closed syllable to mark secondary stress before zaqef, e.g. וְלַחַטָּאִוֹת ‘for the sin offerings’ (Neh. 10.34) (Yeivin 1968, 203). This was probably due to the fact that a consonantal onset of a prosodically strong syllable (CVC, CVV) was of a stronger articulation, therefore less vowel-like, than that of a prosodically weak syllable containing vocalic shewa or a hatef. This would have made the consonant less likely to take away duration from the preceding vowel.

It follows from the first factor discussed above that a vowel preceding a laryngeal/pharyngeal with a hatef of a different quality, as in וְיִלֵּחְמ ‘and they fought’ (Josh. 10.36) and מִגֹאֲלִֵׂנ ‘of our nearest kin’ (Ruth 2.20), was of a slightly longer duration than a vowel before a hatef of the same quality. This was because the transition to the hatef vowel required some movement of
tongue and lip position. Through the operation of the second factor, however, the following guttural took away some of the preceding vowel duration and so these vowels did not have quite their full duration. Although they took secondary stress in the form of munah before zaqef in preference to minor ga’ya, e.g. חֲמִותִוּת [do not] fight’ (1 Kings 22.31), they were, in general, not so suitable for secondary stress as were long vowels of full duration. There was, consequently, a certain tendency for secondary stress in other circumstances to pass over a syllable with such a vowel when conditions were favourable for the melisma of the stress to be spread over two syllables instead.

In forms such as לַחֲמִותִוּת ‘so they may be ashamed’ (Ezek. 43.10), it may be expected from the operation of the first factor that the long qameṣ would be reduced in duration since this was followed by an epenthetic of the same quality: [vi.jik.-kʰɔː.ɔl.ˈmuː]. Such structures, however, exhibit a lesser tendency to take minor ga’ya than forms such as לִכְלָמ ‘and they fought’ (Josh. 10.5). Evidently, the qameṣ in forms such as לִכְלָמ was longer in duration and more suitable for taking the full secondary stress melisma. This would have been due to the absence of a guttural consonant following the vowel that would have taken over part of the duration of the vowel.

I.2.9. **Shewa Ga’ya**

The ga’ya sign is sometimes marked next to shewa or hatef signs. This is referred to by the terms ga’yat shewa or shewa ga’ya. The second term will be used here. It is rare in the twenty-one books (only some 200 cases occur) but is common in the three books. It
is a musical shewa, but is often marked before a guttural, which suggests that there may be also a phonetic motivation for its use.²²⁹

There are some parallels between the occurrence of shewa gaʿya and that of minor gaʿya. Shewa gaʿya occurs mainly in words with disjunctive accents. Some cases of shewa gaʿya, moreover, occur on patterns that correspond to the regular patterns for minor gaʿya, viz. מַפּוֹלִים and מַפּוֹלִים (the counterparts of מַפּוֹלִים, מַפּוֹלִים), e.g.

L: וּתְשַׁלְּחָּה ‘you should set free’ (Jer. 34.14)
L: בָּשָּׁמְעֲךָ ‘when you hear’ (1 Chron. 14.15)
L: בְּמַעֲלֵה ‘in the ascent of’ (2 Chron. 32.33)

The occurrence of shewa gaʿya, however, is not so concentrated on these regular patterns as the minor gaʿya is concentrated on its regular patterns. Gaʿya is found in a variety of other patterns on a shewa or hatef that is separated from the accent by at least one vowel, e.g.

L: וְאָלָּם ‘but’ (Job 12.7)
L: נָשִׁיר ‘go out’ (Cant. 1.8)
L: רָאִיתָ וְקָרָאָה ‘you will see and you will read’ (Jer. 51.61)
L: וְיֹאמְר ‘and it will be’ (Hos. 2.1)
L: וְיָאָמְר ‘and let them say’ (Joel 2.17)

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L: סָמַּקָּם רָחִיתָם ‘when they brought out’ (Josh. 10.24)

L: יָשַׁג וּסְתִּיתַק ‘his sneezings’ (Job 41.10)

L: כָּלָּקָל כְָלִים ‘and all the princes’ (2 Kings 24.14)

*Shewa gaʿya* also occurs on a conjunctive vav when it has a *shureq* before a labial, e.g.

L: רָחִיתָר וּמַחְוַת ‘and what do you awaken?’ (Cant. 8.4)

Given the strict conditions of word length for the occurrence of the secondary stress of minor *gaʿya*, these freer occurrence patterns of *shewa gaʿya* suggest that its motivation was not exclusively to mark a secondary stress. Rather, in some cases at least, its purpose was to slow down reading for orthoepic reasons. As remarked, this is likely to apply to some cases where it occurs before a guttural. Evidence for this is the fact that there are instances where *shewa gaʿya* occurs before a guttural on a word that has an ‘*azla* accent sign that itself marks a secondary stress, e.g.

L: וּסָמַּקָּה ‘and it will be’ (Isa. 28.4)

In most cases, *shewa gaʿya* occurs at the beginning of a word, as in the examples cited above. In a few cases in the three books, it occurs in the middle of a word, e.g.

L, A: יְשָׁרִיָּא ‘blessed is the man’ (Psa. 1.1)

L: יְשָׁרִיָּא ‘they search out iniquities’ (A: יְשָׁרִיָּא, Psa. 64.7)

In both these cases, the *shewa gaʿya* clashes with an immediately preceding *gaʿya* or *merkha*, suggesting that it reflected the slowing of the reading for orthoepic purposes rather than a secondary stress beat.
According to Masoretic treatises, a *shewa* with *gaʿya* was read with the length of a full vowel. This is seen, for example, in a passage concerning the pronunciation of *shewa* before gutturals in the *Treatise on the Shewa* edited by Levy (1936, כ־יט):

It (the *shewa*) should not be pronounced (in the word הבָּּעָּלִים) as a pure *qames*, equal (to the following *qames*), i.e. with lengthening, but rather it is pronounced short, as if it were *qames*, but not a full *qames*, e.g. הבָּּעָּלִים, but you do not say הבָּּעָּלִים, for that is a mistake. Likewise, when it is adjacent to vowels other than *qames*, it is pronounced short. This is also the case when two *shewas* come together, as in אֶשְׁמְעָּה, אֶרְגְּעָּה, אֶרְבְּעָּה, and likewise וּוִַֽיִּקְרְא, וִַֽיִּמְצְאוּ, וִַֽיִּשְׁמְעוּ, הנִּמְצְאוּ. Follow this (rule), do not add to it or subtract from it, unless *gaʿya* occurs with *shewa*, in which case you make it long and it is pronounced as a *qames*. For instance, the word היה, when you add *gaʿya* to the *shewa*, i.e. היה, is pronounced היה with a full *qames*. The same is so in the case of *segol*, e.g. יָּשָׁמֵש is pronounced יָּשָׁמָש. Likewise צְאִי־ל is read with *hireq* as if it were צְאִי־ל, ‘go out’ (Cant. 1.8) is read with *hireq* as if it were צְאִילְשׁוֹבִֵ֡ינוַּשְׁ אֵל וּנוּ, ‘our captors asked us’ (Psa. 137.3) is read צְאִי־לְחָבְּרָה צְאִי־לְחָבְּרָה, ‘you will love being simple’ (Prov. 1.22) is read צְאִי־לְחָבְּרָה צְאִי־לְחָבְּרָה. All such instances of *shewa* are pronounced full with the pronunciation of the (vowel of the) adjacent guttural letter, on account of the principle of the *gaʿya*, for it is the *gaʿya* that lengthens them. If there is no *gaʿya*, *shewa* is always pronounced short and is not lengthened. This condition is never changed. So it is with
all the occurrences of shewa that we have discussed, all instances of its vocalic realization follow this rule.\textsuperscript{230}

The purport of this and similar passages from other Masoretic treatises\textsuperscript{231} is that a shewa with gaʿya was pronounced as a long vowel, which was equal in status to a full vowel represented by a vocal sign.

The Karaite transcriptions into Arabic indicate that shewa gaʿya was pronounced as a long vowel, since they represent it with a mater lectionis, e.g.

\begin{verbatim}
(BL Or 2547 fol. 15r, 11 | L [BHS]: בְּ נַחֲלִָּ֔ה Josh. 13.6 ‘as an inheritance’)
\end{verbatim}

\textsuperscript{230} ли сине йое бич мэй ком чошее питети бахткел бе амента йо бахткел
כנ uomo ком ва ком тахс ком бахткел ва ком яй сибал ком дель дин. זא פרט הוה
אדә גאוי גא עלאקפס בלהקפס בדיכל אדә אתקפס אתטוק בומ נעמאר אשקפשת אצראנה
אברנה מחלת יקארו (יקיצאוי), ישמעה ומכאיאי אפק יער הוה לא תודי לא הנקיס אלא
וא התקפס אין אושיא גועה פיתהקפס פריבר הוה בקפק בקפק להו אדוא געלה גועה
על הוה אלאכלות וחיה ייאלא, ויה במקמ אתקפס בדיכל בלחלה נקט מחלת תקיקוס כסנאך
תקיק דיאוק מחלת גאוי על יואר בקפק מקחכ בתקיק גאוי מחלת שאלות שיבוני
גייא שאלות בדיכל תואחל יואר תואמבי פור. זא הוה זא שאכלות בן דיכל זא
תקפס אולזריק ואמניאר להו ממחיטה בסבר עלעלה אחלכי להעיגה לא ת.Unicode יאלת
תקיקס א. זא לי כעיה מפרוגה בתמקיס יום באדוא זא אתקפס באחלכי לא תוני הוה
אלשרט עלעלה בדיכל פי גיניא אקפסיא תוריה אחלכי שורגנאיא ז뭄 תוראהו על הוה
אלאמלת.

\textsuperscript{231} E.g. Hidāyat al-Qāri (short version, edition in vol. 2 of this book, §II.S.5.1, §II.S.5.3), Baer and Strack (1879, 12–13); cf. Khan (2009, 3*–7*).
The default pronunciation of vocalic shewa was with the quality of *patah* [a]. This explains why the *shewa gaʿya* in the foregoing examples is represented by Arabic *mater lectionis ʾalif*, which represents long [aː]. A lengthened *ḥâṭef pataḥ* is likewise represented by *mater lectionis ʾalif*.

A *mater lectionis* is, however, sometimes omitted in the transcriptions of *shewa gaʿya*. This is regularly the case in many manuscripts in contexts where *shewa* has a higher vowel quality than *pataḥ* before *yod* or gutturals, e.g.

The default pronunciation of vocalic *shewa* was with the quality of *pataḥ* [a]. This explains why the *shewa gaʿya* in the foregoing examples is represented by Arabic *mater lectionis ʾalif*, which represents long [aː]. A lengthened *ḥâṭef pataḥ* is likewise represented by *mater lectionis ʾalif*.

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(BL Or 2554 fol. 35r, 1 | L [BHS]: בַּדִּירְיָהּ Cant.
1.8 ‘go out’), in which the shewa is pronounced with the quality of ḫireq before a guttural followed by ḫireq [ˌsˁiˑʔiːˈlɔːɔχ]

(BL Or 2549 fol. 112r, 6 | L [BHS]: נִעֲרְיָהּ Jer. 34.3
‘and your eyes’), in which the shewa is pronounced with the quality of șere before a guttural followed by șere [ˌveˑʕeˑnɛːχɔː]

(BL Or 2553 fol. 22v, 8 | L [BHS]: הַחוֹטְאִי Prov. 8.36
‘he who misses me’), in which the shewa is pronounced with the quality of ḥolem before a guttural followed by ḥolem [ˌvoˑħoˑoːtˁˈʔiː]

In such manuscripts a mater lectionis is also sometimes omitted when the shewa with gaʿya has the quality of [a], e.g.

(BL Or 2549 fol. 115r, 14 | L [BHS]: נִקְשֵׁלְהוּ Jer. 34.14
‘you will send off’)

(BL Or 2552 fol. 85r, 3 | L [BHS]: נִנְגֻּנִים Job. 40.30
‘merchants’)

This distribution of matres lectionis representing shewa gaʿya in the Karaite transcriptions corresponds closely to the distribution we have seen representing minor gaʿya. This reflects a lesser duration of such vowels than vowels in other contexts. In my phonetic transcription of such forms, therefore, I transcribe the
vowels with half-length [aˑ], [iˑ], etc. Moreover, vowels of *shewa gaʿya* with a high quality were of a lesser duration than those with the low quality [a], as was the case with vowels marked by minor *gaʿya*. Manuscripts that do not represent high vowels of *shewa gaʿya* or minor *gaʿya* would regularly represent them if they are long vowels that are represented by vowel signs in an open syllable, as in

(BL Or 2539 MS A, fol. 113v, 5 | L [BHS]: מָהָוֶ֖ו רַ֣ בֶּשַׁ֣ הַ֣ יִֽהְיֶֽהוֹ | Deut. 23.11 ‘from outside’) 

Likewise, inherently long vowels followed by silent *shewa* are regularly transcribed by a *mater lectionis*, as in

(BL Or 2547 fol. 7v, 1 | L [BHS]: וַיִּ ִֽרְא | Josh. 4.14 ‘and they (mpl) feared’)

The fact that the *hireq* vowel in a word such as מָהָוֶ֖ו רַ֣ בֶּשַׁ֣ הַ֣ יִֽהְיֶֽהוֹ (Josh. 4.14) is regularly represented by a *mater lectionis* but a vowel of the same quality with *shewa gaʿya* in a word such as יִֽֽהְיוֹרֶ֥ב (Job. 36.11) is not regularly represented by a *mater lectionis* suggests that an open syllable containing vocalic *shewa* with *gaʿya* was different in status from the open syllable with a vowel sign. The syllable with a *hireq* vowel in a word such as מָהָוֶ֖ו רַ֣ בֶּשַׁ֣ הַ֣ יִֽהְיֶֽהוֹ was bimoraic (CVV) whereas the vocalic *shewa* with *gaʿya* was monomoraic (CV) but was increased in duration phonetically by the *gaʿya*. The same applied to CVC syllables, in which the single vowel mora was increased in duration by a minor *gaʿya*. We may say that the *shewa gaʿya* stretched phonetically a short vowel, but did not, in principle, cause it to be lengthened to the duration of a long
vowel with underlying bimoraic length. The underlying syllable structure and phonetic syllable structure of a word such as וְֽ֠עֵינֶיך (Jer. 34.3) ‘and your eyes’ would be: /vʔē.nɛ̄.χɔ̄/. In a word such as מֵ אָּדָּם ‘from man’ (Gen. 6.7), on the other hand, the long sere would be in the underlying syllable structure: /mē.ʔɔ̄.ðɔ̄.m/. This appears to contradict the passage in the Treatise on the Shewa cited above, which claimed that a shewa with gaʿya was pronounced like a full long vowel. A more nuanced statement is, however, found in another passage in this treatise:

If someone objected and said to you: If shewa according to you is marked only with short vowels, why do you vocalize אֱ לֹהִים ‘God’ with shewa, in which the ‘alef has a long vowel. Likewise, אֲ דֹנִי ‘my Lord’, הֲ רָּאִִ֔יתַָּ ‘have you seen?’ (1 Kings 21.29), מֵ אָּדָּם ‘go and love a woman’ (Hos. 3.1), and also מְ בִּינַָּתְך ‘since your days (began)’ (Job 38.12), הֲ ֶ֭מִיָּּּמֶיך ‘is it from your understanding?’ (Job 39.26). The answer is that in all these words, and the like, when the gaʿya is removed, they are pronounced with a short vowel. We vocalize them with shewa on account of this shortness. The gaʿya is a subsidiary addition. We should not change the basic rule on account of a subsidiary case.

---

232 Ed. Levy (1936, הכ), lacunae supplied by CUL Or 1080.13.3.2, fol. 1r:
This passage could be interpreted as reflecting the notion that although the gaʿya lengthens the vowel of the shewa, it does not fundamentally change the status of the shewa to that of a full vowel. This can be reformulated in terms of metric analysis by the hypothesis that a gaʿya on a vocalic shewa does not change the foot structure, i.e. the shewa still remains within the foot of the following vowel and is not parsed as a separate foot. The foot structure of the words וּתְשַׁלְּחָה (1 Sam. 6.3) and such as והִשְׁלָחָה (Jer. 34.14) would be the same (indicated by brackets):

וּתְשַׁלְּחָה

[(ta.ʃal.)(la.ˈhu:)]

וּתְשַׁלְּחָה

[({tə.ʃal.)(la.ˈhu:)]

This should be contrasted with a CV syllable with a lexical vowel such as the hatef qames in a word such as והֵשַׁלֵּחַ, ‘holinesses’ (Exod. 26.3). We have seen that such syllables are in their own separate foot, although, since it consists of a monomoraic syllable, it should be classified as degenerate (§I.2.7.). When these take secondary stress, they are lengthened to the full duration of long bimoraic vowels in open syllables and represented by a full qames vowel. A gaʿya marking the secondary stress should, therefore, be interpreted as a major gaʿya. This prosodic structure was facilitated by the fact that they have their own foot:

וֵ֭הֶשַׁלֵּחַ ‘holinesses’ (Exod. 29.37)

[{q̟ɔː.)(ðɔː.)(ˈʃiː.im)]
The syllable of a shewa with gaʿya, by contrast, remains subordinate prosodically to the following syllable in an iambic foot (\(\). \(\ast\)). It is lengthened phonetically by the gaʿya but does not achieve the full bimoraic weight of the following syllable of the foot. This could be analysed as a case of ‘multi-plane metrics’ (Bosch 1996, Gordon 2006, Ryan 2016) whereby the phonetically prominent position and the metrically prominent position in a prosodic domain such as a foot or prosodic word do not necessarily coincide. The shewa with gaʿya is phonetically prominent in the foot due to the lengthening of the vowel, but the following syllable remains the metrically prominent syllable in the foot due to its weight and stronger beat.

In the Karaite transcriptions one case has been identified in which a shewa with gaʿya is transcribed with gemination of the following consonant and the shewa is replaced in the vocalization with a full vowel:

\(\text{اع۟سٰبٰام۟}{\text{BL Or 2555 fol. 19r, 5 | L [BHS]: בְּ מַעֲשִָּ֔יו}}\) Ecc. 3.22

‘in his works’)

Here the phonetic prominence and the metrical prominence have been brought into line, in that the syllable of the strengthened shewa has become bimoraic and so parsed as an independent foot.

I.2.10. **METRICAL EPENTHESIS**

As we have seen, patterns of secondary stress in principle exhibit eurhythmic alternating sequences of prominent and non-prominent syllables. The clash of a prominent syllable with the main
stress immediately adjacent to a prominent syllable with secondary stress marked by an accent or gaʿya is, in principle, avoided. There are some cases, however, where such a clash appears to take place. These include words in which a syllable with a short vowel immediately before the syllable with the main stress is marked by gaʿya. Such patterns occur when the contact between the two syllables consists of two weak consonants, i.e. the first syllable has a weak consonant as its coda and the following syllable has a weak consonant as its onset. This occurrence of gaʿya is found, for example, on a pataḥ where the syllable contact consists of coda that is a guttural and an onset that is one of the sonorants yod, lamed, or nun, or another guttural,\(^{233}\) e.g.

\[
\text{וּיְשַׁעְיָ֣ה [ja.’aˑʕ.ˈjɔː.huː] ‘Isaiah’ (Isa. 1.1)}
\]

\[
\text{וּפְתַחְיֵָּּ֨ה [wuf.θaˑḥ.ˈjɔː] ‘and Pethahiah’ (Neh. 11.24)}
\]

\[
\text{יְדַעְיָּּ֣ה [ja.’dəˑʕ.ˈjɔː] ‘Jedaiah’ (Neh. 12.6)}
\]

\[
\text{שְׁמַעְיָֹ֑ה [ʃa.ˌmaˑʕ.ˈjɔː] ‘Shemaiah’ (Neh. 10.9)}
\]

\[
\text{וּוּשְׁמַעְיָּּ֨ה [wuʃ.ˌmaˑʕ.ˈjɔː.huː] ‘and Shemaiahu’ (2 Chron. 35.9)}
\]

This type of lengthening before a guttural followed by another weak consonant is found also across word boundaries, where the two words are connected by maqqef or where they are independent words, e.g.

\[
\text{שְׁמַע־נַא [ʃa.ˌmaˑʕ.ˈnɔː] ‘listen!’ (1 Sam. 28.22)}
\]

\[
\text{וֹלָּקְח־ל [lɔː.’q̟aˑḥ.ˈloː] ‘he took him’ (Exod. 6.25)}
\]

\[
\text{כְּדַע־ל [ˌdəˑʕ.ˈlɔː.ɔχ] ‘know you!’ (Job. 5.27)}
\]

\(^{233}\) Yeivin (1980, 262) refers to this as a phonetic gaʿya.
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ךְָּ קַ ח־ל [ˌqaˑḥ.ˈlɔːɔʁ] ‘take for yourself’ (Gen. 14.21)

הֲשַָּׁעָּם ַ [ha.ˈʃɔː.ˌmaˑʕ.ˈ ʕɔː.ɔ] ‘did any people hear?’ (Deut. 4.33)

It is even marked occasionally on furtive pataḥ in such circumstances, e.g.

לִשְׁמַע [liʃ.ˈmoː.ˌaˑʔ-loː] to listen to him’ (Jud. 19.25)

בַּל [ˈkʰoː.ˌaˑʔ-le-.ev] ‘strength of heart’ (Job. 36.5)

This type of gaʿya is found also before other sequences of weak consonants across syllables in word-internal position. These consonants include gutturals, sonorants, continuants, sibilants, fricatives, and qof, e.g.

שַׁ וְעַת [ˌʃaˑv.ˈʕaː.aθ] ‘cry of’ (Jer. 8.19)

כַֹחַ [ˌkʰoː.ˌaˑʔ] ‘strength of heart’ (Isa. 36.5)

חַסְדִָי [ˌħaˑs.ˈðeː] ‘love of’ (Isa. 55.3)

סַרְגִ֖וֹן [ˌsaˑrˁ.ˈʁoː.on] ‘Sargon’ (Isa. 20.1)

כַֹלְנֵה [ˌχaˑl.ˈneː] ‘Calneh’ (Amos 6.2)

כַֹרְבֹּה [ˌχaˑr.ˈvoː.oθ] ‘desert plains’ (Josh. 4.13)

It is found also on high vowels, e.g.

עַרְבֹּת [ˌʕaˑr̟.ˈvoː.oθ] ‘desert plains’ (Josh. 4.13)

בַקְבּ קְיֵה [wu.va.ˌbuˑq.ˈjɔː] ‘and Bakbukiah’ (Neh 12.9)
The lengthening of the vowel is reflected by the Karaite transcriptions by an Arabic *mater lectionis*, although the *gaʿya* sign is not always marked in the manuscripts, e.g.

Shemaiah (BL Or 2556, fol. 65r, 1 | L [BHS]: שְׁמַעַיָּ ה Neh. 10.9 ‘Shemaiah’)

Pethahiah (BL Or 2556, fol. 54v, 2 | L [BHS]: פִּתַחַיָּ ה Neh. 9.5 ‘Pethahiah’)

know you! (BL Or 2552 fol. 7v, 4 | L [BHS]: יִרְאוּ Job. 5.27 ‘know you!’)

hear please! (BL Or 2552 fol. 47v, 1 | L [BHS]: הָאָשְׁפָּעַו Job. 33.1 ‘hear please!’)

he took him (BL Or 2542, fol. 50r, 5 | L [BHS]: קָנְהָו Exod. 6.25 ‘he took him’)

and I swore to you (BL Or 2549 fol. 226v, 9 | L [BHS]: אָשְׁפָּעַו Ezek. 16.8 ‘and I swore to you’)

I will satisfy (with) bread (BL Or 2551 fol. 96r, 13 | L [BHS]: אָשְׁפָּעַו Psa. 132.15 ‘I will satisfy (with) bread’)

did a people hear (BL Or 2539 MS A, fol. 88v, 1 | L [BHS]: הָאָשְׁפָּעַו Deut. 4.33 ‘did a people hear’)

[BL Or 2551 fol. 96r, 13 | L [BHS]: אָשְׁפָּעַו Psa. 132.15 ‘I will satisfy (with) bread’]

[BL Or 2551 fol. 96r, 13 | L [BHS]: אָשְׁפָּעַו Psa. 132.15 ‘I will satisfy (with) bread’]
In some manuscripts, the mater lectionis is occasionally omitted in places where the gaʿya in L occurs on high vowels, e.g. מִשְׁחֹ (BL Or 2542, fol. 58v, 7 | L [BHS]: מַשְׁחָה Exod. 12.21 ‘pull out!’)

This is analogous to the omission of a mater lectionis where minor gaʿya or shewa gaʿya occur on a high vowel. It indicates that the duration of the vowel lengthened by this type of phonetic gaʿya was less than that of a long bimoraic vowel in an open syllable and that high vowels were inherently shorter than low vowels. The vowel, therefore, should be represented as half-long in roman transcription, e.g. [aˑ], [iˑ], [uˑ], as is the case with the vowels with minor gaʿya or the vowels of shewa gaʿya.
The *shewa* after this type of *gaʿya* was silent. This is shown by the representation of the silent *shewa* by Arabic *sukūn* in some of the Karaite transcriptions and by the fact that A regularly has a simple *shewa* sign rather than a *ḥaṭef patah*. This should be contrasted with cases of phonetic *gaʿya* that augment the short vowel by an extra mora and cause the *shewa* to be vocalic by inducing a resyllabification (§I.2.5.8.), e.g.

L: ܪُחָמָן [ha.θi:.ma.'lo:.ox] ‘Are you a king?’ (A ܪُחָמָן, Jer. 22.15)

In such cases, the vowel should be transcribed as fully long, viz. [aː], [iː], [uː].

The purpose of the phonetic *gaʿya* before a silent *shewa* in forms such as רָחָמָן [ja.ʃa.ʔa.ˈʃa.ʕ.ɔː.ˈhuː] was orthoepic, just as was the case with the phonetic *gaʿya* before a vocalic *shewa* in a word such as רֲחָמָן [ha.θi:.ma.'lo:.ox]. Both cases were a measure to avoid the slurring of the weak letters together in the reading. They were evidently felt to be vulnerable to such slurring due to the fact that they formed a suboptimal syllable contact. The optimal contact between two adjacent syllables is where the onset of the second syllable is stronger than the offset (coda) of the preceding syllable (Vennemann 1988, 40).

In forms such as רָחָמָן [ja.ʃa.ʔa.ˈʃa.ʕ.ɔː.ˈhuː], the clash of two prominent syllables can be assumed to have induced a repair mechanism in the form of a short pause equivalent to a weak beat, in effect a metrical epenthetic or zero syllable. The foot and grid structure of this can be represented thus (the final syllable enclosed in angular brackets is extra-metrical):
In some cases lengthening of the vowel before the weak consonants is represented in the Karaite transcriptions where a gaʿya is not marked in L. It regularly occurs, for example, in the word יְשַׁעְיָּ ה even where L does not have gaʿya on the shin, e.g.

וּיְשַׁעְיָּ ה (BL Or 2548 fol. 14r, 9 | L [BHS]: וּיְשַׁעְיָּ ה Isa. 37.5 ‘Isaiah’)

A minor gaʿya is marked on some constructions that have a phonetic gaʿya of this nature, e.g.

A: נָּפֶשׁ־מַפַח, [ˌməp̩pʰaˑםˈʃəːhə] ‘the breathing out of the soul’ (L [BHS]: נָּפֶשׁ Job. 11.20)

L: נְשׁמֵיהוּ [ˌviˑʃˌmaˑʕ∅ˈʃəː] ‘and Ishmaiah’ (1 Chron. 12.4)

L: וֹקַח־ל [ˌvəq̟əˑχ∅ˈləː] ‘and he took for himself’ (Gen. 4.19)

The lengthening is reflected in the Karaite transcriptions, e.g.

וְיִשְׁמַעְיָּ ה (BL Or 2552 fol. 16r, 5 | A [BHS] Job. 11.20)
This indicates that the pattern of the constructions was prosodically equivalent to the regular structures of minor gaʿya. They may be compared, in particular, to the pattern מְתַפַּעֲלִים. In a structure such as וְיִשְׁמַעְיֵהוּ [viˌjiˑʃˌmaˑʕ∅ˈ], therefore, the metrical epenthetic ∅ would correspond to the short Ḥatef vowel of מְתַפַּעֲלִים. This is evidence for the existence of the metrical epenthetic. Moreover, the equivalence of the two structures demonstrates that the duration of the pataḥ before the Ḥatef in מְתַפַּעֲלִים and of the pataḥ with the phonetic gaʿya in וְיִשְׁמַעְיֵהוּ was equivalent, i.e. a half-long [aˑ].

Metrical epenthesis between two weak consonants in the contact of two syllables can be identified as an orthoepic strategy in some forms of the verbs היה ‘to be’ and חי ‘to live’. This is achieved by lengthening the hireq of prefixes before he or het and lengthening the pataḥ of the conjunctive prefix va- before yod, e.g.

יהוה [jiˑhˈjɛː] ‘it will be’ (Gen. 1.29)

יהוה [jiˑhˈjɛː] ‘he lives’ (Ecc. 6.3)

כֶּחֶם [miˑhˈjoːθ] ‘from being’ (Jer. 31.35)

ויי [vaˑjˈhiː] ‘and it was’ (Gen. 4.3)

ויי [vaˑjˈhiː] ‘and he lived’ (Gen. 5.3)

In the model Tiberian codices, the prefixes of these verbs are frequently, though not regularly, marked with a gaʿya sign.
The marking of gaʿya differs across the manuscripts. In places where it is omitted in L and A, it is often marked in C. The Karaite transcriptions indicate that the vowel of the prefixes was regularly lengthened, including where it is omitted in L and A, e.g.

(BL Or 2549 fol. 87r, 6 | L [BHS]: יִホーム, Jer. 23.17 ‘it (ms) will be’)

(BL Or 2549 fol. 55r, 14 | L [BHS], A: יִホーム, C: יהו, Jer. 7.24 ‘and they were’)

(BL Or 2549 fol. 58r, 12 | L [BHS], A: יהו, C: יהו, Jer. 7.34 ‘it (fs) will be’)

(Bl Or 2549 fol. 92r, 12 | L [BHS]: יהו, Jer. 31.35 ‘from being’)

(Bl Or 2549 fol. 120r, 10 | L [BHS]: יהו, Jer. 35.7 ‘you (mpl) will live’)

(Bl Or 2540, fol. 3v, 4 | L [BHS]: מִיהוּ, Exod. 1.5 ‘and it was’)

(Bl Or 2548 fol. 28r, 9 | L [BHS]: יהי, Isa. 38.9 ‘and he lived’)

Since the Karaite transcriptions mark the vowels as long even where the model codices, even C, do not mark gaʿya, the
lengthening of the vowel is not directly correlated with the marking of the ga‘ya.

When the prefix of the verb begins with a consonant other than yod, the pataḥ in the va- prefixed particle is not lengthened, since there was no contact of two weak consonants and metrical epenthesis was unnecessary, e.g.

וַתְּהִי [vattʰiʰiː] ‘and it (fs) was’ (Jud. 11.29)

This is shown by the fact that Karaite transcriptions regularly have no mater lectionis in such contexts, e.g.

וַתְּהִי (BL Or 2547 fol. 34r, 5 | L [BHS]: Judges 11.29 ‘and it (fs) was’)

Some manuscripts of the Karaite transcriptions represent only the pataḥ of the forms וַיְהֵי and וַיְחִי but not hireq in the prefixes of these verbs, reflecting the lengthening only of pataḥ, e.g.

וַיְהֵי (BL Or 2539 MS A, fol. 71v, 6 | L [BHS]: Genesis 24.15 ‘and it was’)  

יִהְיָ (BL Or 2539 MS A, fol. 97r, 8 | L [BHS]: Deuteronomy 18.22 ‘he will be’)  

יִהְיוּ (BL Or 2539 MS A, fol. 103r, 4 | L [BHS]: Deuteronomy 20.11 ‘they will be’)
Manuscripts such as Or 2539 fols. 56–114 that do not represent the hireq with mater lectionis mark long hireq in other contexts with a mater lectionis, e.g.

\[ \text{เมียะวอต} \] (BL Or 2539 MS A, fol. 57r, 8 | L [BHS]: ־מִחוּט ַ

14.23 ‘from a thread’)

This suggests that the hireq in the prefixes of these verbs was long, but was perceived to be shorter in duration than the patah in prefixes of these verbs and shorter than long hireq in other contexts. This is reminiscent of the short vowels in closed syllables that were lengthened by minor gaʿya. These, likewise, were only half-long and exhibit a lesser duration when the vowel is a high vowel (§I.2.8.2.2.).

I have presented evidence elsewhere (Khan 2018b) that the orthoepic measure of lengthening the vowels before two weak consonants in forms of the verbs הָּיָּה and חָּיָּה had deep historical roots that can be traced to the proto-Masoretic reading in Second Temple Palestine before the split of the Tiberian and Babylonian branches. It arose as a measure to ensure that the gutturals were not weakened in these verbs and thus to prevent them from being confounded. The argument, in brief, is that all initial he and initial het verbs originally had an /i/ vowel in prefixes in the proto-Masoretic reading. This situation has been preserved in the Babylonian reading tradition, whereas in the Tiberian tradition the vowel generally underwent lowering to a segol or patah (Yeivin 1985, 302), e.g.\(^{234}\)

\(^{234}\) Data supplied by Shai Heijmans.
The /i/ has been preserved in the verbs הָּיָּה and חָּיָּה in the Tiberian tradition because it was lengthened for orthoepic reasons. This must have taken place before the vowel lowering took place in initial he and het verbs at a remote historical period when such verbs originally had /i/ in the prefixes before the Babylonian and Tiberian branches split.

This demonstrates that orthoepy was already a feature of the ancient reading and that care over the oral reading of the text went hand in hand with care over the copying of the written text at an ancient period, presumably within Temple circles.

Vowels lengthened before weak consonants for the purpose of orthoepic metrical epenthesis such as the constructions mentioned in this section, although not fully bimoraic vowels, appear to have been of a slightly longer duration than vowels in closed syllables lengthened by musical minor gaʿya. This is shown by the fact that there are manuscripts of Karaite transcriptions that transcribe the hireq or prefixes of the verbs הָּיָּה and חָּיָּה with an Arabic mater lectionis but omit the mater lectionis where a hireq has minor gaʿya, e.g.

(BL Or 2549 fol. 59r, 1 | L [BHS]: יִ הְי וּ׃ Jer. 8.2 ‘they will be’)

(BL Or 2549 fol. 58v, 13 | L [BHS]: וּ ִׂ֖ הִ שְׁתַחֲו Jer. 8.2 ‘they worshipped’)

[tihoːfuː] (L [BHS]: וּתֶהוֹד Ezek. 34.21 ‘you will push’)

[yihoːʁuː] (l [BHS]: וּיַהְרֹֹ֑ג Psa. 94.6 ‘they will kill’)

וּ תִ ֹ֔דְפ Ezek. 34.21 ‘you will push’

וּ יַ הֲרֹ ֹ֑ג Psa. 94.6 ‘they will kill’
Likewise, there are some manuscripts that regularly transcribe a pataḥ lengthened in metrical epenthesis constructions by an Arabic mater lectionis, but sometimes omit a mater lectionis in the transcription of pataḥ with minor gaʿya, e.g.

וַיְהִי (BL Or 2542, fol. 43r, 3 | L [BHS]: וַיְהִֵ֗י Exod. 1.5 ‘and it was’)

לָָּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּ
I.2.11. **MAQQEF**

The *maqqef* sign joins words that are read together as a group with a single main stress.\(^{235}\) The number of words joined in this way is most frequently two, e.g.

L: אֶת־הָּאִׂוֹר ‘the light’ (Gen. 1.4)

There are some cases of three, or, sporadically, even four words joined together into a single main stress group, e.g.

L: אֶת־לֵב־פַרְעֹה ‘the heart of Pharaoh’ (Exod. 14.4)

L: עַל־כָּל־דְבַר־פִֶשַׁע ‘for every case of crime’ (Exod. 22.8)

There are three main factors that condition the use of *maqqef*.

(i) When there would be a clash of two main accents across two words, i.e. where one word has word-final stress and the following has word-initial stress, the stress of the first word is sometimes eliminated by joining it together with second by *maqqef*, e.g.

L: אִמְרִי־לִִׂי ‘say with regard to me’ (Gen. 20.13)

L: נִמְצְאוּ־בֵָּם ‘they were found among them’ (Jer. 41.8)

L: מְגִלַּת־סֵפֶר ‘the scroll of a book’ (Jer. 36.2)

(ii) Small monosyllabic words are often attached to a following word even if there would not have been a clash of accents.

\(^{235}\) For a detailed description of the use of *maqqef* see Yeivin (1980, 228–36) and the literature cited there. See also Holmstedt and Dresher (2013).
This occurs particularly frequently when the short word has a short vowel in a closed syllable, e.g.

L: אֵלֶּיּוֹסְע ‘to Abraham’ (Gen. 20.10)
L: לֶהֶדְבָּרִים ‘all the words’ (Exod. 4.30)
L: בֶּן־הָּאָּמַָּה ‘son of the slave woman’ (Gen. 21.10)

(iii) Maqqef that does not fall into one of the two previous categories may be motivated by the constraints of the musical accent system. This is the case where a particular disjunctive can be preceded only by a limited number of conjunctive accents. In the following extract, for example, the ṭifḥa can only be preceded by one conjunctive, so the two preceding words are joined together in a single accent group by maqqef:

L: אֵֶֽׂ֫תַרְבַּעַמְלַחֲדָֹּ֑לוְהַדְבָּרִִ֔ים ‘but if it seems wrong in your eyes to come with me to Babylon, desist.’ (Jer. 40.4)

As remarked, a maqqef after a word, in principle, deprives the word of its main stress. As a result, vowels that do not have an inherent length feature are pronounced short when they are left unstressed, e.g.

ול /kʰol/ [ˈkʰoːl] ‘all’
זָא /ʔoz/ [ʔɔz] ‘strength’ (Isa. 26.1)
תַּמְשָּׁל /tʰimʃol/ [tʰimʃɔl] (Gen. 37.8), תֵּמְשֶׂל /tʰimʃɔl/ (Gen. 4.7) ‘you master’
ףָ֫ח /ʔeθ/ [ʔeθ] object marker
וַיִּתֵֶֽׂ֫ל /vajjittʰen/ [vaʃʃitʰen], וַיִּתָּ /vajjittʰen/ [vaʃʃitʰen] ‘and he gave’
Vowels with an inherent length feature do not in principle undergo such shortening in words followed by *maqqef*, e.g.

L: בֵּית אָבִי /beθ/ [beːeθ] ‘your father’s house’ (Gen. 24.23)

L: אִישׁ אֶחֱד /ʔiʃ/ [ʔiːiʃ] ‘one man’ (Gen. 42.11)

L: לֹשׁ-מֵאָוֹת /ʃlōʃ/ [ʃaloːoʃ] ‘three hundred’ (Num. 31.36)

On some sporadic occasions, an inherently long *ḥolem* in a closed syllable in a word with *maqqef* is shortened to short *qameṣ*, e.g.

L: אֶת-שְׁלָשׁ-אֵל /ʔetʃlɔʃ/ [ʔetʃaloʃ] ‘if these three’ (Exod. 21.11)

On a number of occasions, the Karaite transcriptions omit a *mater lectionis* in their representation of inherently long *ḥolem*, *qameṣ* or *ṣere* in closed syllables in words with *maqqef*, which reflects a wider range of shortening of inherently long vowels than is represented by the Masoretic vocalization, e.g.

שְׁלֹשׁ-מֵאָוֹת (BL Or 2549 fol. 145v, 15 | L [BHS]: שלש-מאות) Ezek. 4.5 ‘three hundred’)

הָזָד (Genizah MS 13, Khan 1990a, 13 | L [BHS]: הזד) Psa. 111.3 ‘majesty’)

הָן (Genizah MS 13, Khan 1990a, 13 | L [BHS]: הָנָכ) Psa. 112.3 ‘wealth’)

יָם-כִנַּרֶת (Or. 2546, fol. 118v, 5 | L [BHS]: ים-כנרת) Num. 34.11 ‘sea of Chinnereth’)
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In contrast to these indicators of prosodic reduction due to lack of stress, there are some features of words with *maqqef* that reflect an effort to pronounce such words with some degree of prosodic independence.

In some cases, for example, an intrinsically short /o/ vowel in a word with *maqqef* is represented by ḫolem [ɔː] rather than the expected short qameš [ɔ]. In the following two examples, the syllable with the ḫolem is marked by a gaʿya, reflecting a secondary stress:

L: יִגְנֹב־אִישׁ ‘a man steals’ (Exod. 21.37)
L: וֹעֵז־לָֹּ֑מ ‘strength to them’ (Psa. 28.8)
L: רֹב־פְשָּׁעֶֹ֑יהַ ‘the multitude of her sins’ (Lam. 1.5)

Compound numerals with elements joined by *maqqef* generally reflect a secondary stress on the first element before the *maqqef*, either by a gaʿya or by a long realization of an intrinsically short vowel, e.g.

L: אַרְבָּעֵשֶׁר ‘fourteen’ (Gen. 14.4)
L: שְׁבַע־עֶשְרֵַּ֤ה ‘seventeen’ (Gen. 37.2)
L: וְשֵׁשׁ־עֶשְרֵַ֣ה ‘and sixteen’ (2 Kings 15.33)
The Masoretic treatises discuss the distribution of monosyllabic words with the intrinsically short vowels /e/ and /o/, which, in principle, are realized as the long vowels šere [eː] and holem [oː] respectively when stressed and the short vowels segol [ɛ] and qames [ɔ] when in words with maqqef, e.g. וֶן, שֶׁשׁ, הֵן, עֵת, לֵב, בֵּן, כֵּן, שֵׁן, כֹּל, etc. The sources point out, however, that these vowels have a long realization in a word with maqqef when they are separated from the main accent by at least one intervening syllable, e.g.

L: שֵׁשׁ־הַשְעֹרִים ‘six (measures) of barley’ (Ruth 3.17)
L: שֵׁן־הַסֶַּ֤לַע ‘a crag of rock’ (1 Sam. 14.4)
L: בֵּן־פָּרִִׂ֖יץ ‘a robber son’ (Ezek. 18.10)
L: אֵ ת־כָּל־גָֹ֥הַַ ‘everything that is high’ (Job 41.26)

This, likewise, may have been conditioned by secondary stress, although a gaʿya is not marked on the syllable in all these cases in L, A and C.

Conversely, forms of these words with segol or qames occasionally take an accent (§I.2.3.2.), e.g.

L: בֶַ֣ןַיָּאִ יר (Esther 2.5) ‘son of Yair’
L: תַאֲרַַ֣םַנַהֲרַיִםאֶַָ֥ ‘with Aram-naharaim’
L: כָָ֥לַאֲחֵי־ר (Prov. 19.7) ‘all the brothers of a poor man’

These may have arisen by a process of giving greater prosodic independence to a word that was originally unstressed.

There are, indeed, some variants in the sources. According to Diqduqe ha-TeV'amim (ed. Dotan, 1967, §8), for example, the word כָּל in Psa. 87.7 has its own accent but in L it has a maqqef (כָּל־מַעְיָּנַָ֥י ‘all my springs’).

The lists of differences in Kitāb al-Khilaf, moreover, show that Ben Naftali in a number of cases read a word with a conjunctive accent where Ben Asher read it with maqqef (A. Ben-David 1957b, 391–92), e.g.

Lev. 24.16:

Ben Asher: בְּנָּקְבוֹ־שִֵׁׂ֖ם, Ben Naftali: ‘when he blasphemes the Name’

Gen. 39.6:

Ben Asher: יְפֵה־תִֹׂ֖אַר, Ben Naftali: ‘beautiful in form’

Job 12.3:

Ben Asher: אֲבִיאִֶ֔נּוּ־בְּטֶַ֣רֶם, Ben Naftali: ‘with whom is not?’

This is a reflection of the general tendency of Ben Naftali to introduce a greater number of orthoepic innovations into the reading than Ben Asher, who was usually more conservative.237

237 In the manuscript II Firkovitch Evr. II B 159 (referred to as L² by Yeivin 1980, 23) the maqqef sign is sometimes marked when the first word has a conjunctive accent, e.g. אֲבִיאִֶ֔נּוּ־בְּטֶַ֣רֶם ‘before I brought them’ (Deut. 31.21) and conversely a maqqef sign is sometimes omitted after a short word without an accent, e.g. יָּמֹֹ֑תַוְאַל ‘and may he not die’ (Deut. 33.6). This appears to reflect the overlapping of two traditions with regard to the division of words.
In some cases, there are variations between the *qere* and the *ketiv* of a word with *maqqef*, e.g.

Josh. 9.7: *ketiv* אֱכַרְתָּלֶךָ, *qere* אֶ כְּרָּת־לְךָ, ‘I make (a covenant) for you’

Hosea 8.12: *ketiv* אֲכַתְּבִלָּה, *qere* וֹ אֶ כְּתָּב־לָ, ‘I write for him’

In such cases, the *ketiv* with *mater lectionis vav* reflects a reading with greater prosodic independence than the *qere*

In the early manuscripts, when a word with *maqqef* ends in an open syllable and the subsequent word has the stress on its initial syllable, the final open syllable of the first word often has a gaʿya (Yeivin 1968, 165; 1980, 250), e.g.

L: שֹׁכְיָא (Jer. 17.4) ‘for fire’

A: יֵחַיָּ֣יַנְשֵׁ (Nah. 2.4) ‘men of strength’

The occurrence of secondary stress on the syllable immediately adjacent to the main stress implies that the two words were separated somewhat, since otherwise there would be a clash of prominent accent syllables. The metrical structure of a phrase such as שֹׁכְיָא, therefore, may be represented as follows:

\[ ([ˌkʰiː})(∅)(ˈʔeːʃ]) \]

A metrical epenthesis of an intervening interval between the two prominent syllables can be assumed to have occurred. This is analogous to the analysis of the metrical structure of words such as יֵחַיָּ֣יַנְשֵׁ [jaʃaʃəˈʃuː], in which metrical epenthesis makes a clear division between weak consonants (§1.2.10.).

In the discussion of *deḥiq* above in §1.2.8.1.2. we have seen that the vowel in a final open syllable in a word with *maqqef* is
given sufficient duration to be represented by the Karaite transcriptions with a *mater lectionis*. This applies even to the *patah* in constructions with the interrogative word *מה*, which must have been short at some earlier period, e.g.

L: ְָּ[maˑ'llɔːɔχ] (Gen. 21.17) ‘What [is] to you (fs)’

This was a strategy of making a clear division prosodically between the orthographically separate word with *maqqef* and the word following it. Another strategy to achieve the same purpose that is reflected by some of the Karaite transcriptions was to glottalize the offset of the *patah* vowel of *מה*. This is represented by an Arabic *ḥāʾ*, e.g.

[BL Or 2544 fol. 33v, 1 | L [BHS]: מַה־שְּׁמֶּ֑ך Gen. 32.28 ‘What is your name?’]

[BL Or 2544 fol. 76v, 12 | L [BHS]: מָה־שְּׁמֶּ֑ך Exod. 3.13 ‘What is his name?’]

[BL Or 2544 fol. 79v, 8 | L [BHS]: ketiv מָה־זֶַ֣ה qere מַה־זֶַ֣ה Exod. 4.2 ‘What is this?’]

[BL 2554 fol. 86v, 11 | L [BHS]: מֶה־תָּעִ ירְוַּ׀ַוּ מַה־תְעֹ רְר Cant. 8.4 ‘What do you stir up and what do you awaken?’]

[BL Or 2555 fol. 12v, 1 | L [BHS]: מַה־שֶּׁ הָּיָּה Ecc. 3.15 ‘that which was’]
Such glottalization involves the devoicing of the offset of the vowel, which is a cross-linguistically attested device for marking divisions between prosodic words.\textsuperscript{238}

Glottalization of final vowels as a strategy to separate words joined by \textit{maqqef} is attested in other contexts in the Karaite transcriptions, e.g.

\begin{verbatim}
نقراهشمى [niq̟ˌr̟ɔˑ h-ʃaˈmiː] (Genizah MS 14, Khan 1990a, 2r, 8 | L [BHS]: נִקְרָּ א־שְׁמִָ֥י Jer. 32.34 ‘My name is called’)
\end{verbatim}

Evidence for glottalization of word-final vowels can also be found in the use of the \textit{dagesh} sign in some manuscripts with Palestinian vocalization, e.g. יְנֵח (Revell 1970a, 21). The use of the element [h] as a pausal device is reminiscent of the Arabic \textit{hāʾu al-sakt}, which was used to preserve a final short vowel from being elided in pause, especially in the recitation of poetry.\textsuperscript{239} A number of instances of it occur in the Qur’ānic reading tradition of Ibn Kathīr.\textsuperscript{240}

\textbf{I.2.12. FURTHER CASES OF SECOND ACCENTS IN A WORD ON CLOSED SYLLABLES WITH SHORT VOWELS}

In some cases, a word contains an accent sign on a closed syllable before the accent marking the main stress.

\textsuperscript{238} See, for example, Vayra (1994) for this function of glottalization in Italian and Khan (2016b vol. 1, 144-45) for Neo-Aramaic.


We have seen (§I.2.5.8.5.) that *merkha* often occurs in the three books on closed syllables containing short vowels with the function of a phonetic *gaʿya* in order to lengthen the vowel and cause the following *shewa* to be read as vocalic, e.g.

L: חַַ֣רבְַת, ‘you choose’ (A: תִָ֥בֲחַַ֣ר, Psa. 65.5)
L: עַַ֣גתִָ֥לְַ, ‘it mocks’ (A: תִָ֥לֲעַַ֣ג, Prov. 30.17)

Under certain conditions (Yeivin 1980, 185) a *zaqef* accent is preceded in the same word by a *metiga* accent on a closed syllable with a short vowel that is separated from the main *zaqef* accent by another syllable, e.g.

L: וּבַ בִּזִָּ֔ה, ‘and on the plunder’ (Esther 9.10)
L: וּמִֵּ֨קְצָּתִָּ֔ם, ‘at the end of them’ (Dan. 1.5)

The Karaite transcriptions do not represent the vowel of the syllable with *metiga* with an Arabic *mater lectionis*, e.g.

וַיִֵּּ֨בְקַע־צִ֔וּר (BL Or 2548 fol. 128r, 5 | L [BHS]: וַיִֵּּ֨בְקַע־צִ֔וּר Isa. 48.21 ‘and he cleaved the rock’)

וּמִֵּ֨קְצָּתִָּ֔ם (BL Or 2556, fol. 2v, 5 | L [BHS]: וּמִֵּ֨קְצָּתִָּ֔ם Dan. 1.5 ‘at the end of them’)

לְזֵַּ֨רְעֲךִַ֔ו (BL Or 2539 MS A, fol. 70v, 4 | L [BHS]: לְזֵַּ֨רְעֲךִַ֔ו Gen. 24.7 ‘unto your seed’)

The same applies to accents on short vowels in closed syllables before the main stress in the three books, such as the first accent of the composite *reviaʿ mugrash*. Transcriptions such as the
following show that the vowel was not lengthened by the first accent:

\[ مسلاحة \] (BL Or 2551, fol. 31r, 3 | L [BHS]: \( \text{شحنلا} \) Psa. 78.49 ‘delegation’)

This suggests that metiga and the first element of composite accents in the three books did not represent a secondary stress beat, but rather some musical phenomenon that did not result in the lengthening of the vowel.
I.3. DAGESH AND RAFE

I.3.1. DAGESH

I.3.1.1. Preliminary Remarks

Dagesh is a dot that is marked within a letter. It is in origin an Aramaic active participle meaning ‘stabbing’ from the Aramaic root ɗ-g-š ‘to stab’. This referred, it seems, to the ‘stabbing’ of the letter by the pen when the sign was marked.

The dagesh sign was used mainly in two contexts. These are (i) on a consonant that was geminated (traditionally referred to in modern grammars as dagesh forte) and (ii) on the consonants בגדכפת when they were realized as plosives (traditionally referred to as dagesh lene).\(^1\) In both cases the letter with dagesh was pronounced with greater pressure than its counterpart without dagesh.

The majority of consonants in the Tiberian pronunciation tradition could be marked with a dagesh.

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\(^1\) Our terms dagesh forte and dagesh lene go back to David Qimḥi (1160-1235), who uses the Hebrew terms דגש חזק (dagesh forte) and דגש קלים (dagesh lene) in his Mikhloṭ. The terms דגש חזק and דגש קלים are used also by Yeqūṭiʾel ha-Naqadan, who was active in medieval Ashkenaz in the second half of the thirteenth century. He does not mention David Qimḥi’s Mikhloṭ, which was written earlier, but it is possible that Yeqūṭiʾel borrowed this terminology from Qimḥi (Yarqoni 1985, 105–13).
Dagesh is not marked, however, on the laryngeals and pharyngeals (אָוַע) in the Standard Tiberian tradition, except in a few isolated cases to ensure correct reading (e.g. the dagesh in 'alef in four words, see §I.1.1.). In principle, therefore, these consonants are not geminated.

The letter resh, like the laryngeal and pharyngeal consonants, is generally not geminated by dagesh. Occasionally, however, the resh does have dagesh, e.g.

L: ךְֵ֔נָא בַּֽרְתַּרָּו שָּֽר 'your navel string was not cut’ (Ezek. 16.4)
L: ַּ֣מִתְּנַחְפַּש שְּר 'the bitterness of its soul’ (Prov. 14.10)
L:  שָֽׁאַרְש 'because my head’ (Cant. 5.2)
L:  סְּמִנְּה יְר 'anything bad’ (Jer. 39.12)
L:  הַּֽרְעַמַּח 'to irritate her’ (1 Sam. 1.6)

When it is marked in cases such as these, it should be identified as dagesh forte, indicating the gemination of the consonant. In the attested examples, the resh with dagesh in the Tiberian Masoretic tradition would have had its primary realization as an uvular trill according to the rules that have come down to us from the medieval sources (§I.1.20.). This does not appear, however, to have been a relevant conditioning factor for the dagesh. Some Middle Eastern Jewish communities pronounce the resh as geminate in their biblical reading where the dagesh was marked, but in all cases they pronounce the resh as an apical-alveolar.²

In medieval manuscripts of Rabbinic Hebrew that belong to the eastern tradition of transmission, dagesh is marked on resh

² Morag (1960, 207–8).
more frequently than it is in the Tiberian biblical text. The tendency to mark *dagesh* is greater in some eastern manuscripts than in others. It is particularly common in the Parma B manuscript of the Mishnah. The *dagesh* is marked on *resh* after the relative particle יָשֶׁה and on the medial *resh* of a number of verbal and nominal morphological patterns with a geminated middle radical, e.g. יִשְׁרֵב, ‘he mixed’ (*piʿel*) and מְעֶרֶבֶּת, ‘mixed’ (*puʿal*), and יַרְגִּין, ‘weavers.’

The *resh* is pronounced geminated in a similar range of contexts in Middle Eastern reading traditions of Rabbinic Hebrew that have survived into modern times, e.g. Aleppo [ʃɛrraʔaˈta] (שֶׁרָּאָה, ‘who has seen’) (*Berakhot* 3.6), [ʕərˈreːβ] (עִּר ב, ‘he created an *ʿeruv*’) (*Eruvin* 2.6), [leharraˈgin] (לְה רָּגִּין, ‘to murderers’) (*Nedarim* 3.4). The gemination is more widespread in some traditions than in others. Also in verbal and nominal patterns with a geminated middle radical it tends to be restricted to certain verbal roots and lexical items, as is the case in the medieval manuscripts. Sometimes there are variations within the same root that are exploited to express a semantic distinction. In Jerba, for example, the *resh* in the root יֵרֵב is geminated in the *piʿel* when it has the meaning of mixing one thing with another, but it is not geminated when it has the sense of creating an *ʿeruv.* Morag believes that the lack of consistency in the gemination of the *resh* across the traditions of Rabbinic reading and within

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individual traditions may have been the result of varying degrees of influence from biblical reading traditions. The *dagesh* in the *resh* in the Tiberian biblical tradition in a case such as ‘because my head’ (Cant. 5.2) after the particle -שֶׁ, which corresponds to one of the contexts where it occurs in the eastern Rabbinic traditions, suggests that the tradition of gemination of this letter is of considerable time depth. It is likely to have had its origin at a period when Hebrew was a living language, assuming that Rabbinic Hebrew originated in the vernacular of the Tannaitic period. Its occurrence here may reflect the influence of spoken Hebrew at the time of the formation of the Tiberian reading tradition, the particle -שֶׁ itself being a feature of Rabbinic Hebrew.

I.3.1.2. Morphological Gemination

A *dagesh* may reflect gemination that is a feature of the morphological pattern of a word. This typically occurs in the second radical of the root, e.g. שָׁפֶב ‘he sought’, גָּבִי ‘thief’, חָנוֹן ‘gracious’. A possible case of morphological gemination of *resh* in the Tiberian biblical tradition is לוֹכֶֽלִּים שֶֽׁרִפֶּד ‘your navel string was not cut’ (Ezek. 16.4).

Morphological gemination also includes gemination that is inherent to the root. When a root has identical consonants as its two final radicals, these appear as a geminated consonant with *dagesh* when adjacent to each other before an affix. This

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6 Morag (1960, 208–16).
gemination does not occur in word final-position when the stem does not have an affix, e.g.

עִמּוֹ ‘peoples’, בִּימּוֹ ‘his people’; cf. sing. עֵם < *‘amm

גִּנְס ‘gardens’, בִּינְס ‘his garden’; cf. sing. גַּנֵּס < *gann

I.3.1.3. *Dagesh* to Distinguish Meaning

In various cases, gemination of a consonant reflected by a *dagesh* sign is used in the Tiberian tradition as a strategy to distinguish homophones (Yeivin 1980, 49, 294).

This may be contextually dependent. When, for example, the negator ל is juxtaposed with the homophonous prepositional phrase ו a *dagesh* is added to the negator to distinguish the two, e.g.

L: [’llo: ’lo:] ‘The offspring would not be his’ (Gen. 38.9)

L: [’llo:-’lo:] ‘in an argument that is not his’ (Prov. 26.17)

Gemination to distinguish homophones, however, is generally a permanent feature of the morphological pattern. It can be regarded, therefore, as a type of morphological gemination. Examples of this include cases such as אֲבִּיר ‘powerful’ referring to God, used in phrases such as יִעֲקֹב אֲבִּיר ‘the Mighty One of Jacob’ (Gen. 49.24, Isa. 49.26, Isa. 60.16, Psa. 132.2, 5) vs. אֲבִר ‘powerful’, used to refer to humans, עֲצָּבִּים ‘toils’ vs. עֲצִיבָּה ‘idols’, יָנִּיח ‘he gives rest’ vs. יָנִּיח ‘he places’, תָּלִּינ ‘you spend the night’ vs. תָּלִּינ ‘you murmur against’, and the historical gemination
separating the pairs יָּח ל ‘he begins’ (Jud. 10.18) vs. י ח ל ‘he profanes’ (Num. 30.3). The gemination in these pairs of forms most likely originates in existing variant morphological patterns that have been exploited to avoid homophony.

The gemination marked by dagesh in the interjection word אָּנָּּ֫ה (also written אָּנָּּ֫א) may have been a device to distinguish it from אָּנָּּ֫א ‘to where?’.

The use of dagesh to distinguish the meaning of homophones or polysemous words is more frequently encountered in the Babylonian tradition of Biblical Hebrew (Yeivin 1985, 355–63). In Babylonian vocalization, a dagesh (known as digsha in the Babylonian tradition) is represented by a superscribed minute gimel and rafe (known as qipya) by a superscribed minute qof.

In many cases in the Babylonian tradition a dagesh is added to distinguish between the use of a word that has an association with God and the use of the same word that has an association with humans (often with negative connotations) or foreign gods. This has been seen already in the Tiberian tradition in pairs such as רַבִּי vs. אֲבִיר and עֲצִים vs. עֲצָּבִּים. As in the Tiberian tradition, the dagesh is used in the Babylonian tradition in the member of the pair associated with humans or foreign gods. The word


8 A few cases of a dagesh that appear in the BHS edition and were identified by Knauf (1979) as serving to distinguish meaning have recently been shown by Golinets (2013, 247–52) to be no more than specks on the parchment of the manuscript.

9 Yeivin (1985, 1119).
אֱלֹהִים, for example, is marked with *dagesh* when it refers to foreign gods (Yeivin 1985, 357, 909–10), e.g.\(^\text{10}\)

אֱלֹהִים (OB | L [BHS]: Deut 11.16 ‘other gods’)

אֱלֹהִים (OB | L [BHS]: Exod. 12.12 ‘the gods of Egypt’)

The *dagesh* is used also in the cognate word in Biblical Aramaic when it refers to foreign gods, e.g.

לאֹלָהֵי דהבא (MB | L [BHS]: Dan 5.4 ‘the gods of gold’)

The word כהנים is marked with a *dagesh* when it refers to ‘priests of foreign gods’ (Yeivin 1985, 358), e.g.

כֹּהַנִים (MB | L [BHS]: Zeph 1.4 ‘the priests’)

כֹּהַנִים (MB | L [BHS]: 2 Chron. 13.9 ‘and you will make for yourselves priests like the peoples of the lands’)

A *dagesh* is used elsewhere in manuscripts with Babylonian vocalization to mark other types of semantic distinctions of homophones. It is frequently marked on the prepositional phrase ל, for example, to distinguish it from the homophone לא (Yeivin 1985, 1132–33), e.g.

ישַלֵם ל (OB | L [BHS]: Job 21.31 ‘who will repay him’)

\(^{10}\) Data supplied by Shai Heijmans. OB = Old Babylonian, MB = Middle Babylonian.
This includes cases where the *qere* is ל but the *ketiv* is לא, e.g.

לא (OB | ketiv לה, qere ל 1 Chron. 11.20 ‘and he has a name’)

Other cases include, for example, a *dagesh* on the word לא in Exod. 12.9, where it denotes ‘raw’, to distinguish it from לא expressing a request (Yeivin 1985, 357) and a *dagesh* on the resh of ваш ‘your enemy’ in 1 Sam. 28.16 presumably to distinguish it from the plural of שערים ‘towns’ (Yeivin 1985, 354):

מאה לא (OB | L [BHS]: לא ממחצית 12.9 ‘do not eat any of it raw’)

שער (OB | L [BHS]: שער 1 Sam. 28.16 ‘your enemy’)

The examples of *dagesh* functioning to distinguish meaning in the Babylonian tradition cited above are most easily interpreted as innovative additions to existing forms rather than morphological variants. It should be noted that in some cases the *dagesh* is marked after a long vowel, e.g. זרע, טבל. The question arises as to whether these *dagesh* signs reflect gemination or are simply diacritical signs. Yeivin (1985, 355–63) believes they indeed have the function of *dagesh forte*. There is, moreover, objective evidence of gemination of *dagesh* to distinguish meaning in the Tiberian tradition in forms with a long vowel such as זרע by the marking Arabic *shadda* in the Karaite transcriptions, e.g.
There is also evidence of morphophonemic restructuring by means of innovative gemination in a variety of other reading traditions, including those that have come down to modern times in oral form.

The function of gemination to distinguish meanings of homophones is identifiable, for example, in the reading traditions of Rabbinic Hebrew that are reflected in the early vocalized manuscripts of the Mishnah. Kutscher (1969, 56, 76) drew attention to the following pair of words in the Kaufmann manuscript:

חֲתִּיךְ ‘cutting’ vs. חֲתִיכָה ‘piece’

The use of the pattern with *dagesh* to distinguish the concrete entity that is the result of the cutting from the verbal noun of the same root is likely to have developed by analogy with other nouns with the morphological pattern CCiCCa that express concrete entities in Rabbinic Hebrew (Bar-Asher 2015, 1342).

Various cases of gemination to distinguish meaning have been identified in the living oral tradition of Rabbinic Hebrew of the Yemenite Jews and the Hebrew component in their speech by Gluska (1995). These include distinctions between verbal forms and nouns, in which the noun has the gemination, e.g.

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11 In this manuscript initial *alef* + long *qames*, i.e. [ʔɔː], is represented by a single Arabic *ʾalif*. In Biblical Aramaic a long vowel is more widely tolerated in an unstressed syllable closed by a geminated consonant, e.g. [*רָאָל*] ‘they enter’ (Dan. 4.4 qere); cf. also Syriac *ʾaλīn* (Nöldeke 1869, 457).
Morag (1996) draws attention to some uses of gemination to distinguish meaning in the living oral tradition of Aramaic among the Yemenite Jews, e.g.

‘living’ (referring to God) vs. אָחי ‘living’ (referring to humans)

In the Samaritan oral tradition of reading the Pentateuch there are numerous examples of morphophonemic restructuring to distinguish homophones. These include the strategy of distinguishing forms by the addition of gemination to one of the pair, e.g.

‘עָרֶם ‘the cities’ (Tiberian הֶעָרִּים) vs. ‘עָרֶם ‘cities’ (Tiberian הֶעָרִּים)\(^\text{13}\)

וְהָּא מָּה ‘and the cubit’ (Tiberian וְהָּא מָּה) vs. וָאמָה ‘and a cubit’ (Tiberian וָאמָה)\(^\text{14}\)

אלָדָני ‘Lord’ (divine) vs. אלָדָני ‘master’ (human)\(^\text{15}\)

אֱסִידָא ‘the stork’ (animal) (Tiberian אֱסִידָא Lev. 11.19) vs. אֱסִידָא ‘your pious one’ (human) (Tiberian אֱסִידָא Deut. 33.8)\(^\text{16}\)

\(^{12}\) See in particular Florentin (1996) for examples of this phenomenon.

\(^{13}\) Ben-Ḥayyim (2000, 92).

\(^{14}\) Ben-Ḥayyim (2000, 92).

\(^{15}\) Ben-Ḥayyim (1957a-77 vol. 4, 8-9, vol. 5, 194, 2000, 260).

\(^{16}\) Florentin (1996, 231).
yamən ‘Yamin’ (proper name) (Tiberian יָּמִין, Gen. 46.10) vs. yamman ‘right hand’ (Tiberian יָּמִין)

wyāḇād ‘and he perished (past)’ (Tiberian יָּבָּד) vs. yāḇād ‘he perishes (non-past)’ (Tiberian יָּבָּד)

I.3.1.4. Gemination Resulting from Assimilation

In some cases, gemination has resulted from the process of a consonant assimilating another consonant with which it is contact. This typically occurs at the boundary between the stem of a word and an affix. It also functions, therefore, as a marker of a morphological boundary, e.g.

 hely [jip-ˈpʰoːol] ‘he falls’ < *yinpol

חָ֣ת [nɔː-ˈθɑːaːtʰ-ʰ] ‘you (fs) gave’ < *natant

מש [miʃ-ˈʃɔːɒm] ‘from there’ < מִּשָּם

הל [jiq-ˈqaːah] ‘he takes’ < *yilqah

ותרנָה (Num. 21.7) [vaθikʰ-kʰoːneːen] ‘and let it be established’ < חָ֣תְוָ֥נָה


18 Florentin (1996, 218). This particular minimal pair is not attested in the Samaritan Pentateuch, but it can be inferred from the contrasting patterns used for the attested forms of the past and non-past, e.g. wyāḇādu ‘and they perished’ (Num. 16.33) vs. ūḇāḇād ‘it becomes lost’ (Deut. 22.3).
I.3.1.5. **Gemination to Preserve High Lexical Vowels**

In a number of cases a consonant after a high lexical vowel, most commonly /u/, though occasionally /i/, has been geminated to preserve it. High lexical vowels exhibit a higher tendency to be reduced to an epenthetic *shewa* than low vowels:

I.3.1.5.1. **After qibbuṣ**

הָעֵשֶׁה, הָעֵפֶשׁ, עֵپאַל ‘they have been eaten’ (Neh. 2.3) < *ʾukalū

הוֹקָל ‘he was taken’ (Gen. 3.23) < *luqaḥ

יקוֹר ‘and it will be poured’ (Zeph. 1.17) < *šupak

I.3.1.5.2. **After ḫireq**

אִסָּר ‘bond’ < *ʾisār

I.3.1.6. **Gemination of a Consonant in Place of Vowel Lengthening**

In a number of cases, a consonant is geminated after an original short *a*. This is attested predominantly at a morphological
boundary between the stem of a noun or adjective and an inflectional suffix. As a result, the vowel remains short and does not undergo pretonic lengthening, as would have typically been the case if the *a was in an open pretonic syllable, e.g.

גְּמַל ‘camels’; cf. sing. גְּמָל

קָטָּן ‘small (mpl)’; cf. ms. קָטָּן

מְעַט ‘few’; cf. ms. מְעַט

אֲגָמִים ‘marshes’; cf. sing. אֲגָם

רֵדס ‘myrtles’; cf. sing. רֵדס

שֵׁרֵב; cf. sing. שֵׁרֵב ‘scorpion’

נְכָבָּד (Isa. 23.8) ‘honoured of’; cf. ms. נְכָבָּד

מְשַׁרֵב (Psa. 18.3) ‘my stronghold’; cf. sing. מְשַׁרֵב

מְשַׁמָּרְיָה (Isaiah 51.10) ‘the depths of’

בֶּפַלְגָּה (Jud. 5.15) ‘among the clans’

מְשַׁפְּדִים (Gen. 27.4) ‘tasty foods’

מְמַלְּדִים (Cant. 5.16) ‘desirable things’

In the following the *a vowel undergoes attenuation to a ḥireq:

וְהִמְרִים (2 Sam. 24.22) ‘and the threshing-sledges’; cf. sing. מְרִים

לֶמְוַר (Isa. 41.15)

Historical gemination of this nature can be reconstructed for het in various forms where this letter is now preceded by pataḥ, e.g.

בָּחוּר ( < *bahhūrim) ‘young men’; cf. sing. בָּחָר ( < *bāḥūr)
I.3.1.7. Gemination Associated with Stress

In a few verbal forms, a final sonorant radical is geminated when preceded by a main stress accent and followed by an inflectional suffix, e.g.

וּחָדֵל (Jud. 5.7) ‘they ceased’

וְיִחֵל (Job 29.21) ‘and they waited’

רָמֵ (Job 29.12) ‘they are lofty’

נָתָנָ (Ezek. 27.19) ‘they gave’

I.3.1.8. Gemination after a Prefix

In some cases, gemination occurs at the boundary between a prefixed particle and the stem of a word, e.g.

בִּמְה (Jud. 5.7) ‘in what?’ < *ba + mā

כִּמְה ‘how much?’ < *ka + mā

עַד שָׁקִית (Jud. 5.7) ‘until you (fs) arose’ < *ša + stem

שֶׁר אשִּי ‘because my head’ (Cant. 5.2) < *šɛ + stem

We can include here הָמּ ‘why’ < *la + ma. The gemination in this word is also associated with stress on the preceding syllable (see §I.3.1.7.), since it, in principle, does not occur in variant forms in which the stress occurs on the final syllable, e.g.
Gamification, however, still occurs when the word has *maqef* and so is unstressed, e.g. לاما (Prov. 17.16).

Another possible case of this type of gamification is the *dagesh* that occurs after the prefixed conjunction *vav* in the verbal form. Another motivation for the *dagesh* here, however, is likely to be to distinguish the meaning of this form from the potentially homophonous but semantically distinct form לֵּּם (§I.I.3.1.3.).

Gamification is occasionally used as a strategy to mark a morphological boundary between the interrogative particle *he* and what follows, when the following word begins with *shewa*, e.g.

- **הַכְּרֻנֵהּ אֶחָּנֵהּ בַּנְּךָ הָאָּנ (hakkʰaʔoːneθ) ‘acknowledge now whether it is your son's robe’** (Gen. 37.32)
- **הָאִיתֶם [harruʔiːθɛːm] ‘Have you seen?’** (1 Sam. 10.24)
- **הָבְצָעָתָה [hakkʰoːsaʔɔːθoːʰ] ‘Is it according to its outcry’** (Gen. 18.21)
- **הָבֵּקְםַנֵי [habbamaːhaˈniːim] ‘is it in camps?’** (Num. 13.19)

When the word following interrogative *he* begins with a guttural, the particle has a full *pataḥ* vowel or, before *qames*, a full *segol*. These were pronounced as long vowels and can be regarded as substitutes for gamification of the initial guttural, e.g.

- **הָעֹ֥וֹד [haːˈʔooð] ‘is here still’** (Gen. 31.14)
- **הָאָּל [haːʔeːleˈɛχ] ‘shall I go’** (Exod. 2.7)
- **הָנֵּּבֵּי [heːʔɔnːoːˈχiː] ‘Is (it the case that) I …’** (Job 21.4)
I.3.1.9. Gemination at Word Boundaries (*Deḥiq*)

The phenomenon known as *deḥiq* (Aramaic ‘compressed’) has been described in §I.2.8.1.2. This involves the gemination of a word-initial consonant after an unstressed vowel in the preceding word, e.g.

וְאָּעִַּ֣ידָּה בֵָּּ֔ם ‘I shall cause to witness against them’ (Deut. 31.28)

עֲשֶׁה־לְךַָּ֣ ת ‘you make for yourself’ (Prov. 24.6)

*Hidāyat al-Qāri*’ includes constructions with the interrogative word המ such as the following in the category of *deḥiq*:

תַַּּּ֣אתמה ‘what is this?’ (Exod. 13.14)

In all cases in the Tiberian tradition the final vowel of the word before the geminated consonant was pronounced long but with reduced duration. In other traditions of Hebrew, there is evidence that the final vowel was pronounced short (see §I.2.8.1.2. for details). The *dagesh* exhibits properties of the *dagesh* in forms such as בּּּבּ ‘in what?’, in which it marks the boundary between morphemes, and the *dagesh* in forms such as גְמַלִים ‘camels’, where it substitutes for the lengthening of the preceding vowel. Also in words such as גְמַלִים ‘camels’, as remarked above, the *dagesh* coincides with a morpheme boundary. The *dagesh* of *deḥiq* can, therefore, be identified as primarily a marker of a boundary between two words that were closely connected prosodically. In the Tiberian tradition, efforts were made to make a clear prosodic division between the words also by maintaining some degree of vowel length in the final vowel or, in the case of
constructions with מִהְדֵּה, by introducing length in a fully shortened vowel.

I.3.1.10. The Distribution of the Fricative and Stop Variants of the Letters בּוֹדֶכֶפֶת

For the distribution of the fricative and stop variants of בּוֹדֶכֶפֶת consonants within words, see §I.1.25.

When a בּוֹדֶכֶפֶת consonant occurs at the beginning of a word and the preceding word ends in a vowel, the general rule is that the consonant is fricative if the accent of the preceding word is conjunctive or if the preceding word is connected by maqqef, but is plosive if the accent of the preceding word is disjunctive, e.g.

שְלֹשַּה בָּנִים [ʃaloːˈʃɔːvniːm] ‘three sons’ (Gen. 6.10)

זָכָר וּנְק בָּה בְרָאָם [zɔːχɔːʁwunqəvniːbaɾəm] ‘male and female he created them’ (Gen. 5.2)

נִמְצְאוּ־בִם [nimsrcwunʔvim] ‘they were found among them’ (Jer. 41.8)

There are several exceptions to this principle. These are mentioned in the Masoretic treatises and include the following.

(i) When a paseq occurs after a word with a conjunctive accent, e.g.

שָׁשָׁה כָּלָה [ʃashaːˈkaːla] ‘They have done completely’ (Gen. 18.21)

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May the Lord add to his people (a hundred times as many) as them’ (1 Chron. 21.3)

(ii) When the first word ends in a consonantal vav, the letter at the beginning of the next word is normally a plosive, as it is after words ending in other consonants, e.g.

(enter) his courts with praise’ (Psa. 100.4)

‘I cried aloud to him’ (Psa. 66.17)

There are, however, two cases where the consonant is fricative after consonantal vav:

‘He will stretch the line of confusion over it’ (Isa. 34.11)

‘The sound of a carefree multitude was with her’ (Ezek. 23.4)

(iii) When the first word ends in a consonantal consonant yod, the letter at the beginning of the next word is normally a plosive, e.g.

‘perhaps you may inspire terror’ (Isa. 47.12)

‘for what great nation’ (Deut. 4.7)

‘into a great and mighty nation’ (Num. 14.12)

There is one exception to this:

‘the Lord in them’ (Psa. 68.18)

(iv) If two bets or kafs follow one another and under the first of them there is a vocalic shewa, then the first of the pair is plosive even when the preceding word ends in a vowel and has a conjunctive accent, e.g.
‘and when she came’ (Josh. 15.18)

‘and she caught him by his garment’ (Gen. 39.12)

‘Is it not like Carchemish?’ (Isa. 10.9)

If a vowel occurs under the first of the two consonants rather than shewa, the first remains fricative according to the usual rule, e.g.

‘And he (shall take) a wife in her virginity’ (Lev. 21.13)

‘men of Babylon’ (2 Kings 17.30)

We can generalize and say two fricative bets or kafs are avoided in syllable onsets in the same foot (feet indicated below by round brackets, extrametrical syllables are in angled brackets):

[ba.vi.](‘do:)]

[(vo.:](‘ve..el)]

[(viv.](‘1e.:)< hɔ : > ]

A further factor is that the initial bet and kaf in constructions such as and are prepositional affixes. Other consonants that are not prepositions under the same conditions remain fricative, e.g.

‘and the sons of Dedan’ (Gen. 25.3)

‘you shall not abhor’ (Deut. 23.8)
The plosive pronunciation of the *bet* and *kaf*, therefore, is made further optimal by the fact that it clearly demarcates a morpheme boundary. This factor can be identified in a variety of other features of the reading tradition (§I.3.1.8.).

(v) Likewise, when the preposition *bet* has *shewa* and is followed by *pe*, the *bet* is plosive even when preceded by a word with a conjunctive accent ending in vowel, e.g.

וְאֵכָּבְדָּ֤ה בְפִּ‏֔רֶּה ‘and I will get glory over Pharaoh’ (Exod. 14.4)

וְדָבְרֵי אָשֶׁר שָּׁמַתְתִי בְפִּ‏֔י ‘and my words which I have put in your mouth’ (Isa. 59.21)

When the *bet* has a vowel, it is fricative in these conditions, e.g.

אָלֶּֽיְרָא בְפִּ֔לְגָּזְא ‘He will not look upon the rivers’ (Job 20.17)

A *pe* is closely related to *bet* in its articulation. A preposition *bet* or *kaf* that is followed by a fricative consonant that is not of similar articulation is not made plosive under the conditions in question, e.g.

גָּאָה גָּאֵָּּ֔ה ‘he has triumphed gloriously’ (Exod. 15.1, 21)

(vi) Seven cases do not fit into the previous categories, over which there was no disagreement by the Masoretes. Four of these are in the Song of the Sea (Exod. 15):

גָּאָה גָּאֵָּּ֔ה ‘he has triumphed gloriously’ (Exod. 15.1, 21)
Some of these appear to have been motivated by an effort to avoid a series of identical fricative consonants in contiguous syllables or words.²⁰

Cases over which there is said to be disagreement between Ben Asher and Ben Naftali include the following. L in some cases follows Ben Asher and in others Ben Naftali:

Ben Asher (L): שְׁמַעְתֵּֽךְ עָמַּֽוְ“For whom you have redeemed’ (Exod. 15.13); Ben Naftali: שְׁמַעְתֵּֽךְ בֵּין

Ben Asher: בְּעַשְׁרֵּֽה חָדָֽשֶׁש הֶמָּשִׁי ‘in the eighth month on the fifteenth (day)’ (1 Kings 12.32); Ben Naftali (L): בְּעַשְׁרֵּֽה.

Ben Asher (L): אֲרָגָֽוֵר נְבָרִֽי הָתְבָּרִֽי ‘the counsellors, the treasurers, the justices’ (Aramaic, Dan. 3.2, 3); Ben Naftali: נְבָרִֽי.

²⁰ According to the Hebrew Masoretic treatise published by Ginsburg (1885, 37) the kaf in חכִּמְתָּא (Dan. 5.11) was made a plosive since ḫet and fricative kaf were difficult to combine due to the fact that they were similar in articulation (קרובים בְּמוצֵא הַבְּטֵי).
Ben Asher: ‘trigon, harp’ (Aramaic, Dan. 3.5);  
Ben Naftali (L): פסנתרי.

On balance, Ben Naftali prefers clearer separation by reading *dagesh* in the majority of these cases.

(vii) Ben Naftali read the preposition *kaf* as plosive after וַיְהִי with a conjunctive accent in seven cases where Ben Asher read the *kaf* as fricative according to the usual rule. L follows Ben Asher in this respect:

<table>
<thead>
<tr>
<th>Ben Asher (L)</th>
<th>Ben Naftali</th>
</tr>
</thead>
<tbody>
<tr>
<td>וַיְהִּי֩ כִּשְמֵעַ עָדְנוּ</td>
<td>וַיְהִּי֩ כִּשְמֵעַ עָדְנוּ</td>
</tr>
<tr>
<td>‘when his master heard’ (Gen. 39.19)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּשְמֵעַ</td>
<td>וַיְהִי֩ כִּשְמֵעַ</td>
</tr>
<tr>
<td>‘and when he heard’ (Gen. 39.15)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּרְאוֹתָּ</td>
<td>וַיְהִי֩ כִּרְאוֹתָּ</td>
</tr>
<tr>
<td>‘and when (the king) saw’ (Esther 5.2)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּרְאוֹתָּ</td>
<td>וַיְהִי֩ כִּרְאוֹתָּ</td>
</tr>
<tr>
<td>‘and when he saw’ (Jud. 11.35)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּרְאִיאָּ</td>
<td>וַיְהִי֩ כִּרְאִיאָּ</td>
</tr>
<tr>
<td>‘and when they brought out’ (Gen. 18.17)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּמְלָלֵּּ</td>
<td>וַיְהִי֩ כִּמְלָלֵּּ</td>
</tr>
<tr>
<td>‘when he became king’ (1 Kings 15.29)</td>
<td></td>
</tr>
<tr>
<td>וַיְהִי֩ כִּמְלָלֵּּ</td>
<td>וַיְהִי֩ כִּמְלָלֵּּ</td>
</tr>
<tr>
<td>‘and when they had perished’ (Deut. 2.16)</td>
<td></td>
</tr>
</tbody>
</table>

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I.3.1.11. Orthoepic Uses of Dagesh

In a number of circumstances, gemination marked by dagesh has been introduced into the reading for orthoepic purposes to ensure that letters are clearly articulated and not slurred over. The cases in question fall into various categories.

I.3.1.11.1. Splitting Weak Consonants by Shewa

When two weak consonants are in contact across a syllable boundary, the first is sometimes geminated and marked with dagesh. This has the effect of introducing a vowel in the form of vocalic shewa between the two consonants, which increases their distinctness and reduces the risk of elision. This is found in particular in syllable contact involving sonorants (למר), gutturals and qof, e.g.

מִּקְר ה־לָּ֑יְלָּה [miqqare:-lajelːa] ‘accident of the night’ (Deut. 23.11)

מְרִֹּֽים [mammaːrim] ‘bitterness’ (Job 9.18)

וּוֹֽנְת קְנ ֵ֔ה [ˌwuˑnθaqːaːnuːː] ‘and we shall draw him away’ (Jud. 20.32)

יִּקְה ֹֽ֥ת [jiːqaːθaːθ] ‘obedience of’ (Gen. 49.10)

הּ ׁ֑ ָּ הְרִּ֑ים [haːrəːːim] ‘to irritate her’ (1 Sam. 1.6)

22 According to Melamed (1948, 1) the purpose of the dagesh in הּ ׁ֑ ָּ הְרִּ֑ים (1 Sam. 1.6) is to distinguish this human activity (‘to irritate her’) from the meaning of the verb in א ֹֽל־ה כָּבֹ֥וֹד הִּרְעִּׁ֑ים ‘the God of glory thundered’ (Psa. 29.3), which refers to an action of God. This is a possible interpre-
In some cases, this strategy is applied when only one of the consonants in contact belong to this group, and occasionally also elsewhere, e.g.

תוּב [ʔiqːɔʼvoːθ] ‘footprints of’ (Psa. 89.52)
מִקְדָּשׁ [miqɔʼdoʃ] ‘sanctuary’ (Exod. 15.17)
מִטְהָר [miːtɔʼhr] ‘his lustre’ (Psa. 89.45)
מִצְעִירָה [missɔʼiːˈr̟ɔː] ‘small’ (Dan. 8.9)
וֹ הָאָסְפִּי [hɑssʼɔːfiːˈnoː] ‘to hide him’ (Exod. 2.3)

As can be seen from the list of examples above, the letter before the geminated consonant is frequently mem, especially when the mem has a hireq. Such forms may have been facilitated by the fact that similar sequences occur when the preposition מ as assimilates to a word. The same may apply to examples with initial he with patah, which resemble the prefixed definite article (Ariel 2020, 142).

This orthoepic strategy achieves a similar result as the strategies of lengthening the preceding vowel to induce reading of the shewa as vocalic, e.g. סֹלְעִי [saːliːi:] ‘my rock’ (2 Sam. 22.2, Psa. 18.3) (§1.2.5.8.5.), and the lengthening of the preceding vowel to

23 For the case for interpreting the dagesh in the forms מִטְהָרָה and מִצְעִירָה as orthoepic see Ariel (2020).
introduce metrical epenthesis between the two consonants, e.g. יְש ֹֽעְיַָּּ֣ה [jaʃəˈʃaːhu:] ‘Isaiah’ (Isa. 1.1) (§I.2.10.).

A variant type of orthoepic strategy is to insert a vowel after the first of the two consonants in contact and geminate the second consonant, i.e. CC > CVCC rather than CC > CCVC. This is found in:

יִָֹּּ֑ור ד ֹּ֥ף [jiːraddoːf] ‘let him pursue’ (Psa. 7.6)

This may have been applied to avoid geminating resh. Parallels to such restructuring of the syllable structure of words are found in the Samaritan reading tradition, e.g.

tֵשָּׁבַּבָּש < *תָּשְבֵּש (Ben Ḫayyim 2000, 59 | L [BHS]: תָּשְבֵּשָׁת Exod. 28.4 ‘checkered work’)

I.3.1.11.2. **Dagesh to Strengthen Syllable Onsets**

In the standard Tiberian manuscript codices there are a few cases of the marking of the **dagesh** sign on letters other than בגדכפת on the second of two consonants in contact at the boundary of syllables for the purpose of ensuring that the consonants and syllables are kept distinct. This ensured a clear division of syllables and words. In L, for example, a **dagesh** is sometimes placed on an initial lamed of the second word of a phrase connected with **maqqef** when the first word ends in nun, e.g. וֱֹוֹ יִּתֶּן־ל֖ [wɔɭitən] ‘and he gave him’ (Gen. 24.36) (Yeivin 1980, 294–95). This can be regarded as a measure to separate the two words clearly and prevent the coalescence and slurring of weak sonorant consonants. The **dagesh** would mark the articulation of the lamed with increased muscular pressure to ensure it maintains its correct articulation.
According to Kitāb al-Khilaf, Ben Naftali placed a dagesh in the first nun of the name בַּנוֹן ‘the son of Nun’ (ed. Lipschütz 1965, 63). This was a measure to prevent the coalescence of two identical weak sonorant letters across a word-boundary. An alternative strategy to separate the two letters was to place a paseq between the words, e.g.

L: לְהִגִּ֨יל לְמַעֲלָּה ‘to make exceedingly great’ (1 Chron. 22.5)

L: בֶּרֶב ‘iron in abundance’ (1 Chron. 22.3).

According to Kitāb al-Khilaf, Ben Naftali marked a dagesh in the qof of the verb יְשֵׁב ‘he supplants’ (Jer. 9.3, L: יַשֵּׁב (ed. Lipschütz 1965, 64)) and this is found in C and in a number of other Tiberian Masoretic manuscripts (Yeivin 1968, 51). This ensured a clear syllable division and also, by implication, indicated that the ‘ayin had a silent shewa. This, moreover, alerted the reader to the fact that the syllable division was different from that of the more frequent form יְשֵׁב ‘Jacob’. Qof falls into the category of weak letters, which is demonstrated, for example, by the fact that it often loses dagesh when in a metrically weak syllable with shewa (§I.2.5.2.). The practice of the Masorete Ben Naftali to use dagesh in this way reflects his general tendency to introduce innovative measures to ensure a careful reading to a greater extent than Ben Asher, who was more conservative (A. Ben-David 1957b).

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24 For the need to avoid coalescence in such contexts see the discussion in Hidāyat al-Qāri’, long version, edition in vol. 2 of this book, §II.L.1.4.10.
The phenomenon of marking *dagesh* to give prominence to syllable division has a natural phonological explanation. The optimal contact between two adjacent syllables is where the onset of the second syllable is stronger than the offset (coda) of the preceding syllable (Vennemann 1988, 40). According to this principle, strength is equated with the degree of sonority or the quality of being vowel-like. This optimality principle can influence how a sequence of phonological segments is syllabified. In a sequence of two consonant segments CC, a syllable division between the two is more preferred if the second consonant is less sonorant, i.e. stronger, than the first. The sonority of a consonant can be decreased by a process of fortition. Gemination is a clear process of fortition (Bybee 2015, 45), so it follows that gemination of a consonant is a natural way to mark a clearer syllable division. This also indicates that the *dagesh* in such forms as ṭēḇēk should indeed be interpreted as having the phonetic realization of gemination and is not purely an abstract symbol of syllable division.

The practice attributed to Ben Naftali to mark *dagesh* in a weak letter after a guttural with silent *shewa* (ḇēḇē) and in the second word in phrases such as and.transparent (Num. 32.35), to eat bread’ (Gen. 31:54), to them from sorrow’ (Esther 9.22) (Ginsburg 1897, 114–36; Luzzatto 2005, 169–

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25 Alvestad and Edzard (2009) have demonstrated how this principle can explain the distribution of the insertion of *hatef* vowels in verbs with initial *het* in Tiberian Hebrew.
These can be interpreted as reflecting a tradition of marking syllable divisions that is descended, directly or indirectly, from the practice attributed to Ben Naftali.

There is a reference in some early Masoretic sources to the practice of marking *dagesh* in the *yod* of the word יִשְׂרָאֵל ‘and male donkeys’ (Gen. 32.16, L: וְעָיָרִים), which is attributed to either Ben Asher or Moshe Moḥe (Baer and Strack 1879, xxxviii–xxxix). This would be a use of *dagesh* on a weak letter after a vowelless guttural analogous to בָּי עְק.

1.3.1.11.3.Extended *Dagesh Forte*

There is evidence that the practice of strengthening syllable onsets for orthoepic purposes by geminating a syllable-initial consonant was more widespread than is apparent from the vocalized Tiberian manuscripts. The process in question involved the reading of the *dagesh lene* in the stop variants of the letters בגדכפת as *dagesh forte*, i.e. as geminate.

This is seen by examining in particular the Karaite transcriptions and passages in *Hidāyat al-Qāri*.

In several of the extant manuscripts of the Karaite transcriptions, the scribes marked the Arabic *shadda* sign where the Tiberian reading tradition had *dagesh*. In some manuscripts, the *shadda* is written only where the *dagesh* is *dagesh forte* according to the conventional interpretation of the distribution of *dagesh forte* and *dagesh lene*. In some manuscripts, however, the *shadda* sign is written both on letters with *dagesh forte* and on בגדכפת letters with what is conventionally interpreted as being *dagesh lene*. Some examples are given below.
Manuscripts that mark shadda corresponding to only *dagesh forte*

**BL Or 2539, fols. 56-114**

*Dagesh forte*

- هَدَابَار (BL Or 2539 MS A, fol. 63r, 8 | L [BHS]: תִּכְבֶּר Gen. 21.11 ‘the word’)
- هَمَام (BL Or 2539 MS A, fol. 64r, 1 | L [BHS]: הָיִם Gen. 21.15 ‘the water’)

*Dagesh lene*

- دَبَارِي (BL Or 2539 MS A, fol. 84r, 1 | L [BHS]: דְבָּרָּי Deut. 4.10 ‘my words’)
- هِمْزِيِح (BL Or 2539 MS A, fol. 67v, 1 | L [BHS]: هِمزَبֵח Gen. 22.9 ‘the altar’)

**BL Or 2544 + Or 2545 + Or 2546**

*Dagesh forte*

- واَكُنُتُم (BL Or 2546, fol. 3r, 7 | L [BHS]: וַעֲקֹנְתֵּם Num. 14.45 ‘and they beat them into pieces’)
- بِجَالِل (BL Or 2545, fol. 207v, 5 | L [BHS]: בִּגְאַלִּיל Lev. 27.33 ‘it will be redeemed’)


Dagesh and Rafe

"He saw (BL Or 2544 fol. 74v, 2 | L [BHS]: הִסָּֽרְא Exod. 3.3 'the sight')"

Dagesh lene

"With the fire (BL Or 2544 fol. 74r, 10 | L [BHS]: בָּאֵ֙֔שׁ Exod. 3.2 'with the fire')"

"And he saw (BL Or 2544 fol. 75r, 6 | L [BHS]: פָּנֵֻי Exod. 3.6 'his face')"

"From the family of (BL Or 2546, fol. 132r, 11 | L [BHS]: מִמְשָׁפָּר Exod. 36.1 'from the family of')"

Manuscripts that mark shadda corresponding to both dagesh forte and dagesh lene

BL Or 2540

Dagesh forte

"Let us deal wisely (BL Or 2540, fol. 4r, 4 | L [BHS]: נְתַחְבּֽהָ Exod. 1.10 'let us deal wisely')"

"And she hid him (BL Or 2540, fol. 5v, 4 | L [BHS]: תְּהַסִּפֵנָּה Exod. 2.2 'and she hid him')"
Dagesh lene

(1)BL Or 2540, fol. 4v, 1 | L [BHS]: יִרְבֶ֖ה Exod. 1.12 ‘He increases’
(2)BL Or 2540, fol. 3v, 4 | L [BHS]: גָּד Exod. 1.4 ‘Gad’
(3)BL Or 2540, fol. 3v, 3 | L [BHS]: דָּן Exod. 1.4 ‘Dan’
(4)BL Or 2540, fol. 7r, 5 | L [BHS]: מִּהְרֵֹתֶ֥ן Exod. 2.18 ‘you hurried’

BL Or 2548 fols. 1-185

Dagesh forte

(1)BL Or 2548 fol. 3r, 10 | L [BHS]: מַדְוֵע Isa. 5.4 ‘why?’
(2)BL Or 2548 fol. 13r, 9 | L [BHS]: מֶלְאָלֵק Isa. 37.5 ‘the king’

Dagesh lene

(1)BL Or 2548 fol. 6r, 10 | L [BHS]: צִּמְדָּי חָרֵֹם Isa. 5.10 ‘acres of the vineyard’
(2)BL Or 2548 fol. 10r, 5 | L [BHS]: עֵדְּדוֹר Isa. 13.20 ‘until generation’
In Arabic orthography, the *shadda* sign represents the application of greater muscular pressure to a consonant in order to lengthen it. In medieval manuals concerning the correct reading (*tajwīd*) of the Arabic Qurʾān, descriptions are given of various degrees of lengthening expressed by *shadda*, but it was never used like *dagesh lene* to mark a non-geminated plosive consonant. The Karaite transcriptions that mark the *shadda* sign are essentially phonetic representations of the Hebrew reading with an Arabic orthography and so one can assume that when the *shadda* is marked, it was intended to represent lengthening of the consonant. What the data above reflect, therefore, are two varieties of reading. In one variety the *dagesh* is given its expected pronunciation, with *dagesh forte* strengthened but not *dagesh lene*. In the other variety, however, both *dagesh forte* and *dagesh lene* are strengthened and so are given the same phonetic realization. We may call this latter type of reading the ‘extended *dagesh forte*’ reading. The reading without this extension of *dagesh forte* will be referred to as the ‘*dagesh forte—dagesh lene* reading.’

A passage from *Hidāyat al-Qāriʾ* also reflects a type of reading that does not conform to the traditional classification of *dagesh* into *dagesh forte* expressing gemination and *dagesh lene*
expressing a non-geminated stop realization of a consonant.

The passage in question concerns the consonant *tav*, which is said to differ from other letters in having three grades of strength. The form of the passage from the long version of this work is as follows:26

Chapter concerning letters that occur in three grades

Take note that just as there are among the letters those that when they are adjacent to another letter, this latter makes them light with *rafe*, likewise among the letters are those that occur in three grades with regard to heaviness and lightness. The first grade is lightening. The second is the normal *dagesh*. The third is the major *dagesh*. This includes the *tav*.

Take note that the *tav*, unlike the other letters, may occur *rafe*, as in ‘and rooms of the gate’ (Ezek. 40.10); it may occur with *dagesh*, as in ‘instead of bronze’ (Isa. 60.17), ‘ornaments of gold’ (Cant. 1.11); and it may occur with major *dagesh*. The latter includes three *tavs*: ‘He made it an eternal heap of ruins’ (Josh. 8.28), ‘and its houses and its treasuries’ (1 Chron. 28.11), ‘and these three men’ (Dan. 3.23). I do not know anybody who differs (in reading) with regard to these three *tavs*. As for the form *בָּתִּים*, there were differences (of reading) with regard to it. Take note that the Tiberians said that they have a *resh* that is not read (in the same way) by anybody else. It is likely that the climate of their town caused this.

It has the same status as the *tav* in the word בָּתִּים according to the view of Ben Naftali, who gives it a grade in between two grades.

The short version of *Hidāyat al-Qāri‘* supplies more details about the differences in the reading of בָּתִּים:

Take note that *tav* in three places is strengthened with *dagesh* to a greater degree than (other) cases of *tav* with *dagesh*. These are: ‘He made it an eternal heap of ruins’ (Josh. 8.28), ‘and its houses and its treasuries’ (1 Chron. 28.11), ‘and these three men’ (Dan. 3.23). Note that there is disagreement concerning every *tav* in the form בָּתִּים, except in וְג נְז כָָּ֧יו וְֹֽאֶׁת־בָּׂ֨תִָּּ֜יו (1 Chron. 28.11). Whoever wishes to pronounce it with the normal *dagesh of tav*, may do so and whoever wishes to pronounced it with with the heaviness of the *tav* of וְג נְז כָָּ֧יו וְֹֽאֶׁת־בָּׂ֨תִָּּ֜יו (1 Chron. 28.11), may do so, on condition that this is when there are a conjunctive accent and a disjunctive accent in the word without an intervening letter.

Since in these passages it is stated that there are only three *tavs* that all readers agree should be given a major *dagesh*, this major *dagesh* must be something different from normal *dagesh forte*. Both what is traditionally regarded as *dagesh lene* and also what is traditionally regarded as *dagesh forte* would, therefore, have to be considered to belong to the second grade, the ‘normal *dagesh’*. The examples cited for the ‘normal *dagesh’ include only words that contain what is traditionally identified as *dagesh lene*,

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It does not follow, however, that ‘normal dagesh’ must be identified as dagesh lene. Rather the author makes no distinction between dagesh lene and dagesh forte. This could have been because the ‘normal dagesh’ was considered to include a range of phonetic realizations and degrees of muscular pressure that included an ungeminated stop and a geminated stop. This is the usual interpretation of the function of the dagesh sign. Alternatively the passage could be interpreted as meaning that there was no phonetic distinction between what we call dagesh lene and dagesh forte. Rather tav with dagesh was normally realized with a similar degree of muscular pressure and duration, whether in contexts where it is traditionally interpreted as dagesh lene or in contexts where it is traditionally interpreted as dagesh forte. This, in fact, is the more straightforward interpretation of the passage, especially since the point of the passage is the division into ‘grades’ based on differences in degrees of ‘heaviness’ (thiqal), i.e. muscular pressure, and one grade would not be expected to contain a range of different pressures. The third grade would, therefore, involve an exceptionally high degree of muscular pressure and, one can infer, duration, which are found only in a few isolated words. What we seem to have here, therefore, is a description of an ‘extended dagesh forte’ type of reading with the addition of three cases of extra-long dagesh.

According to Misha’el ben ʿUzziʾel in his Kitāb al-Khilaf, the Masorete Ben Naftali read all cases of בָּתִּים that had two accents by applying more muscular force than in cases without two
accents (Lipschütz 1965, 4; Eldar 1994, 77).\(^\text{28}\) Ben Asher, however, is said to have disagreed with Ben Naftali and read only בָּתִּים (I Chron. 28.11) and בָּתִּים (Deut. 6.11) with strong pressure. The second example is not mentioned in *Hidāyat al-Qāri*\(^\text{3}\) but has the same accents (ʾazla and geresh). Ben Asher did not read any other cases of בָּתִּים with the same degree of pressure.\(^\text{29}\) Mishaʿel ben ʿUzziʿel (Lipschütz ibid.) cites a Masoretic statement that is attributed to Ben Asher: ‘because he (Ben Asher) mentioned in his Masora saying that in the Bible are four cases with intense *dagesh*.'\(^\text{30}\) These statements in *Kitāb al-Khilaf* indicate that the pronunciation of tav as extra-long in some cases was a feature of the reading of Ben Asher and Ben Naftali.

At the end of the passage from the long version of the *Hidāya* it is stated that in the Tiberian reading there is a realization of resh that is not found in any other reading and that this ‘has the same status as the tav in the word בָּתִּים according to the opinion of Ben Naftali,’ who pronounced the tav of this word with ‘a grade in between two grades’ (*manzila bayna manzilatayn*). The author of *Hidāyat al-Qāri* applies a

\(^{28}\) כל לשון בתים machining קואק ובנפנתיל ידנש אתוני ישד פיה ויאר על גירב. ‘Every case of tav with two accents was given *dagesh* by Ben Naftali, I mean he pronounced it with force more than other cases (of the word without two accents).’

\(^{29}\) וואו קואגAccessType איז פיה אריבא הש אדא אלי אלשד. ‘He did not pronounce other cases with the similar strength’ (Lipschütz 1965, 4; Eldar 1994, 77).

\(^{30}\) לאנה דכר פי מקסרפת הוקאלא או פי אלקריא ארבעה: בלשון מורוביה ודשי.
classification based on grades (manāzil) to three variant articulations of resh. These were non-emphatic advanced uvular [ʁ], emphatic alveolar [rˁ] and geminate respectively, which can, likewise, be correlated with three degrees of muscular pressure. The non-emphatic advanced uvular realization of resh is referred to in the Hidāya as the ‘light’ (khafīf) grade, the geminate resh, marked by a dagesh, is the ‘major’ (kabīr) grade, and the emphatic alveolar is ‘the grade between grades’ (manzila bayna manzilatayn) (Khan 1995, 2013c). Unlike the classification of the three variants of tav, the classification of three variants of resh is presented as two basic grades, with a third variant that is between two grades. The term manzila bayna manzilatayn is likely to originate in the Muʿtazilite theological tradition.31 It is used in Arabic grammatical literature to refer to cases of intermediate grammatical status. Al-Jurjānī (d. 471/1078), for example, states that the Arabic negator laysa has an intermediate position (manzila bayna manzilatayn) between the verb kāna and the negative particle mā with regard to the extent of its inflection.32 Mishaʾel ben ʿUzziʾel states that the distinctive feature of Ben Naftali’s reading of בָּתִּים was that he regularly pronounced the tav in it with more force when it had two accents than when it lacked a secondary accent. The term manzila bayna manzilatayn,

31 It was one of the principles of Muʿtazilite doctrine that the term ‘unbeliever’ could not be applied to a Muslim believer who had committed a grave sin. The latter, therefore, could be neither a believer nor an unbeliever, but in an intermediate state (manzila bayna manzilatayn); cf. Gimaret (2015).

therefore, must be referring to a degree of strength that was greater than a normal \textit{dagesh}. In the passage on the \textit{tav} in the \textit{Hidāya}, the normal \textit{dagesh} was read as a geminate so the intermediate position of Ben Naftali is presumably referring to a degree of strength that was greater than normal gemination but less than the extra-long pronunciation in the specified cases. The practice of pronouncing the \textit{dagesh} of \textit{tav} with a strength greater than normal gemination was, according to the \textit{Hidāya}, unique to the Tiberian tradition.\footnote{The Masorah Parva to I Chron. 28.11 contains the note: \textit{הָיָה תוֹיָ֥ה דגָּשׁ֣י} \textit{בָּחֵ֡זֶק}. \textit{There are five \textit{tav}s that have strong \textit{dagesh}}. It is not clear in which words these \textit{tav}s occur apart from the \textit{tav} in \textit{בָּתַיָּּּ֜ו} in the 1 Chron. 28.11 (Dotan 1967, 15).}

The passage cited above from the original Arabic versions of \textit{Hidāyat al-Qāri} underwent an adaptation in the Hebrew versions of the work that were produced in medieval Europe, such as \textit{Horayat ha-Qore} (twelfth century) and \textit{Sefer Ṭa’ame ha-Miqra} (thirteenth century) (Eldar 1994, 16–18). In \textit{Horayat ha-Qore} the passage has the following form:\footnote{Ed. Busi (1984, 60): \textit{שער התי׳׳ו. בג׳ מקומות נדגשת התי׳׳ו, מכל התוי׳׳ן הנדגשות והם וישמה תל עולם, ובתיו וגנזכיו, וגובריא אליך תלתיהון. וכל בתים, שהן לשון מדה, כגון: ויין בתים עשרים אלף ושמן בתים עשרים אלף, דכותוון פתח ודגש. אבל בתים שבון: יי בchin שערים אלףشم בチン שערים אלף, ש绐וון פחה גשא. ובתים מולאשים כל טוב, הנה את עדיו אוית מקמה אל בתים,しなל שיש כינון: ואת בתיו וגנזכיו, שאא׳פו שוהוון לשון ידיעת כלוהון קמשי, ואתי גנייה בתים. מבעלון: או התוים ביהון ובכימן, מפורי שיש במשרת טעמו, ורוא אלייה浇水 צפי חיות. וי: בתים מולאימים טוב, יהוא שםישרתו וㅍטום יד, שמופסיך עליה, ולחדיש בתים.蝙יתו.}
Chapter on the \textit{tav}. In three places \textit{tav} has a (stronger) \textit{dagesh} than all (other) \textit{tavs} with \textit{dagesh}, namely:

- ‘He made it an eternal heap of ruins’ (Josh. 8.28),
- ‘and its houses and its treasuries’ (1 Chron. 28.11),
- ‘and these three men’ (Dan. 3.23),

and all cases of \textit{בתים} that denote measurement, such as

\begin{verbatim}
וְיִּ֗יִּן עֶׁשְרִֹּ֥ים ב תִּ֖ים וְשֶׁ֕מֶׁן אֵֶּׁ֔לֶׁף עֶׁשְרִַּּ֣ים ב תִּ֖ים
\end{verbatim}

‘and twenty thousand baths of wine, and twenty thousand baths of oil’ (2 Chron. 2.9) and the like with \textit{patah} and \textit{dagesh}. But (cases of) \textit{בתים} that denote habitation, like

\begin{verbatim}
כָּל־טוּב מְלָ֤ים וּבָּׂ֨תִִּּ֜ם
\end{verbatim}

‘and houses full of all good things’ (Deut. 6.11),

\begin{verbatim}
וְאֶׁת־מִּקְנָ֥הוּ אֶׁת־עֲבָּדָֹּ֥֣יו ה נִַּ֛יס אֶׁל־בָּתִֹּֽים
\end{verbatim}

‘he made his slaves and his cattle flee into the houses’ (Exod. 9.20), all have \textit{qames} and are not given strong \textit{dagesh} (i.e. they have \textit{dagesh lene}), with the exception of

\begin{verbatim}
וְֹֽאֶׁת־בָּׂ֨תִָּּ֜ם מְל אִַּּ֣ים כָּל־טוּב
\end{verbatim}

(1 Chron. 28.11), which, although it denotes habitation, it has strong \textit{dagesh} and \textit{qames}, because it contains a conjunctive accent and main accent, and it is as if it is two words. Some add to the ones (i.e. these examples) that should be given strong \textit{dagesh} (Deut. 6.11), because the conjunctive accent and main accent are together in the word.’

Here a section has been added to the original passage referring to the plural form \textit{בַּתִּים} ‘baths’. This version of the passage conveys the sense that there are two types of \textit{dagesh}, viz. \textit{dagesh forte} and \textit{dagesh lene}. The three cases of \textit{dagesh} in the \textit{tav} after \textit{qames} in

\begin{verbatim}
ו יְשִּימֶֶׁ֤ה ת ל־עוֹלָּם
\end{verbatim}

(Josh. 8.28),

\begin{verbatim}
וְֹֽאֶׁת־בָּׂ֨תִָּּ֜ם מְל אִַּּ֣ים כָּל־טוּב
\end{verbatim}

(1 Chron. 28.11) and

\begin{verbatim}
וְג נְז כָָּ֧יו בָּׂ֨תִָּּ֜יו
\end{verbatim}

(Dan. 3.23), and some also include the \textit{dagesh} after the \textit{qames} in

\begin{verbatim}
וְג בְר יֶָּ֤א אִּל ךְ  תְלַָּּ֣ת הֵּ֔וֹן
\end{verbatim}

(Deut. 6.11), are equated with the \textit{dagesh} of \textit{בַּתִּים}, i.e. they are interpreted as ‘normal’ \textit{dagesh forte}. In all other cases of \textit{בַּתִּים} the \textit{dagesh} is \textit{dagesh}
There is no reference here at all to an extra-long grade of dagesh. Evidently the author of Horayat ha-Qore was not familiar with the version of the Tiberian reading tradition in which the extra-long dagesh existed. For this reason, he misunderstood the point of the original passage that the dagesh in the tav after qames in the specified cases was exceptional in the degree of its strength and was not like the normal dagesh forte of words such as בָּתִּים. The author of Horayat ha-Qore was also unfamiliar with the extended dagesh forte reading, since he alludes to a dagesh lene in most cases of בָּתִּים.

One may infer from this that extra-long dagesh was a phenomenon of the extended dagesh forte reading and was not known in the dagesh forte—dagesh lene reading. It would appear that only the latter was transmitted to Europe, or at least in the circles where the European recensions of Hidāyat al-Qāri' were produced. If this is the case, then the reference to the Masoretes Ben Asher and Ben Naftali having extra-long dagesh in their

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35 The passage has the same adapted form also in Sefer Ṭa‘ame ha-Miqra. Eldar (1984, 28) used this adapted version of the passage on the tav in his interpretation of the original Arabic version of Hidāyat al-Qāri' and this, therefore, led him to misinterpret the original. According to Eldar the al-dagesh al-kabīr ‘major dagesh’ of tav was not a fully geminated tav, but only a half-geminated one [t]. The fully geminated tav [tt] is found in the word בָּתִּים. This argument is based on the assumption that the passage is excluding consideration of dagesh forte used to express gemination. In the passage on the grades of resh, however, the ‘major’ (kabīr) grade of the letter is said to be geminate resh with dagesh, as in נָרִאתי (1 Sam. 10.24). This is evidence that the classification of the grades of strength of tav includes the full range of the realization of tav.
reading of tav in specific words would imply that their reading was of the extended dagesh forte type.

Another section of Hidāyat al-Qāri‘3 that could be interpreted as evidence for the extended dagesh forte reading is one that concerns the reading of word-initial בגדכפת letters with dagesh after a preceding word with a conjunctive accent in contexts where a fricative reading may be expected.36 Most of the constructions in this section contain word-initial בגדכפת consonants with what is normally interpreted as dagesh lene. The section, however, also includes word-initial בגדכפת consonants in deḥiq constructions. There is no doubt that the dagesh of deḥiq constructions was dagesh forte (§I.2.8.1.2.). It appears that Hidāyat al-Qāri‘ considered these to have the same type of בגדכפת stop as the other constructions, which would imply that the word-initial בגדכפת in the other constructions would have been pronounced with dagesh forte.

The extended dagesh forte reading arose by giving the dagesh sign its full value in all contexts. One motivation for this was an attempt to make a maximally clear distinction between fricative and plosive forms of the בגדכפת letters. Another motivation for strengthening the pronunciation of the dagesh in this way was to mark a clear separation between syllables. This enhanced accuracy of reading words with בגדכפת consonants was achieved without deviating from the standard Tiberian notation system.

Without doubt, there was a distinction historically between geminate and non-geminate בֵּרָדָכְפָּת stops (i.e. between dagesh forte and dagesh lene). This is seen, for example, in pre-Masoretic Greek and Latin transcriptions such as the Greek transcriptions of the second column of Origen’s Hexapla and the Latin transcriptions of Jerome:

\[ \beta ονορ = בּּוּר, \varepsilon οδοφ = רַדָּרָה, \text{vs.} \varepsilon οάβב = בּּוּר, \varsigma αδδικימ = צֵדְיקָה \]  

(Brønno 1943, 357, 383)

\[ \text{iegdal} = יִגְדַל (Sperber 1937, 158), \text{marphe} = מְרַפֶּה} \]  

(Sperber 1937, 192), \text{baddim} = בּּדָד (Sperber 1937, 211), \text{thephphol} = תִּפְל (Sperber 1937, 159)

The evidence we have of the extended dagesh forte reading is datable to the tenth and early eleventh centuries in the use of the shadda in a certain group of the Karaite transcriptions and in Hidāyat al-Qāri’. This can be interpreted as reflecting the fact that it was in the late Masoretic period that the extended dagesh forte reading began to be used by some readers. Since the orthoepic work Hidāyat al-Qāri’ seems to be assuming that the extended system is the correct Tiberian reading, it can be hypothesized that the extended system was regarded as the preferred system among the surviving teachers of the Tiberian reading at that period. Indeed, we have argued above that the sources can be interpreted as indicating that this was a feature of the reading of Ben Asher and Ben Naftali, who belonged to the last generation of Tiberian Masoretes.
As the Karaite transcriptions suggest, the extended *dagesh forte* reading appears to have existed alongside the more conservative *dagesh forte—dagesh lene* reading. Fragments of anonymous Masoretic treatises datable to the tenth or eleventh centuries reflect this variation. In one such treatise (ed. Allony and Yeivin 1985, 101), there is a reference to a distinction between ‘heavy *dagesh*’ (*dagesh thaqīl*) and ‘light *dagesh*’ (*dagesh khafīf*) that corresponds to the normally accepted distinction between *dagesh forte* and *dagesh lene*. In another treatise, on the other hand, cases that are traditionally regarded as *dagesh lene* are referred to by the Arabic term for gemination *tashdid* (II Firkovitch Evr.-Arab II 365, fol. 6r, 21r).

The orthoepic development of the orally transmitted Tiberian reading tradition appears not to have been known outside of Palestine and in the later Middle Ages it fell into complete oblivion. This lack of knowledge of the latest stages of the Tiberian reading arose because the tradition was disseminated outside Palestine and to later generations only in the form of the written vocalization. The vocalization in its standard form did not reflect these orthoepic developments. There is, therefore, a scholarly amnesia with regard to the final form of the Tiberian reading tradition, which can only be reconstructed in sources such as the Karaite transcriptions and the original Arabic versions of the orthoepic treatise *Hidāyat al-Qāriʾ*.

This extended *dagesh forte* reading is likely to have been the stimulus for the use of *dagesh forte* on other consonants at the onset of syllables to mark clear syllable division in forms such as the verb בָּשׂ ו את ‘he supplants’ (Jer. 9.3), which is attributed to Ben
Dagesh and Rafe

Naftali in Kitāb al-Khilaf (ed. Lipschütz 1965, 563), and the extended use of dagesh in non-Standard Tiberian manuscripts (see §I.3.3. below).

I.3.1.12. Dagesh in the Word בָּתִּים

According to the passage on the tav in Hidāyat al-Qāri’ that was discussed in the previous section, the dagesh in the word בָּתִּים was pronounced in two ways. When the word had a secondary accent, it was pronounced extra-long, with the third grade of muscular force, greater than cases of בָּתִּים without a secondary accent. Ben Naftali pronounced all cases of the word with a secondary accent in this way, whereas Ben Asher read it as extra-long only in one (or according to the Kitāb al-Khilaf two) specific verse(s). The tav of the word was pronounced as a ‘normal’ dagesh (second grade tav) when the word did not have a secondary accent and also, in the case of the reading of Ben Asher, in cases where it had a secondary accent outside of the one (or two) specific verse(s). As discussed, the term ‘normal’ dagesh in this passage referred to a ‘normal’ geminate dagesh forte, since Hidāyat al-Qāri’ is describing an extended dagesh forte type of reading.

The extra-long duration of the dagesh is possibly the result of a prosodic epenthesis between stress prominences. When there was a secondary accent in the word, the tav was given an added duration to ensure a clearer separation between the stresses for the sake of rendering the reading eurhythmic to a maximal extent. The same applies to the other two words in which, according to Hidāyat al-Qāri’, the tav was pronounced extra-long, viz. These are שְמָּה וּיְשִםֶֶׁה תְלִיל עֲלָהוֹן שִׁמָּה ‘He made it an eternal heap of
ruins’ (Josh. 8.28, ‘and these three men’ (Dan. 3.23). In both cases the tav occurs in between two stress prominences that are close to each other. In וְג בְּר יֶָּ֤א אִּלָּּ֥ך תְלַָּּ֣ת הֵ֔וֹן one could assume that the word תְלַָּּ֣ת had a secondary stress, although it is not marked by an accent or a ga’ya. The word has a short /e/ vowel, without inherent length (cf. וֹתִּל, like לִב, לֶב, לִבּ), so it would be expected to be segol if not lengthened by some kind of stress (see §I.2.11.).

In the group of Karaite transcriptions that reflect an extended dagesh forte reading a shadda sign is marked on the tā’ representing the Hebrew tav in all cases, e.g.

(BL Or 2550 fol. 18v, 5 | L [BHS]: בְּבָּתִּי Zeph. 2.7 ‘in the houses of’).

In the group of Karaite transcriptions that reflect a dagesh forte—dagesh lene reading, however, a shadda is not marked on the tā’, indicating that in this type of reading the word was read as a non-geminated stop, e.g.

(BL Or 2544, fol. 189r, 13 | L [BHS]: הָבְּהָטֵים Exod. 9.20 ‘the houses’) (BL Or 2544, fol. 159r, 8 | L [BHS]: מִרְּבְּהָטֵים Exod. 8.9 ‘from the houses’) (BL Or 2544, fol. 181v, 4 | L [BHS]: בְּבָּתִּי Exod. 8.17 ‘the houses’).
Also where there is a secondary accent in the word, the transcriptions of this group do not mark a shadda sign, reflecting a pronunciation with an ungeminated tav. This applies even to 1 Chron. 28.11, which is the form in which, according to the Masoretic treatises, both Ben Asher and Ben Naftali read the tav as extra-long:

We have seen that the author of *Horayat ha-Qore* in medieval Europe states that the tav of the word has dagesh lene, except in *וְֹֽאֶׁת־בָּׂ֨תִָּּ֜יוֹ וְגַּּנְּנָּ֣יְם* (1 Chron. 28.11) and *וְֹֽאֶׁת־בָּ֨תִָּּ֜יוֹ וְגַּּנְּנָּ֣יְם* (Deut. 6.11).

Hayyūj, writing in Spain at the end of the tenth century, considered that the tav in all instances of בָּתִּים was pronounced...
as an ungeminated stop. This is implied by the following passage from his Kitāb al-ʿAfʿāl Dhawāt Ḫurūf al-Līn:37

‘As for the “light” (type of בַּרְאָשִׁית בְּרִיאָה) in the beginning God created’ (Gen. 1:1) ... and like וּכָל־עֲבָדֶיךָ וּבָּתָי בָּתִּים ‘and they shall fill your houses and the houses of your servants’ (Exod. 10.6).38

Yequtiʾel ha-Naqdan, who was active in medieval Ashkenaz in the second half of the thirteenth century, writes in his work ‘En ha-Qore that the tav in the word בָּתִּים should be read with dagesh lene following Hayyūj:39

‘I have found that Rabbi Yehudah Ḫayyūj, of blessed memory, said that there is a dagesh lene in the tavs of בָּתִּים, בָּתָי and the like. .... Be careful not to pronounce the dagesh strongly.’

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37 Ed. Jastrow (1897, 12–13): וּכָל־עֲבָדֶיךָ וּבָּתָי בָּתִּים וְלֹא מַלְאָכֶיךָ אֲלֵיהֶם ...

38 The plosive pronunciation of the tav after long qamesh was regarded as anomalous by Ḫayyūj and he is quoted by Ibn Ezra in his Sefer Ṣaḥot (ed. del Valle Rodríguez 1977, 1:289) to the effect that the qamesh occurs to differentiate the word in meaning from בָּתִּים ‘baths’ (measure of capacity); cf. Charlap (1999, 121–22). The source of such a statement about the differentiating function of the qamesh cannot be identified in the extant corpus of Ḫayyūj’s writings. It may be based on Ibn Ezra’s misinterpretation of the passage concerning the tav consonants and בָּתִּים in Kitāb al-ʿAfʿāl Dhawāt Ḫurūf al-Līn (ed. Jastrow 1897, 12–13) (José Martínez Delgado, personal communication).

The reading traditions of the Jewish communities in Arabic-speaking countries in modern times preserved the gemination of *dagesh forte* according to the distribution of the *dagesh forte—dagesh lene* system of reading. There is no trace of an extended *dagesh forte* type of reading. Nor is there any trace of an extra-long gemination of *tav*. The plural form בָּתִּים is regularly read with *dagesh lene*, e.g. Yemen: bavoːtʰeːxäm (בְבָּת יכֶֹֽׁם ‘in your houses’ Isa. 3.14) (Morag 1963, 38; Ya’akov 2015, 72 n.134). This applied even to cases where the word has a secondary accent.

It appears, therefore, that the extended *dagesh forte* reading, which included the reading of the *tav* of בָּתִּים as geminate and as extra-long in some cases where it had two accents, fell into oblivion in Jewish communities outside of medieval Palestine.

### 1.3.1.13. Loss of Gemination

Gemination has been lost in the Tiberian tradition in the following circumstances.

#### 1.3.1.13.1. Guttural Consonants

Guttural consonants, and frequently also *resh*, lost their gemination in the pre-Masoretic period due to their weakness. In such cases the preceding vowel was lengthened by way of compensation:

- שָׁמַּא [haʔʔoʔḇənːəm] ‘the man’ < *haʔʔadam
- שָׁמַּא [haʔʔeʔeʃ] ‘the tree’ < *haʔʔeʃ
- שֶׁשַּׁא [haʔʔoʔdəʃ] ‘the month’ < *haʔʔhodeʃ
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I.3.1.13.2. Weak Consonants with Shewa

Gemination is occasionally lost in a consonant that has vocalic shewa. This applies in particular to sibilants, sonorants (yod, lamed, mem, nun) and qof, which are weak consonants. The loss of gemination in such cases has two causes, viz. the articulatory weakness of the consonants and the prosodic weakness of the syllable of the shewa (§I.2.5.2.). There is some variation across the manuscripts with regard to the loss of gemination in such forms. In some cases, there is no compensatory lengthening of the preceding vowel, and the consonant that loses the gemination is syllabified as the coda of the preceding syllable, e.g.

L: הָּרֶּׁםֶׁש הָּשְלְבִים ‘the frames’ (1 Kings 7.28)

L: הָּלְוִּ֖ים ‘the Levites’ (Exod. 6.25, etc.)

L: ויָד בֹּ֥ר ‘and he spoke’ (Gen. 8.15, etc.)

In some cases, the preceding vowel is lengthened, generally indicated by a gaʿya, and the consonant that has lost the gemination is read with vocalic shewa. This applies most commonly to a mem after the definite article (§I.2.5.8.1.) and a sequence of two identical consonants (§I.2.5.8.3.):

L: הָּמְד בֹּ֥ר ‘the one speaking’ (Gen. 45.12, etc.)

L: לׁ֑וֹבְֲקֹלְ ‘when he cursed’ (A: וֹ֑בְֲקֹלְל בְֹ֥בְֲקֹלְ, 2 Sam. 16.7)
I.3.1.13.3. Loss of Gemination when Adjacent to another Geminated Consonant

Dotan (1983) has shown that in L a *dagesh* marking gemination is sometimes omitted in a consonant with a full vowel when it is immediately followed by another geminated consonant. The omission of *dagesh* in this context is too systematic to be regarded as simply a scribal error, but rather it must be considered to reflect a phenomenon of the reading tradition. It is attested most commonly in weak consonants of the type that tend to omit *dagesh* when they are pronounced with *shewa*, i.e. sibilants, sonorants and *qof*. The majority of examples occur after the interrogative *מְן*, the preposition *מִּן*, the definite article or the *vav* consecutive. In many cases the *dagesh* is printed in BHS, although it does not appear in the manuscript L, e.g.

- מִּשְׁמָּךְ ‘What is the burden’ (Jer. 23.33)
- מְשִׁיר ‘from the Almighty’ (BHS מְשִׁיר, Isa. 13.6)
- הָצְיִית ‘the monument’ (BHS הָצְיִית, 2 Kings 23.17)
- הָצְיִית ‘and the covering’ (BHS הָצְיִית, Isa. 28.20)
- הָשִּׁבְלִים ‘the ears of corn’ (Gen. 41.24, BHS mistranscribes the first vowel as a *qames* due to erroneously interpreting a fleck on the parchment as the lower dot of a *qames*: יָשִּׁבְלִים; cf. B יָשִּׁבְלִים)
- וֶלֶחֶם ‘and he fought’ (BHS וֶלֶחֶם, Jud. 11.20)
- עֵזְזַי ‘Uzziah’ (2 Kings 15.30)
- אָמָּן ‘nations’ (Aramaic, Dan. 3.7)
This kind of omission of *dagesh* occurs in the onset of unstressed syllables and the following geminated consonant typically, though not invariably, forms the onset of a stressed syllable. The consonant that has lost the gemination is, therefore, generally prosodically weaker. The condition that the omission of the gemination occurs adjacent to other gemination could reflect a rhythmic phenomenon, whereby the clash of two strengthened, and so prosodically prominent, consonants is avoided.


Golinets (2013), in an important study of the manuscript L, has drawn attention to a number of errors in the diplomatic edition of L that is printed in BHS and its derivative digital editions in the reading of vocalization signs. This is due to various reasons, including confusion of natural specks on the parchment for pen marks, the concealment of vocalization signs by the strokes of letters and the overwriting or erasure of vocalization signs by a later hand.

Many of the errors in reading relate to the *dagesh* sign. Several *dagesh* signs that appear in unusual places in various words in BHS and are not found in other manuscripts have been demonstrated by Golinets (2013, 250–51) to be specks on the parchment of L. These include the following cases:40

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40 There are a few additional places where the printed version of BHS is correct, but some of the digital versions and BHQ have an erroneously marked *dagesh*; see Golinets (2013, 250-251) for details.
<table>
<thead>
<tr>
<th>L</th>
<th>BHS</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. 26.1 גבימלך</td>
<td>אבימלך</td>
<td>‘Abimelech’</td>
</tr>
<tr>
<td>Gen. 34.28 חמריהם</td>
<td>חמריהם</td>
<td>‘their asses’</td>
</tr>
<tr>
<td>Gen. 39.19 נשנה</td>
<td>נשנה</td>
<td>‘he has done’</td>
</tr>
<tr>
<td>Deut. 12.9 לאבואתך</td>
<td>לאבואתך</td>
<td>‘you have not come’</td>
</tr>
<tr>
<td>Jud. 14.2 חראותה ל</td>
<td>חראותה ל</td>
<td>‘take her for me’</td>
</tr>
<tr>
<td>Jud. 19.5 חرفתי</td>
<td>חرفתי</td>
<td>‘insult of me’</td>
</tr>
<tr>
<td>Cant. 6.8 מלילות</td>
<td>מלילות</td>
<td>‘queens’</td>
</tr>
</tbody>
</table>

### I.3.2. RAFe

The RAfe sign is a horizontal line written over a letter. As with several other Masoretic terms, it appears to be an Aramaic participle in origin רַפֶה. In Judaeo-Arabic Masoretic treatises it is sometimes Arabicized as an Arabic participle, e.g. the anonymous treatise preserved in the Genizah CUL T-S NS 157.52: ראפיה, pl. ראפי rawāfi.

The main use of the sign is to mark בגדכפת consonants as fricative. It is not, however, marked consistently in manuscripts. The marking of the sign was not standardized in the Tiberian tradition to the same extent as the marking of dagesh and it differs from one manuscript to another. Some of the model Tiberian manuscripts mark it more frequently than others. RAfe signs are, for example, more abundant in C and S than in L and A. It is marked only rarely in B. If two letters together both require RAfe, the sign is generally only marked once over the space between them.
Rafe is not represented in most printed editions, including BHS and BHQ, which are based on L.\textsuperscript{41}

The inconsistent marking of rafe on fricative consonants in L can be seen in the two sample verses below:

L: Gen. 30.1-2

When Rachel saw that she bore Jacob no children, she envied her sister; and she said to Jacob, “Give me children, or I shall die!” Jacob’s anger was kindled against Rachel, and he said, “Am I in the place of God, who has withheld from you the fruit of the womb?”

In most manuscripts, the rafe sign is generally, but not always, marked also on non-consonantal he and ’alef, e.g. מלכת ‘queen’, וב ‘he came.’ A few manuscripts, especially C and S, often mark a rafe on the ’alef in ישראל ‘Israel’, possibly reflecting its elision in this frequently occurring word.

The rafe sign is used sporadically on other letters in the manuscripts.\textsuperscript{42} This is found mainly in contexts in which dagesh would be expected according to normal morphological patterns and prosodic processes, e.g.

Weak letters that have lost dagesh when pointed with shewa:

A: ויבאו ‘and they inquired’ (Jud. 6.29)

\textsuperscript{41} Rafe signs are marked in Ginsburg’s Massoretico-Critical Text of the Hebrew Bible (1894).

\textsuperscript{42} Yeivin (1980, 286-7), Blapp (2017, 17-19).
A: שָׁלֹחַ ‘send’ (Psa. 74.7)

Omission of dagesh in word-initial position where it would normally occur according to the rules of dehiq (§I.2.8.1.2.):
A: שִׁיחָה ל ‘a meditation for me’ (Psa. 119.99)

After an accent in words where gemination would normally occur:
A: לֶמ ‘why’ (Job 7.20)

The rafe sign is sometimes marked in contexts that closely resemble contexts where dagesh would be expected, e.g. on a prefix of a verbal form that is preceded by vav with shewa to distinguish it clearly from a geminated prefix of a wayyiqtol form:
A: שְמַי ‘and will listen’ (Isa. 42.23)
A: לַב ‘that he may come’ (1 Sam. 4.3)

After a prefixed preposition with shewa to distinguish the construction from constructions with a preposition combined with a definite article:
C: בֵּמֶש ‘on he the hill of’ (1 Sam. 9.11)

On the nun of first person and third person feminine verbal suffixes to distinguish them from verbal suffixes with geminate nun:
A: פְד ‘redeem me’ (Psa. 119.134)
A: שְׁמַנ ‘you have made me’ (Job 7.20)
L: הָנְלֵנ ‘they will tingle’ (1 Sam. 3.11)
**Hidāyat al-Qāri’** uses the term *rafe* for an ungeminated consonant in such contexts, e.g.

When a *rafe* (letter) follows it, it has *segol*, as in לְיִדֵי מֶה (Jer. 11.15 ‘what has my beloved’).43

The letters with *rafe* in the contexts just described typically belong the set of weak sonorant letters נ, מ, ל. *Rafe* is sometimes marked on these letters in the manuscripts, no doubt by a process of analogical extension, when they are ungeminated in other contexts, where there is no risk of confusion with geminated letters, e.g.

C: נֹגָל ‘he has granted us’ (Isa. 63.7)

C: צָות ‘its leavening’ (Hos. 7.4)

S: יְדִע ‘wizard’ (Lev. 20.27)

S: יָלֵשְׁנֻה ‘and into a byword’ (Deut. 28.37).44

In some manuscripts, *rafe* is occasionally marked on *vav* to indicate its consonantal value. This is found before כ expressing [uː] and also in other contexts (§I.1.6.), e.g.45

C: וּת שְו ‘and you make equal’ (Isa. 46.5)

L: וַיְקִי ‘and let it be’ (Psa. 90.17)

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45 Yeivin (1980, 286).
I.3.3. **DAGESH AND RAFE IN MANUSCRIPTS WITH NON-STANDARD TIBERIAN VOCALIZATION**

There is a considerable degree of variation in the use of the *dagesh* sign in manuscripts with Non-Standard Tiberian vocalization, but there is a clear tendency in many manuscripts for the sign to be used more frequently than in the standard Tiberian vocalization. Concomitantly there is also a wider use of the *rafe* sign.

The distribution of *dagesh* and *rafe* in Codex Reuchlinianus, the best known biblical manuscript with this system of vocalization, has been studied by Morag (1959). The use of *dagesh* and *rafe* in numerous other manuscripts of this type written in Europe, both biblical and non-biblical, has been described by Eldar (1978, 125–43). He shows that many of the manuscripts follow a basic principle of marking of *dagesh* similar to that of Codex Reuchlinianus, although there is a considerable amount of diversity in points of detail. Yeivin (1986) has described the distribution of *dagesh* in Vatican Urbinati 2, which was also written in Europe and exhibits a somewhat different distribution from the aforementioned manuscripts. The investigation by Blapp (2017, 2018) of Genizah fragments with Non-Standard Tiberian vocalization of a predominantly eastern origin from an earlier period (tenth–thirteenth centuries) has revealed a basic distribution similar to Codex Reuchlinianus and the material surveyed by Eldar, although each fragment exhibits some variant features.

In the Non-Standard Tiberian manuscripts, the rules of the marking of *dagesh* and *rafe* on the ג ה ו י letters in the Standard Tiberian system are, in principle, applied to all letters, except the
pharyngeals (ח, ע), ר and those that function as both *matres lectionis* and consonants (ך, ב, ה, ג). The *dagesh* sign, therefore, is marked on the majority of letters at the beginning of a word and within a word after a silent *shewa*.

Genizah manuscripts

תועבת צדיקים (T-S A12.1, Blapp 2018, 138 | L [BHS]: תועבת צדיקים Prov. 29.27 ‘abomination of the righteous’)

逋ךקרין (T-S A13.35, Blapp 2018, 139 | L [BHS]:逋ךקרין Psa. 75.11 ‘all the horns of’)

מקסם (T-S A12.1, Blapp 2018, 141 | L [BHS]: מקסם Prov. 28.27 ‘lack’)

חלקה (T-S A12.1, Blapp 2018, 141 | L [BHS]:חלקה Ruth 4.3 ‘portion of’)

European manuscripts

מספר (Codex Reuchlinianus, Morag 1959, 217 | L [BHS]: מספר Isa. 10.19 ‘number’)

מלכיה (Codex Reuchlinianus, Morag 1959, 225 | L [BHS]: מלכיה Jer. 18.9 ‘kingdom’)

כרמי (Codex Reuchlinianus, Morag 1959, 217 | L [BHS]: הכרמי Isa. 5.3 ‘my vineyard’)

npos (Codex Reuchlinianus, Morag 1959, 217 | L [BHS]:npos Isa. 10.18 ‘sick’)

Another aspect of the extension of *dagesh* in the Non-Standard Tiberian system is the use in some manuscripts of *dagesh* on...
word-initial consonants after a preceding word with a final vowel and conjunctive accent, where a fricative form of the letter would be expected in Standard Tiberian. In these manuscripts, *dagesh* is used also on other consonants in this context. Examples:

ֹֽל־אוֹיְבֶׁ יךָ  אבְדֶ֤וּ כָּ י (Vatican Urbinati 2, Yeivin 1986, 495 | L [BHS]: כָּ י אבְדֶ֤וּ כָּל־אוֹיְבֶׁ י Jud. 5.31 ‘may all your enemies perish’)

ִּגָּׁ֑פוּכִַּּ֣י נ (Vatican Urbinati 2, Yeivin 1986, 495 | L [BHS]: כִַּּ֣י נִגָּׁ֑פוּ Jud. 20.36 ‘that they were defeated’)

According to Morag (1959, 226–28), the *dagesh* sign at the beginning of a word and after silent *shewa* in this system of vocalization did not have a phonetic realization of gemination but only had the function of indicating a syllable boundary. Eldar (1978, 125–43) likewise takes the view that this *dagesh* did not have a phonetic realization but rather was a ‘separative *dagesh*’. Yeivin (1983, 1986) agrees with Morag and Eldar that the function of the *dagesh* in the Non-standard Tiberian manuscripts was to express the division of syllables. He argues, however, that it was not simply an abstract sign but rather had the phonetic value of a *dagesh forte*. This would explain why it is not marked on consonants that do not in principle take *dagesh forte*, in particular the pharyngeal consonants.

I should like to argue that the distribution of the *dagesh* in manuscripts with Non-Standard Tiberian vocalization reflects a type of reading that arose by an analogical extension of the extended *dagesh forte* reading (§I.3.1.11.3.). The analogical process involved extending the gemination marking strengthened
syllable onsets from בגדכפת consonants to all consonants in syllable onsets that could be geminated. Since gemination was a potential feature also of a range of other consonants, this distribution of gemination of the בגדכפת consonants in the extended dagesh forte reading was extended further to include these other consonants. This took place by a process of regularization, which resulted in a more consistent distribution of the orthoepic use of dagesh to mark clear syllable divisions, e.g.

<table>
<thead>
<tr>
<th>Extended dagesh forte reading</th>
<th>Non-Standard Tiberian Tiberian reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>תִּשְבַּר</td>
<td>תִּשְבַּר</td>
</tr>
<tr>
<td>תִּשְמַר</td>
<td>תִּשְמַר</td>
</tr>
<tr>
<td>נִּשְמַר</td>
<td>נִּשְמַר</td>
</tr>
</tbody>
</table>

The incipient extension of dagesh to strengthen the onsets of syllables is found in forms such as וֹו יִּתֶּן־ל֖ 'and he gave him’ (L, Gen. 24.36) and forms attributed to Ben Naftali such as בִּנְוֵן ‘the son of Nun’ and בֵּי עִק ‘he supplants’ (Jer. 9.3).

The orthoepic marking of dagesh on the second of two identical letters across word-boundaries, such as בַּנְּךָ, and on a letter after a vowelless guttural, such as בַּק, is found also in some manuscripts with Palestinian pronunciation (Fassberg 1987), e.g.

[חרקויו] (T-S A43.1, Revell 1970a, 76 | L [BHS]: שָׁלֵלְכֶּּה Isa. 57.11 ‘on your heart’)  
[חרקויו] (Bod. Heb. e 30 ff. 48-49, Revell 1970a, 76 | L [BHS]: הָּרְחוֹקִּים מִצְדָּקָֹה Isa. 46.12 ‘who are far from righteousness’)
The use of the *rafe* sign is likewise extended in some Palestinian manuscripts analogously to its extension in Non-Standard Tiberian manuscripts. It is found in particular on consonants following *het* and ‘*ayin* that do not close a syllable, thus contrasting with *dagesh* that marks syllable closure after these consonants as we have just seen, e.g.

*חָמ (T-S A43.1, Revell 1970a, 77 | L [BHS]: שְׁמֵנָּו Exod. 28.34 ‘bell’)*

*חָש (T-S A43.1, Revell 1970a, 77 | L [BHS]: חָשַׁיָּו Isa. 62.1 ‘I will not keep silent’)*

In some Non-Standard Tiberian manuscripts, *dagesh* is added to a letter after a vowel, where a *dagesh* is lacking in the standard Tiberian tradition. This is found predominantly on the weak letters ח, כ, י, ו and the sibilants in word-medial or word-final position, e.g.

*חָּלִּית (T-S A13.20, Blapp 2018, 144 | L [BHS]: חָּלִּיתוֹ Psa. 68.25 ‘your processions’)*

*חָּלִּית (T-S A13.20, Blapp 2018, 144 | L [BHS]: חָּלִּיתוֹ Psa. 68.22 ‘he will shatter’)*

*חָּלִּית (T-S A13.20, Blapp 2018, 144 | L [BHS]: חָּלִּיתוֹ Psa. 70.6 ‘poor’)*
These letters exhibit features of weakness in the standard Tiberian tradition, such as the loss of dagesh when they have shewa (§I.2.5.2.). It is likely, therefore, that the dagesh that is added to them in these contexts after open syllables was primarily intended as an orthoepic measure to guard against their weak articulation and to ensure that they were pronounced distinctly.

Another consonant that is sometimes marked with dagesh after a vowel in such manuscripts is tet, e.g.

Those letters exhibit features of weakness in the standard Tiberian tradition, such as the loss of dagesh when they have shewa (§I.2.5.2.). It is likely, therefore, that the dagesh that is added to them in these contexts after open syllables was primarily intended as an orthoepic measure to guard against their weak articulation and to ensure that they were pronounced distinctly.

Another consonant that is sometimes marked with dagesh after a vowel in such manuscripts is tet, e.g.

The manuscript T-S A13.20, where Blapp has identified many examples of this feature, also exhibits the marking of dagesh on word-initial consonants that do not usually take word-initial dagesh in Non-Standard Tiberian manuscripts, such as het, vav and yod: 

ךָ יׁ֑ שֶׁ קְ ב  מְ (T-S A13.20, Blapp 2018, 144 | L [BHS]: מ_requests to Psa. 70.5 ‘those who seek you’)

אָשִּׁ֑יב (T-S A13.20, Blapp 2018, 144 | L [BHS]: אָשִׁib Psa. 68.23 ‘I will bring back’)

גִֿ֑ד (T-S A13.20, Blapp 2018, 144 | L [BHS]: יִגְדָ Psa. 70.5 ‘he is great’)

כֹֽל (T-S A13.20, Blapp 2018, 144 | L [BHS]: כָל־ Psa. 69.20 ‘all of’)

ֹ֥ ָּם בְד (T-S A13.20, Blapp 2018, 144 | L [BHS]: בְָ֫דָל֥ם Psa. 68.24 ‘in blood’)

The manuscript T-S A13.20, where Blapp has identified many examples of this feature, also exhibits the marking of dagesh on word-initial consonants that do not usually take word-initial dagesh in Non-Standard Tiberian manuscripts, such as het, vav and yod:
There are numerous Non-Standard Tiberian manuscripts with the extended use of *dagesh* in the Genizah, which are datable to the Masoretic period or shortly after, i.e. tenth–thirteenth centuries (Díez Macho 1963; Blapp 2017, 2018). Arrant (2020) has shown that many of these manuscripts were written in a monumental format with three columns similar to the model Tiberian manuscripts. This suggests that the marking of *dagesh* in such manuscripts reflected a living reading tradition in the Middle East at the time when such manuscripts were written.46

Manuscripts with Non-Standard Tiberian extended *dagesh* were widely distributed in medieval Ashkenaz. Yequiti’el ha-Naqdan, who was writing in medieval Ashkenaz in the second half of the thirteenth century, is aware of the existence of such manuscripts. He and readers in his community, however, thought that the *dagesh* was a *dagesh lene* and so, understandably, the *dagesh* had no phonetic realization in consonants that did not

46 Some medieval Arabic sources report marginal cases of *tashdīd* (i.e. gemination) of consonants at the beginning of syllables in the recitation of the Qur‘ān, e.g. *yakhṭīf* ‘it takes away’ (Q 2.20) (ed. Bergsträsser, 1934, 3). This would, presumably, reflect a similar orthoepic measure to ensure clear syllable division.
belong to the בגדכפת group. This is expressed in the following passage from his ‘En ha-Qore (ed. Yarqoni 1985, 105):

‘Now you should understand that the letters בגדכפת with dagesh are heard in all words (marked with them). Their being pronounced with dagesh or rafe is known in the language and fixed in the mouth, in the place of articulation, whether it be dagesh forte or dagesh lene. But as for the letters והטנספש, the dagesh lene is not heard in them in most places … most people of our land do not know how to pronounce the dagesh lene that occurs in these letters.’

Yequti’el then gives a number of examples of dagesh lene in the letters והטנספש both after guttural letters, e.g._beta, and after non-guttural letters, e.g. בפש (Yarqoni 1985, 107). Although the tradition of marking this dagesh continued in medieval Ashkenaz, Yequti’el’s remarks indicate that the reading of the dagesh as dagesh forte had largely fallen into oblivion. He qualifies his remarks with the phrase ‘in most places … most people of our land’, which may indicate that he was aware of some vestiges of the type of pronunciation that was originally reflected by the extended dagesh of the Non-Standard Tiberian vocalization. Indeed a statement by David Qimhi, writing in southern France at roughly the same period as Yequti’el, could...

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47 נשמעים בכל מלה בדגש ודיגושם ורפיונם ניכר בלשון ... ורוב אנשי ארצנו לא ידעו להשמיע את הדגש ההקל באותיות האלה.
Dagesh and Rafe

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be interpreted as indicating that there were still memories of this
original pronunciation. In his Mikhlol he states:
‘Whenever mobile shewa is followed by one of the letters

‫בגדכפת‬, the letter from the ‫( בגדכפת‬letters) is soft … The
same applies to the other letters with regard to their
strength and lightness, for example in ‫‘ ָּל ָּמה‬why’ the

reading of the lamed is strong and in ‫‘ וְ ָּל ָּמה‬and why?’ the

reading of the lamed is light because of the mobile shewa
in it. In ‫ל־ה ִּאיש‬
ָּ ָ֠ ‫‘ ָּש ַּ֣אֹול ָּ ֹֽשא‬the man questioned us carefully’

(Gen. 43.7) the reading of the shin is strong; in ‫‘ וְ ָּ ֹּ֥שאל ַ֛לֹו‬and
he shall ask for him’ (Num. 27.21) the reading of the shin
is light. In ‫(‘ נָּ ְפ ֹּ֥לּו ָּפ ֶׁנֹֽיָך‬why) has your countenance fallen?’

(Gen. 4.6) the reading of the nun is strong; in ‫וְ נָּ ְפ ֖לּו וְ לא־יָּ ֹּ֥קּומּו‬
‫‘ ֹֽעֹוד‬they will fall and not rise again’ (Amos 8.14) the reading of the nun is light. Likewise, the other letters (are read)
in this way, except for yod, which is always light unless it
has dagesh.’48

In this passage, Qimḥi refers to strong and weak variants of
consonants. He states that this variation is found not only in the
consonants ‫בגדכפת‬, but also in other consonants. The distribution
of the variation in the other consonants is the same as is found
with the ‫ בגדכפת‬consonants, i.e. the weak variant occurs after a
vowel. This appears, therefore, to be an allusion to the type of
48

Ed. Rittenberg (1862, 140a): ‫כל שו׳׳א נע וסמוך לה אחת מאותיות בג׳׳ד כפ׳׳ת‬

‫ וכן בשאר האותיות כפי חזקתם וכפי קלותם‬... ‫האות ההיא אשר הוא מבג׳׳ד כפ׳׳ת תרפה‬
,‫ול ָּמה קריאת הלמ׳׳ד קלה מפני שו׳׳א הנע אשר עליה‬
ָּ ,‫כמו ָּל ָּמה קריאת הלמ׳׳ד חזקה‬
‫ נָּ ְפלּו פניך קריאת‬,‫ָּשאל שאל האיש קריאת השי׳ ׳ן חזקה וְ ָּשאל לו קריאת השי׳׳ן קלה‬
‫ וְ נָּ ְפלּו ולא יקומו עוד קריאת הנו׳׳ן קלה וכן שאר האותיות על זו הדרך זולתי‬,‫הנו׳׳ן חזקה‬
‫היו׳׳ד שהיא קלה לעולם זולתי אם תדגש‬.


pronunciation that is reflected by the extended *dagesh* of Non-Standard Tiberian vocalization, although Qimḥi does not refer to the marking of the *dagesh* sign on the strong variant of the consonants outside the בגדכפת group. His remark at the end of the passage that *yod* does not have strong and weak variants in the same way as the other consonants ‘unless it has *dagesh*’ can also be correlated to the type of pronunciation reflected by Non-Standard Tiberian vocalization. In manuscripts exhibiting this type of vocalization *yod* often lacks *dagesh* in word-initial or post-consonant position and takes *dagesh* only where this occurs in the standard Tiberian vocalization. In this passage, therefore, we may have evidence that features of the extended *dagesh* type of Non-Standard Tiberian pronunciation survived in Ashkenaz and were applied to biblical manuscripts with standard Tiberian vocalization. It should be noted, however, that Qimḥi makes a distinction between *dagesh lene* (דגש קל) and *dagesh forte* (דגש חזק) in the בגדכפת consonants and does not identify the fortition of the other consonants in word-initial position with the gemination of *dagesh forte*.

As alluded to by Yequtiel ha-Naqdan, the type of pronunciation that made a distinction in pronunciation between consonants outside the בגדכפת group after a vowelless consonant or word-initial position was not widely followed in medieval Ashkenaz. Yequtiel describes a reading tradition in which there was a general tendency to weaken *dagesh forte*, especially when the letter had *shewa* (Yarqoni 1985, 113). There is evidence from

49 Cf. Morag’s (1959, 220) description of the distribution of *dagesh* in Codex Reuchlinianus.
transcriptions of Hebrew into Latin script in medieval France that letters with *dagesh forte*, according to the standard Tiberian vocalization, were not pronounced geminated (Gumpertz 1953, 5; Yarqoni 1985, 108–11). The marking of *dagesh forte* is, moreover, frequently omitted in medieval Ashkenazi prayer-books (Eldar 1978, 115–22), and is completely lost in modern Ashkenazi reading traditions (Glinert 2013, 192). This general weakening of gemination in Ashkenaz that had begun already in the Middle Ages would have eliminated the gemination that was distinctive of the extended Tiberian pronunciation tradition.
I.4. REFLECTIONS OF THE IMPERFECT LEARNING OF THE TIBERIAN PRONUNCIATION IN THE MIDDLE AGES

I.4.1. PRELIMINARY REMARKS

The Tiberian pronunciation was highly prestigious when it was a living oral tradition (§I.0.9.). For this reason, many readers strove to adopt it in their reading of the Bible and orthoepic measures were taken to ensure that it was pronounced correctly and distinctly. The fact that the Tiberian pronunciation was the ideal target of readers of the Bible is reflected by the fact that many manuscripts pointed with Babylonian and Palestinian vowel signs display a tendency to convergence with the Tiberian tradition.

Although the prestigious Tiberian pronunciation tradition was the ideal target, many readers fell short of achieving this target due to imperfect learning and interference from other reading traditions and vernacular languages.¹ This is reflected by the fact that manuscripts with Babylonian and Palestinian systems of vocalization that were adapted to the Tiberian tradition rarely exhibit complete convergence. Even those of a manuscript such as I Firkovtich Evr. I B 3 (Codex Babylonicus

Petropolitanus), which appears to represent the Tiberian tradition very closely, exhibits some differences from the tradition of the inner circle of the Tiberian Masoretic school (§I.2.5.8.).

The various Non-Standard Tiberian manuscripts that have come down to us from the Middle Ages exhibit some developed orthoepic features of the Tiberian tradition, such as the extended use of dagesh, but in many cases their vocalization reflects a reading that falls short of the Tiberian model.

The Karaite transcriptions into Arabic script exhibit readings of various degrees of closeness to the Tiberian tradition. Most are very close, whereas a few reflect a reading that falls short of the Tiberian ideal due to imperfect learning and interference. The transcriptions are particularly important for our understanding of the processes at work that resulted in such a failure to reach the ideal target. The discussion in this chapter, therefore, will be based to a large extent on the evidence from the transcriptions.

The failure to achieve the target is due to imperfect learning and the impact of the phonology of a substrate on the production of the reading. The key process involves the matching of phonetic sounds in the Tiberian target pronunciation with phonemic prototypes in the substrate rather than learning the Tiberian phonemic prototypes and matching the phonetic sounds with these. This can lead to a distribution of sounds that does not correspond to that of the Tiberian target. Such a suboptimal outcome can be classified into two types. (i) The distribution of sounds may correspond to that of the substrate. (ii) The distribution of sounds may correspond neither to that of the substrate
nor to that of Tiberian target. In the latter case, the resulting type of pronunciation can be said to be a ‘hypercorrection’.

I.4.2. CONSONANTS

The main case study concerning the interference of a substrate in the achievement of a Tiberian target in the reading of consonants is the pronunciation of the interdental consonants.

In most of the Sefardi reading traditions of the Levant and North Africa that have continued down to modern times the letters tav and dalet are pronounced as stops in all contexts. They are not pronounced as interdents where the Tiberian tradition had fricative tav [θ] or fricative dalet [ð], e.g.

Aleppo

\textit{,kêvrat ʔeˌrøs} (Katz 1981, 9 | L [BHS]: נברה ארי Gen. 49.19 ‘some distance’)

\textit{’gad ge’dud} (Katz 1981, 8 | L [BHS]: גד גד Gen. 49.19 ‘Gad, a troop … ’)

Jerba

\textit{weˌhəthal’leˑx} (Katz 1977, 17 | L [BHS]: וחנה הלך Exod. 21.19 ‘and he walks about’)

\textit{jaˈa’bod} (Katz 1977, 18 | L [BHS]: יאבד Exod. 21.2 ‘he will work’)

Morocco

tihuˈmut (Akun 2010, 46 | L [BHS]: תְה מ ֶ֖ת Exod. 15.8 ‘depths’)

miˈyad (Akun 2010, 36 | L [BHS]: יָד Exod. 14.30 ‘from the hand of (cstr.)’)

The Sefardi reading traditions had their origin in the Palestinian reading tradition of Hebrew. This phenomenon, however, was not an original feature of the Palestinian reading tradition, but rather it appears to be the result of interference from the Arabic dialects spoken by the Jews of the regions in question, in which stops have replaced the interdental consonants. In regions where the Arabic dialects of the Jews preserved the interdents, these consonants were generally preserved also in the local Sefardi reading traditions of Hebrew.

In some medieval Karaite transcriptions, there is evidence that readers sometimes pronounced tav and dalet as stops where interdental realizations would be expected. This is seen particularly clearly in the case of the transcription of tav, since the stop and fricative realizations are distinguished by different Arabic diacritics (i.e. ت vs. ث), whereas the occurrence of an Arabic د without

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4 This is seen, for example, in the reading traditions of the Jews of Yemen (Morag 1963, 41–42) and of the Jews of Baghdad (Morag 1977, 5)
out a diacritic in a manuscript of a transcription could, in principle, be the result of the scribal omission of the diacritic from the letter *dhāl* and need not necessarily be interpreted as a *dāl*.

One manuscript of interest in this respect is BL Or 2551, fols. 31-101, which is an Arabic transcription of Psalms accompanied by an Arabic commentary. Where fricative *tav* occurs in the Tiberian tradition, this manuscript generally has the Arabic letter interdental *thāʾ*, e.g.

(BL Or 2551 fol. 31r, 3 | L [BHS]: יהושע Psa. 78.49 ‘sending of’)

(BL Or 2551 fol. 31v, 10 | L [BHS]: מַמְנוֹת Psa. 78.50 ‘from death’)

(BL Or 2551 fol. 32r, 6 | L [BHS]: ראש Psa. 78.51 ‘beginning’)

(BL Or 2551 fol. 32v, 13 | L [BHS]: קָנָה Psa. 78.54 ‘(it f.) acquired’)

On several occasions, however, it has Arabic *tāʾ* where the Tiberian pronunciation has a fricative *tav*, reflecting the pronunciation of the consonant as a stop, e.g.

(BL Or 2551 fol. 34v, 3 | L [BHS]: התעמר Psa. 78.62 ‘he was angry’)

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*The Tiberian Pronunciation Tradition of Biblical Hebrew*
In some cases the vocalizer adds a *rafe* sign over the *tāʾ*:

\[(BL \ Or \ 2551 \ fol. \ 36v, \ 9 \ | \ L \ [BHS]: \text{כתמ} \ Psa. \ 78.72 \text{‘according to the integrity’})\]

\[(BL \ Or \ 2551 \ fol. \ 36v, \ 9 \ | \ L \ [BHS]: \text{ובתננות} \ Psa. \ 78.72 \text{‘and with the skilfulness of’})\]

\[(BL \ Or \ 2551 \ fol. \ 34v, \ 6 \ | \ L \ [BHS]: \text{ובתנהנות} \ Psa. \ 78.63 \text{‘and its maidens’})\]

\[(BL \ Or \ 2551 \ fol. \ 55r, \ 2 \ | \ L \ [BHS]: \text{כתנбот} \ Psa. \ 87.6 \text{‘when writing’})\]

The fact that in many places the manuscript has *thāʾ* where expected in the Tiberian tradition shows that the reading that it represents is not a type of Sefardi reading without any interdental consonants such as those discussed above. It appears to be an attempt at reading with a Tiberian pronunciation. The reader was successful in achieving the correct pronunciation of fricative *tav* in many places, but in several cases interference from a substrate resulted in this being read incorrectly as a stop. The *rafe* sign written over *tāʾ* in some cases reflects the reader’s Tiberian target, which was not achieved.

It is significant to note that in this manuscript transcriptions of Tiberian fricative *tav* with the Arabic stop *tāʾ* are much
more common in the Hebrew words that are embedded within the Arabic commentary. None of these is marked with the *rafe* sign, e.g.

\[
\text{مشلحت} \quad \text{(BL Or 2551 fol. 31v, 7 | L [BHS]: \text{משלחת} \text{ commentary on Psa. 78.49 ‘sending of’})}
\]

\[
\text{ناتيب} \quad \text{(BL Or 2551 fol. 31v, 12 | L [BHS]: \text{נתיב} \text{ commentary on Psa. 78.50 ‘a path’})}
\]

\[
\text{لا تاسور} \quad \text{(BL Or 2551 fol. 31r, 13 | L [BHS]: \text{לא תסורה} \text{ Deut 17.11 in the commentary on Psa. 78.50 ‘you shall not decline’})}
\]

The isolated Hebrew words within the commentary evidently reflect a less learned type of reading than the reading of the biblical text itself. Less effort was made to achieve the prestigious Tiberian target.

The ultimate origin of this elimination of interdentals in the Hebrew reading is likely to have been the lack of interdentals in the vernacular Arabic speech of the reader, as is the case with the modern Sefardi traditions without interdentals. There is, indeed, evidence from inscriptions and papyri that interdental consonants were lost in some Arabic dialects as early as the beginning of the eighth century C.E. (first century A.H.).

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5 See Hopkins (1984, 33–36). To the material cited by Hopkins can be added the inscription no. 15 in Combe, Sauvaget and Wiet eds. (1931-
A possible way of explaining the suboptimal distribution of stops and interdentals in the manuscript is the model proposed by Blevins (2017) for phonological processes that take place in language contact situations. In the spoken vernacular of the reader, there was not an unvoiced interdental phoneme /θ/ but only a stop phoneme /t/ or, more likely, /tʰ/, i.e. an aspirated unvoiced stop. This had only stops as its phonetic realization, i.e. [tʰ] and most likely also deaspirated [t]. When the reader heard in the Tiberian pronunciation the interdental phonetic tokens [θ], these were perceptually matched to the stop /tʰ/ prototype phoneme of the reader’s vernacular. This matching brought about a ‘perceptual magnet effect’, to use Blevins’ metaphor, whereby the interdental tokens of Tiberian were perceived as being like the stop tokens of the prototype in the native vernacular. As a result of this lack of perception, or at least difficulties of perception, of phonetic difference, the two tokens were confused. The ultimate result of such a process would be the pulling of the interdental into a change that would level its difference from the token of the prototype in the vernacular, i.e. a stop. In the attempted pronunciation reflected by the manuscript, however, the reader still had some knowledge, if imperfect, of the Tiberian distribution of interdentals and a desire to implement it, at least in the learned reading of the biblical text section. This has prevented a complete levelling of the distinction between interdentals and stops.

1991). The main evidence in these sources is the occurrence of the pointing of Arabic tāʾ where thāʾ is expected.
Another manuscript of a Karaite transcription, BL Or 2552 fols. 90-141, in most cases has an Arabic tāʾ where a fricative tav occurs in the Tiberian tradition, e.g.

כּ י־מ וֹת נָמָוָת (BL Or 2552 fol. 90v, 2 | L [BHS]: נָמָוָת
נָמָוָת 2 Sam. 14.14 ‘because we have to die’)

קֶהָלָת (BL Or 2552 fol. 90v, 3 | L [BHS]: קֶהָלָת Ecc. 1.1
‘preacher’)

קְוַחַי (BL Or 2552 fol. 92v, 2 | L [BHS]: קְוַחַי Ecc. 1.3
‘profit’)

A Tiberian fricative tav is represented by Arabic thāʾ only in a few cases, e.g.

רָאִיתְי (BL Or 2552 fol. 106v, 3 | L [BHS]: רָאִיתְי Ecc 4.15 ‘I saw’)

נַחֲלָתָנוּ (BL Or 2552 fol. 133v, 1 | L [BHS]: נַחֲלָתָנוּ Lam. 5.2
‘our inheritance’)

יְתֹומ ְיָם (BL Or 2552 fol. 133v, 11 | L [BHS]: יְתֹומ ְיָם Lam. 5.3
‘orphans’)

This indicates that the reader was making some attempt at the prestigious Tiberian pronunciation. The process of levelling of vernacular and Tiberian phonetic tokens had, however, progressed further than in BL Or 2551, fols. 31-101. This would have
involved, presumably, a lesser degree of ability to perceive differences between the tokens and a lesser degree of knowledge of the correct distribution of tokens in the Tiberian pronunciation. A further reflection of this in the manuscript is the occurrence of an Arabic \(\text{thāʾ} \) where there was a stop in the correct Tiberian reading:

\[ \text{ال ترشاش} \quad (\text{BL Or 2552 fol. 113v, 2 | L [BHS]}: \text{אַל־ת רְשַע} \text{Ecc. 7.17 ‘do not be wicked!’}) \]

This can be regarded as a hypercorrection, whereby the reader strives to achieve the prestigious Tiberian reading by using an interdental token, but this is used incorrectly where the stop token should have occurred, resulting in a distribution of tokens that corresponds neither to that of Tiberian pronunciation nor to that of the vernacular substrate.

Another type of phenomenon that may be interpreted as the result of imperfect learning of the Tiberian tradition is attested in the following transcriptions. In some manuscripts, the \(\text{tav} \) in the words \(\text{אַתְִ} \) ‘you (fs)’ and \(\text{ב ת ים} \) ‘houses’ is transcribed by a fricative \(\text{thāʾ} \), e.g.

\[ \text{אַת} \quad (\text{BL Or 2544, fol. 14v, 2 | L [BHS]}: \text{אַ תְִ} \text{Gen. 24.60 ‘you (fs)})} \]

\[ \text{ב ת יהֶֶ֖ם} \quad (\text{BL Or 2549, fol. 34v, 1 | L [BHS]}: \text{ב ת יהֶֶ֖ם} \text{Jer. 5.25 ‘their houses’}) \]

Elsewhere in these manuscripts, the stop and fricative realization of \(\text{tav} \) are transcribed with their correct Tiberian
distribution. The *tav* in these two words in Tiberian pronunciation have the anomalous feature of being pronounced as a stop after a vowel although they are not geminated, at least in the conservative *dagesh forte—dagesh lene* stream of the Tiberian reading tradition (§I.2.5.9.3., §I.3.1.12.). The fricative pronunciation that is reflected in these manuscripts may be the result of an analogical levelling that eliminated the anomalous distribution of the ungeminated stop. This would be a natural phonological process, but it reflects imperfect learning of the standard Tiberian tradition.7

I.4.3. VOWELS

I.4.3.1. Interchanges of Signs Reflecting a Substrate of Palestinian Pronunciation

Many biblical manuscripts with Non-Standard Tiberian vocalization exhibit interchanges of *pataḥ* and *qamesh* vowel signs and interchanges of *segol* and *šere* vowel signs. Similar interchanges are found in many biblical texts with Palestinian vocalization.

6 In the more advanced extended *dagesh forte* stream of the Tiberian tradition the *tav* would have been geminated in both words (§I.3.1.11.3.).

7 A parallel to this phenomenon of fricativization of the *tav* by analogy is attested in the Babylonian tradition of Biblical Hebrew, in that one manuscript with Babylonian vocalization has a Babylonian *rafe* sign over the *tav* of the plural form ‘houses: יִבְּתֶּוָּא (BHS יְבַתֶּו הָא Ezek. 26:12 ‘and the houses of’ (Yeivin 1985, 868)).
Different patterns of interchanges are attested across the manuscripts.\(^8\)

These interchanges reflect the fact that the reading tradition of the scribe had only one ‘a’ vowel phoneme and only one ‘e’ vowel phoneme, which was characteristic of the Palestinian reading tradition. This corresponded to the sound system of Jewish Palestinian Aramaic, which, in turn, is likely to have arisen by convergence with the sound system of Greek in Byzantine Palestine.

It is significant to note that non-biblical texts, generally of a liturgical nature, which reflect the Palestinian type of pronunciation, whether expressed in Tiberian or Palestinian vowel signs, sometimes have only one ‘a’ vowel sign and one ‘e’ vowel sign.\(^9\) Such liturgical texts no doubt reflect more directly the Palestinian sound system. The biblical manuscripts that exhibit interchanges of vowels reflect the result of readers attempting to pronounce the text with the prestigious Tiberian pronunciation but failing to achieve the target. The interchanging of written signs in the manuscripts reflects the phenomenon, but we must turn to some Karaite transcriptions to have more insight.

\(^8\) For this phenomenon in Non-Standard Tiberian biblical texts see Morag (1959), Díez Macho (1963), and Blapp (2017). For biblical texts in Palestinian vocalization see Revell (1970a).

\(^9\) For liturgical texts with Tiberian vocalization of this nature see Mishor (2002, 235), Rand and Loeffler (2015, 9) [I thank my colleague Michael Rand for these references] and for texts with Palestinian vocalization see Revell (1970a; 1970b) and Yahalom (1997).
into how the signs were pronounced and the phonological processes that lay behind these interchanges of signs.

I.4.3.2. Evidence for the Phonetic Realization of Interchanged Signs

Of particular interest in this regard is the Karaite transcription in BL Or 2555. This manuscript exhibits an interchange of ẓere and segol signs in syllables where the vowel is long. In the transcription such vowels are represented sometimes by Arabic ʿalif and sometimes by Arabic yāʾ. This can be interpreted as reflecting the fact that the scribe read each of the two vowel signs with two different qualities. These may be reconstructed as [ɛː], which was represented by ʿalif, and [eː], which was represented by yāʾ. Some examples are as follows.

Where Standard Tiberian has segol

(i) Segol sign corresponding to Tiberian segol is represented by ʿalif:

[IPA] (BL Or 2555 fol. 71v, 5 | L [BHS]: יָדַּכָּה Ecc. 7.18 ‘your hand’)

(ii) Ṣere sign corresponding to Tiberian segol is represented by ʿalif:

[IPA] (BL Or 2555 fol. 26r, 12 | L [BHS]: הֶבֶל Ecc. 4.8 ‘vanity’)

(iii) Segol sign corresponding to Tiberian segol is represented by yāʾ:
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[ ViewController:йтесь:] (BL Or 2555 fol. 10r, 5 | L [BHS]: Ecc. 3.11 ‘beautiful’)

(iv) Șere sign corresponding to Tiberian segol is represented by yāʿ:

[ ViewController:יִילַדঞ] (BL Or 2555 fol. 31v, 1 | L [BHS]: Ecc. 4.13 ‘child’)

Where Standard Tiberian has șere

(i) Șere sign corresponding to Tiberian šere is represented by yāʿ:

[ ViewController:יֵלַד ] (BL Or 2555 fol. 81r, 2 | L [BHS]: Ecc. 8.5 ‘he will know’)

(ii) Segol sign corresponding to Tiberian šere is represented by yāʿ:

[ ViewController:הַבְהַמ ] (BL Or 2555 fol. 18r, 1 | L [BHS]: Ecc. 3.21 ‘the beast’)

(iii) Șere sign corresponding to Tiberian šere is represented by ʿalif:

[ ViewController:הַם ] (BL Or 2555 fol. 14v, 2 | L [BHS]: Ecc. 3.18 ‘they’)

(iv) Segol sign corresponding to Tiberian šere is represented by ʿalif:
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كان ['kʰɛːɛn] (BL Or 2555 fol. 14v, 5 | L [BHS]: _IDS Ecc. 3.19 ‘thus’)

This shows that interchanges of vowel signs can reflect a pronunciation with interchanges of vowel qualities that is independent of the interchange of the signs. This situation can be explained by the model used above (§I.4.2.). We may assume that the reader had only one long ‘e’ vowel prototype phoneme in the pronunciation tradition that he was most competent in. We can represent this as /ē/ and assume that it had the phonetic token [eː]. When the reader heard in the target Tiberian pronunciation the phonetic tokens of šere [eː] and long segol [ɛː], both of these were perceptually matched with the prototype /ē/. This matching brought about a ‘perceptual magnet effect’, whereby the [eː] and [ɛː] tokens of Tiberian were perceived as being like the [eː] tokens of the prototype in the source pronunciation. The reader attempted to pronounce the tokens of the Tiberian target pronunciation but had difficulty in distinguishing between them and, moreover, could not match the signs with the phonetic tokens that he pronounced.

I.4.3.3. Interchanges of Signs Reflecting a Substrate of Arabic Vernacular

Several medieval Bible manuscripts vocalized with Tiberian signs exhibit the interchange of segol and pataḥ. The vocalization of some of these manuscripts exhibits a variety of other Non-Standard Tiberian features, such as the extended use of dagesh. This applies, for example, to manuscripts such as the following:
The interchange is sporadically found, however, also in early model manuscripts that have a vocalization that is otherwise standard Tiberian. One such manuscript is II Firkovitch Evr. II B 10 (Yeivin 1980, 23 = L3), which was dedicated in 946 C.E., e.g.

(Ii Firkovitch Evr. II B 10 | L [BHS]: אַרְבֶֶ֖ה Gen. 16.10 ‘I shall multiply’)

There is evidence of this phenomenon even in L. In Deut. 28.11 BHS has the form בְּהַמְתְךִֶָ֖בְהִֶ֖ against בְּהַמְתְךִֶָ֖ה ‘your cattle’ with a pataḥ in place of an expected segol, which occurs elsewhere in this form in L and also in Deut. 28.11 in other early model manuscripts (e.g. S בְּהַמְתְךִי). Golinets (2013, 254–355) has shown that the pataḥ in L was written over an original segol by a second hand after, it seems, the ink of the segol had become faint. It is not clear at what period this second hand made this change, but it reflects the type of segol—pataḥ interchange that is discussed here.

Some Non-Standard Tiberian manuscripts exhibit a tendency to substitute pataḥ for segol specifically in the environment of gutturals, e.g.
As can be seen from other examples cited above, however, the interchange of pataḥ and segol is not restricted to this pattern in many manuscripts.

The Babylonian vocalization system did not have a sign that corresponded to Tiberian segol. The Babylonian sign miftah pumma corresponded to both Tiberian pataḥ and Tiberian segol. In principle, therefore, it may be thought that the interchange of segol and pataḥ was due to a substrate of a Babylonian pronunciation tradition. The manuscripts described above, however, do not exhibit other features of Babylonian pronunciation. It is more likely that the interchange was brought about by the influence of the vernacular language of the vocalizers, which, at the period in question, must have been Arabic. Following the model of explanation used for other interference features, the interchange can be said to have arisen by the process of matching the pataḥ and segol phonetic tokens, i.e. [a], [aː], [α], [αː], [ε] and [εː], with the Arabic prototype phonemes /a/ and /ā/, rather than with the distinct prototypes of pataḥ and segol in Tiberian pronunciation. In modern Arabic vernaculars the Arabic phonemes /a/ and /ā/ have a range of phonetic allophonic realizations that include [æ], [æː], [ε], [εː], [α] and [αː] (Barkat-Defradas 2011b, 2011a). Assuming that this was the case also in the Middle Ages, then this would have facilitated the perceptual matching of the Arabic prototypes /a/ and /ā/ with the tokens of Tiberian pataḥ and segol.
As a result of this imperfect learning of Tiberian prototype phonemes and consequent difficulties of perceiving the differences between them, the phonetic qualities and their graphic representation were confused.

Some Non-Standard Tiberian Bible manuscripts that have the *patah*—*segol* interchange exhibit also interchanges of these vowels with other vowels, resulting in three-way or even four-way interchanges. Some examples of these from the data presented in Arrant (2020) include the following:

*patah*—*segol*—*šere* interchanges:

- לְתַּוִּב שֵׁל (T-S AS 67.133, Arrant 2020 | L [BHS]: לְתַּוִּב שַלְת Deut. 16.7 ‘and you will cook’)
- יָרְאָה (T-S AS 67.133, Arrant 2020 | L [BHS]: יָרְאָה Deut. 16.16 ‘shall appear’)
- יִרְיָה (T-S AS 67.133, Arrant 2020 | L [BHS]: יִרְיָה Deut. 15.9 ‘will be’)

*patah*—*segol*—*qamesh* interchanges:

- כָּאנָה (T-S NS 18.5, Arrant 2020 | L [BHS]: כָּאנָה Num. 14.41 ‘you (pl)’)
- נָאָמָר (T-S NS 18.5, Arrant 2020 | L [BHS]: נָאָמָר Num. 14.41 ‘and he said’)
- נָנָבָג (T-S NS 18.5, Arrant 2020 | L [BHS]: נָנָבָג Num. 14.42 ‘you will [not] be struck down’)

Some examples of these from the data presented in Arrant (2020) include the following:
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*pataḥ—segol—qames—ṣere* interchanges:

פַּתַּח תַעֲנַן (LG B1.56, Arrant 2020 | L [BHS]: תַעֲנַן Gen. 23.10 ‘and he answered’)

שֹׁרֶשׁ שָׁעַר (LG B1.56, Arrant 2020 | L [BHS]: שָׁעַר Gen. 23.10 ‘gate’)

этаж קִזָּּֽן (LG B1.56, Arrant 2020 | L [BHS]: קִזָּּֽן Gen. 24.1 ‘old’)

פסיבב טיב (LG B1.56, Arrant 2020 | L [BHS]: טיב Gen. 23.17 ‘around’)

טבֶּד (LG B1.56, Arrant 2020 | L [BHS]: טבֶּד Gen. 24.2 ‘his slave’)

ליֵח לַעְב (LG B1.56, Arrant 2020 | L [BHS]: לַעְב Gen. 24.11 ‘at the time of’)

תלְעֶה מַרְאֶה (LG B1.56, Arrant 2020 | L [BHS]: מַרְאֶה Gen. 24.16 ‘appearance’)

These three-way and four-way interchanges can also be explained as being due to the interference of an Arabic vernacular substrate. In such cases, the Arabic prototype phonemes /a/ and /ā/ are matched with the phonetic tokens of not only Tiberian *pataḥ* and *segol* but also with those of *ṣere* and *qames* i.e. [e:], [ɔ] and [ɔː]. Arabic /a/ and /ā/ can be realized with the high allophones [e], [eː] by the process of vowel raising (known as *ʿimāla*) in various modern Arabic dialects and this can be reconstructed for earlier periods (de Jong 2011). This is reflected by some medieval Judaeo-Arabic texts with Tiberian vocalization signs, which represent such raised /a/ and /ā/ vowels by *ṣere* (Khan 2010, 204), e.g.
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ךּ עֲלֵי יַע ב אדַּּ ֹּ[ʕale: fıbe:da k] = Classical Arabic ‘alā ‘ibādak ‘on your servants’ (T-S Ar.8.3, fol. 16v)

וְלִם [walem] = Classical Arabic wa-lam ‘and not’ (T-S Ar.8.3, fol. 22v)

In these medieval vocalized Judaeo-Arabic manuscripts the Tiberian qameṣ sign is generally restricted to the representation of the /a/ vowel in the diphthong /aw/, reflecting, it seems, the partial phonetic assimilation of the vowel to /w/, which resulted in a back open-mid quality close to that of Tiberian qameṣ, i.e. [ɔw] (Khan 2010, 210), e.g.

נ וְבַה [nɔwb] = Classical Arabic nawba ‘accident’ (T-S Ar.8.3 fol. 17r)

This suggests that the range of phonetic allophones of Arabic /a/ included also [ɔ].

The existence of a range of qualities in the phonetic allophones of Arabic /a/ and /ā/ that corresponded to those of the Tiberian vowels pataḥ, segol, šere and qameṣ would have facilitated the matching of the Arabic prototypes with these four phonetic qualities. One may say that the three-way and four-way interchanges reflect a lesser ability to perceive the distinct qualities of the Tiberian vowels than the two-way pataḥ—segol interchange and so a lesser competence in the Tiberian pronunciation.¹⁰

¹⁰ Such a breakdown in the perception of differences in vowel qualities is reflected also in the rhymes of some medieval Hebrew poetry, in which, for example, a syllable with qameṣ can rhyme with a syllable with šere (Rand 2020).
I.4.3.4. Hypercorrect Lengthening of Vowels

In §I.2.8.1.2. it was shown how the duration of long qamesח and segol in word-final position was compressed in dehiq constructions such as

L: וְאִיִּד הָֽם 'I shall cause to witness against them' (Deut. 31.28)

L: מִיָּאִלְתֵּיָּךְ 'who are these to you?' (Gen. 33.5)

In the Tiberian tradition, however, an effort was made to sustain the duration of these vowels in dehiq to ensure that they were not completely reduced to short vowels, as happened in other reading traditions.

Due to imperfect learning of the Tiberian tradition, this orthoepic measure of sustaining the duration of the word-final vowels qamesח and segol in dehiq was sometimes extended hypercorrectly to historically short qamesח and segol. This is reflected by the Karaite transcription BL Or 2539 MS B (=ff. 115-132), which represents historically short qamesח and segol in unstressed closed syllables with mater lectionis ʾalif. The fact that other historically short vowel qualities in these conditions are not represented by matres lectionis suggests that this phenomenon is related to the orthoepic lengthening of qamesח and segol in dehiq, e.g.

قۖاذۛشۛي (BL Or 2539 MS B, fol. 125r, 15 | L [BHS]: קְדֶשׁ Num. 18.8 ‘the holy gifts of’
This manuscript reflects the hypercorrect lengthening also of *hatef qames*, e.g.

I.4.4. **THE READING OF THE TIBERIAN VOCALIZATION IN THE LATER MIDDLE AGES**

The various phenomena described above arose when the Tiberian pronunciation was still a living tradition. It was familiar to the scribes of the manuscripts, even if imperfectly, and it was regarded as a prestigious target. In the later Middle Ages, after the Tiberian pronunciation had fallen into oblivion, the prestige and authority of the oral Tiberian reading shifted to the written sign system (§ I.0.12.). The Tiberian vocalization of manuscripts was then largely disconnected from the pronunciation of readers. Since there was no longer any attempt at achieving a pronunciation that differed from the local traditions, the Hebrew Bibles came to be read with these local traditions.
### I.5. SUMMARY OF THE TIBERIAN PRONUNCIATION AND SAMPLE TRANSCRIPTIONS OF BIBLICAL PASSAGES

#### I.5.1. SUMMARY OF THE PHONETICS AND PHONOLOGY OF THE CONSONANTS

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<tr>
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</tr>
<tr>
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<td>[pʕ], [ppʕ]</td>
<td>/pʕ/</td>
<td>This is attested only in יִדְיוֹן ‘his palace’ (Dan. 11.45), where its occurrence is not conditioned by the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>phonetic environment, so it should be identified as a phoneme (§I.1.17.).</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>צ</td>
<td>šade</td>
<td>[sˁ], [zˁ]</td>
<td>/sˁ/</td>
<td>§I.1.18. For the voiced variant see §I.1.7.</td>
</tr>
<tr>
<td>ר</td>
<td>resh</td>
<td>[r̟], [rˁ]</td>
<td>/r/</td>
<td>§I.1.20. The two variant realizations are conditioned by the phonetic environment and so should be identified as allophones.</td>
</tr>
<tr>
<td>ש</td>
<td>sin</td>
<td>[s]</td>
<td>/s/</td>
<td>§I.1.21. This was equivalent in the oral reading tradition to samekh (§I.1.15.). The distinction in orthography is an archaism (§I.0.8.).</td>
</tr>
<tr>
<td>ש</td>
<td>shin</td>
<td>[ʃ]</td>
<td>/ʃ/</td>
<td>§I.1.22.</td>
</tr>
<tr>
<td>ת</td>
<td>tav (dagesh)</td>
<td>[tʰ], [ttʰ]</td>
<td>/tʰ/</td>
<td>§I.1.23., §I.1.25., §I.3.1.11.3.</td>
</tr>
<tr>
<td>ת</td>
<td>tav (rafe)</td>
<td>[θ]</td>
<td>/θ/</td>
<td>§I.1.23., §I.1.25.</td>
</tr>
</tbody>
</table>
### Summary and Sample Transcriptions

#### I.5.2. Summary of the Phonetics and Phonology of the Full Vowel Signs

<table>
<thead>
<tr>
<th>Sign (placed on נ)</th>
<th>Name</th>
<th>Phonetic realization</th>
<th>Phoneme</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>נ</td>
<td>pataḥ</td>
<td>[a], [ɑ], [aː], [ɑː] Long in stressed syllables or open unstressed syllables.</td>
<td>/a/</td>
<td>§I.2.1., §I.2.2., §I.2.3.</td>
</tr>
<tr>
<td>נ</td>
<td>qamesḥ</td>
<td>[ɔ], [ɔː] Long in stressed syllables or open unstressed syllables.</td>
<td>(i) /o/ (when realized as short [ɔ]) /5/ (when realized as long [ɔː])</td>
<td>§I.2.1., §I.2.2., §I.2.3.</td>
</tr>
<tr>
<td>נ</td>
<td>segol</td>
<td>[ɛ], [ɛː] Long in stressed syllables or open unstressed syllables.</td>
<td>/ɛ/ /e/ (in the final syllable of certain nominal and verbal forms)</td>
<td>§I.2.1., §I.2.2., §I.2.3.</td>
</tr>
<tr>
<td>נ</td>
<td>šere</td>
<td>[eː]</td>
<td>/e/, /ē/</td>
<td>§I.2.1., §I.2.2., §I.2.3.</td>
</tr>
</tbody>
</table>
### 1.5.3. Summary of the Phonetics and Phonology of Shewa and the Ḥaṭef Signs

<table>
<thead>
<tr>
<th>Sign (placed on ס)</th>
<th>Name</th>
<th>Phonetic realization</th>
<th>Phoneme</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>ס</td>
<td>shewa</td>
<td>Silent shewa: [∅]</td>
<td>/∅/</td>
<td>§1.2.5, §1.2.6.</td>
</tr>
</tbody>
</table>

---

1 Epenthetic vowel, without phonological representation.
Vocalic shewa: [a], [ɔ], [ɛ], [e], [i], [o], [u].

The default realization of vocalic shewa is a short [a].
The other vowel qualities are conditioned by some specific environments, viz.:
(i) Before a guttural consonant (ḥaṭef pataḥ) a vocalic shewa is pronounced as a short vowel with the quality of the vowel after the guttural.
(ii) Before yod, a vocalic shewa is pronounced as a short [i].

<table>
<thead>
<tr>
<th></th>
<th>hatef pataḥ</th>
<th>[a]</th>
<th>/∅/²</th>
<th>§I.2.5.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hatef segol</td>
<td>[ɛ]</td>
<td>/∅/³</td>
<td>§I.2.5., §I.2.7.</td>
</tr>
<tr>
<td></td>
<td>hatef qames</td>
<td>[ɔ]</td>
<td>/∅/⁴ /o/⁵</td>
<td>§I.2.5., §I.2.7.</td>
</tr>
</tbody>
</table>

² Epenthetic vowel, without phonological representation.
³ Epenthetic vowel, without phonological representation.
⁴ When an epenthetic vowel.
⁵ When a lexical vowel.
### I.5.4. Sample Transcriptions of Biblical Passages

Each verse has two versions of transcription, which represent two different sub-traditions of the standard Tiberian reading. The first represents the *dagesh forte*—*dagesh lene* reading, whereas the second represents the extended *dagesh forte* reading (§I.3.1.11.3.). If a verse would have been pronounced the same in both streams of tradition, only one reading is given.

Links are given to audio files of oral performances by Alex Foreman of the Tiberian pronunciation reconstructed for the passages.

#### I.5.4.1. Genesis 1.1-13

**Oral Performances**

<table>
<thead>
<tr>
<th>Dagesh forte—dagesh lene reading without melody (Alex Foreman <a href="https://doi.org/10.11647/OBP.0163.06">https://doi.org/10.11647/OBP.0163.06</a>)</th>
<th><img src="https://example.com" alt="QR Code" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dagesh forte—dagesh lene reading with Sefardi melody (Alex Foreman <a href="https://doi.org/10.11647/OBP.0163.07">https://doi.org/10.11647/OBP.0163.07</a>)</td>
<td><img src="https://example.com" alt="QR Code" /></td>
</tr>
<tr>
<td>Extended dagesh forte reading without melody (Alex Foreman <a href="https://doi.org/10.11647/OBP.0163.08">https://doi.org/10.11647/OBP.0163.08</a>)</td>
<td><img src="https://example.com" alt="QR Code" /></td>
</tr>
<tr>
<td>Extended dagesh forte reading with Sefardi melody (Alex Foreman <a href="https://doi.org/10.11647/OBP.0163.09">https://doi.org/10.11647/OBP.0163.09</a>)</td>
<td><img src="https://example.com" alt="QR Code" /></td>
</tr>
</tbody>
</table>
6 Default realization of vocalic shewa: §I.2.5.1. Insertion of an epenthetic vowel in a closed syllable with a long vowel: §I.2.4.
7 All stressed vowels are lengthened: §I.2.2.1.
8 Default pronunciation of vav is [v]: §I.1.6. Assimilation of a vocalic shewa to the quality of the vowel after a following guttural: §I.2.5.1.
9 Assimilation of a vocalic shewa to the quality of the vowel after a following guttural: §I.2.5.1.
10 Insertion of epenthetic in closed syllable with a long vowel: §I.2.4.
11 Assimilation of a vocalic shewa to the quality of the vowel after a following guttural: §I.2.5.1.
12 Assimilation of a vocalic shewa to the quality of the vowel after a following guttural: §I.2.5.1.
14 Stressed vowels and vowels in open unstressed syllables are lengthened: §I.2.2.1.
The Tiberian Pronunciation Tradition of Biblical Hebrew

The Hebrew text is presented in its natural form with transcription and footnotes. The text includes pronunciation notes and orthographical rules.

**Footnotes:**

15 A geminated yod is pronounced as a voiced palatal stop [j]: §1.1.10.
16 In [va'jhi:] there is orthoepic lengthening of the vowel before two weak consonants in contact: §1.2.10.
17 Word-initial ו is pronounced [wu]: §1.1.6.
ניאמר אלהים כי ר kötü מבית המקוה, ויית מי מברזל בי כלים
לפי:

[va'ʃɔ:mer ʔelo:'hi:im ji'hi: ʔə:'qi:jə ba'θo:ɔχ ham'maq'im vi:'hi: mav'dii:il 'be:en 'ma:jim lo:'maq'im]
[va'ʃɔ:mer ʔelo:'hi:im ji'hi: ʔə:'qi:jə bba'θo:ɔχ ham'maq'im vi:'hi: mav'dii:il 'be:en 'ma:jim lo:'maq'im]

נעש אלהים את הרקיות ובבדל בני人们 בשר מתוח
لل✫ ובי人们 בשר מתוח início הרקיות:


הקרנו אלהים להכותตำים ודריברים ודריברים ודריברים
שנים

[va'ʃiŋ'ɾɔ: ʔelo:'hi:im ,lɔːro:qi:jəʃ ʃɔ:'maq'im ,va'ʃhi:-ʔeːrev ,va'ʃhi:-ˈvoːqɛr ʃoːm ʃeːni:]

ניאמר אלהים כי הفاء מתוח.serial אם אלהים אברך
והראה חבסה ויהיה:

[va'ʃiŋ'ɾɔ: ʔelo:'hi:im ,lɔːro:qi:jəʃ ʃɔ:'maq'im ,va'ʃhi:-ʔeːrev ,va'ʃhi:-ˈvoːqɛr ʃoːm ʃeːni:]
The Tiberian Pronunciation Tradition of Biblical Hebrew


ניקרא אלוהים | לא.assertIn הלמקה הפעמים קרא נמי
ניקרא אלוהים כהים:


יגאמר אלוהים תדשה האנים דרשא משכ מאור ער עני
פורי נשא פריך למונה אשר ורעוב עלאהאנים וויריבך:
Summary and Sample Transcriptions

[vaʃjo:mɐɾ ʔeloːhiːim ʈʰaːdjeː]¹⁸ hoːʔɔɾes ʃ deːʃeː 'ʃeːsev mazʃiʃaʃ ʃeːes pʰaːriː ʔoːse pʰaːriː]²⁰ lamiː'noː ʔaʃʃer zarʃoː⁻¹⁻voː ʃal-hoː'ʃɔɾes ʔaʃjhiː⁻¹'ʃeːn]

[vaʃjo:mɐɾ ʔeloːhiːim ʈʰaːdjeː hoːʔɔɾes ʃ deːʃeː 'ʃeːsev mazʃiʃaʃ ʃeːes pʰaːriː ʔoːse pʰaːriː lamiː'noː ʔaʃʃer zarʃoː⁻¹⁻voː ʃal-hoː'ʃɔɾes ʔaʃjhiː⁻¹'ʃeːn]

18 Orthoepic lengthening of the vowel before two weak consonants in contact: §I.2.10.

19 The pharyngealized alveolar realization of resh [ɾ’] is conditioned by contact with the preceding alveolar: §I.1.20. Pataḥ is pronounced as back [a] in the environment of pharyngealized consonants: §I.2.1.3.

20 Deḥiq involving the compression of the vowel and compensatory gemination of the following consonant: §I.2.8.1.2.

21 The pharyngealized alveolar realization of resh [ɾ’] is conditioned by the fact that it is preceded by an alveolar consonant in the same syllable and/or the same foot: §I.1.20.
I.5.4.2. Psalm 1

Oral Performances

<table>
<thead>
<tr>
<th>Audio Icon</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>🎧</td>
<td>Dagesh forte—dagesh lene reading without melody (Alex Foreman)</td>
<td><a href="https://doi.org/10.11647/OBP.0163.10">https://doi.org/10.11647/OBP.0163.10</a></td>
</tr>
<tr>
<td>🎧</td>
<td>Dagesh forte—dagesh lene reading with Sefardi melody (Alex Foreman)</td>
<td><a href="https://doi.org/10.11647/OBP.0163.11">https://doi.org/10.11647/OBP.0163.11</a></td>
</tr>
<tr>
<td>🎧</td>
<td>Extended dagesh forte reading without melody (Alex Foreman)</td>
<td><a href="https://doi.org/10.11647/OBP.0163.12">https://doi.org/10.11647/OBP.0163.12</a></td>
</tr>
<tr>
<td>🎧</td>
<td>Extended dagesh forte reading with Sefardi melody (Alex Foreman)</td>
<td><a href="https://doi.org/10.11647/OBP.0163.13">https://doi.org/10.11647/OBP.0163.13</a></td>
</tr>
</tbody>
</table>
1. אֲשִֶ֤רִ׀ִל  אִה לַךְִ֮בַעֲצַַ֪תִר ָׁ֫ע  יםִוּבְדֶ רֶךְִִאַ שְָּֽר יֶה א ַ֗ישִ
חַַ֭ט א יםִל  אִע מ ֹ֑דִוּבְמוֹשַ בִל ּ֝צ ַ֗ imsִי ש ָּֽב׃

2. The short vowel in the first syllable is lengthened by a *merkha* to condition the reading of the following *shewa* as vocalic: §I.2.5.8.5. The vocalic *shewa* has *gaʿya*, which causes it to be read as half-long: §I.2.9.

3. וְָּֽה י ַ֗הִכְּע ץִ֮ש תַ֪וּלִעַָּֽל־פַּלְג ָׁ֫יִמ  י םִאֲשִֶ֤רְי וִֹ׀ִי ת ֵ֬ןִבְע תַ֗וִִֹ

22 The short vowel in the first syllable is lengthened by a *merkha* to condition the reading of the following *shewa* as vocalic: §I.2.5.8.5. The vocalic *shewa* has *gaʿya*, which causes it to be read as half-long: §I.2.9.

23 The initial וּ before a consonant with silent *shewa* is normally pronounced [wu] (§I.1.6.), but is here pronounced half-long due to the fact that it has minor *gaʿya*: §I.2.8.2.2.
The shewa is pronounced half-long due to its being read with gaʿya:
§1.2.9.

The vowel in עָלַי is read with minor gaʿya and so is half-long:
§1.2.8.2.2.

The major gaʿya on the long vowel in the open syllable marks secondary stress: §1.2.8.2.1.

The shewa on a resh after the definite article is vocalic (§1.2.5.7.4.), although by default a shewa after a long vowel is silent (§1.2.5.6.).

The first element of the composite accent reviaʿ mugrash does not lengthen the short vowel in the first syllable: §1.2.12.

The ḥaṭef pataḥ is half-long since it has gaʿya: §1.2.9.
כִּיְנָוֹץ יְהוָה עָרָּךְ צְדִיקָם וּהָרָּךְ רִשְׁעָם תַּנְאֵב

[.kʰiː-jo'ʃejaʔ ʔado'nuːc̪eʃ 'dɛʁeχ s'addiː'qim va'dɛʁeχ raʃ͡ɔ'ʃiːim tʰoː'veːeð]

[.kʰiː-jo'ʃejaʔ ʔado'nuːc̪eʃ 'dɛʁeχ s'addiː'qim va'dɛʁeχ raʃ͡ɔ'ʃiːim tʰoː'veːeð]
REFERENCES AND ABBREVIATIONS

ABBREVIATIONS

A = Aleppo Codex

BHQ = Biblia Hebraica Quinta

BHS = Biblia Hebraica Stuttgartensia, 4th ed.

BL = British Library, London

Bod. = Bodleian Library, University of Oxford

C = The Cairo Codex of the Prophets

CUL = Cambridge University Library

JTS ENA = Jewish Theological Seminary, Elkan Nathan Adler collection

L = Codex Leningradensis, St. Petersburg (Leningrad), National Library of Russia, I Firkovitch Evr. I B 19a

LB = Late Babylonian (vocalization)

LG = Lewis-Gibson Genizah collection, Cambridge University Library

NLR = National Library of Russia, St. Petersburg

MB = Middle Babylonian (vocalization)

OB = Old Babylonian (vocalization)

S = Jerusalem National and University Library, Heb. 24, 5702 (formerly MS Sassoon 507)
References and Abbreviations

T-S = Taylor-Schechter Genizah collection, Cambridge University Library

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The Tiberian Pronunciation
Tradition of Biblical Hebrew (Vol. I)

Geoffrey Khan

The form of Biblical Hebrew that is presented in printed editions, with vocalization and accent signs, has its origin in medieval manuscripts of the Bible. The vocalization and accent signs are notation systems that were created in Tiberias in the early Islamic period by scholars known as the Tiberian Masoretes, but the oral tradition they represent has roots in antiquity. The grammatical textbooks and reference grammars of Biblical Hebrew in use today are heirs to centuries of tradition of grammatical works on Biblical Hebrew in Europe. The paradox is that this European tradition of Biblical Hebrew grammar did not have direct access to the way the Tiberian Masoretes were pronouncing Biblical Hebrew.

In the last few decades, research of manuscript sources from the medieval Middle East has made it possible to reconstruct with considerable accuracy the pronunciation of the Tiberian Masoretes, which has come to be known as the ‘Tiberian pronunciation tradition’. This book presents the current state of knowledge of the Tiberian pronunciation tradition of Biblical Hebrew and a full edition of one of the key medieval sources, Hidāyat al-Qāriʾ ‘The Guide for the Reader’, by ʾAbū al-Faraj Hārūn. It is hoped that the book will help to break the mould of current grammatical descriptions of Biblical Hebrew and form a bridge between modern traditions of grammar and the school of the Masoretes of Tiberias.

Links and QR codes in the book allow readers to listen to an oral performance of samples of the reconstructed Tiberian pronunciation by Alex Foreman. This is the first time Biblical Hebrew has been recited with the Tiberian pronunciation for a millennium.

As with all Open Book publications, this entire book is available to read for free on the publisher’s website. Printed and digital editions, together with supplementary digital material, can also be found at www.openbookpublishers.com