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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Geoffrey Khan

The Tiberian Pronunciation Tradition of Biblical Hebrew

Volume I

Geoffrey Khan
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</th>
<th>Sign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pataḥ</td>
<td>פָּתַח</td>
<td>Open, unrounded front [a] or back [α]</td>
</tr>
<tr>
<td>Qames</td>
<td>קָּמֵץ</td>
<td>Back, open-mid rounded [ɔ]</td>
</tr>
<tr>
<td>Segol</td>
<td>סֶגוֹל</td>
<td>Front, open-mid unrounded [ɛ]</td>
</tr>
<tr>
<td>Şere</td>
<td>צֵרֵי</td>
<td>Front, close-mid unrounded [e]</td>
</tr>
<tr>
<td>Hireq</td>
<td>חִירֶק</td>
<td>Front, close, unrounded [i]</td>
</tr>
<tr>
<td>Holem</td>
<td>חוֹלֶם</td>
<td>Back, close-mid rounded [o]</td>
</tr>
<tr>
<td>Shureq</td>
<td>שׁוּרֶק</td>
<td>Back, close, rounded [u]</td>
</tr>
<tr>
<td>Qibbuṣ</td>
<td>קִבּוּץ</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-Qāriʾ* equivalent Arabic feminine participles are used, viz. فاطحة and قامية. 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. דָּרְכִּים תָּנָה וָפָתָה תָּנָה ‘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,\textsuperscript{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{קכ} and \textit{פתך}.\textsuperscript{6}

\textbf{I.2.1.3. More on the Quality of \textit{Patah} and \textit{Qames\'}}

Saadya and \textit{Hid\check{a}yat al-Q\=ari\textsuperscript{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 S\=ina (980–1037 C.E.), that involves both the position of buccal organs and the

\textsuperscript{5} Dotan (2007, 634).

\textsuperscript{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{qames} 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{qames} 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{qames} 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} סטחַאללסאןַמןַאספל, long version, edition in vol. 2 of this book, §II.L.2.15.3.; Eldar (1994, 130).

\textsuperscript{9} קווהה סאירוּאעל סטחַאללסאןַמטנורוויה אלִי אלִספַל (Dotan 1997, 445).

\textsuperscript{10} זומַע שַוֶא אִנֵנָתוּוּ בֵּהֶآ אָלוּלָמטָא וַו פֶצֶלָמטָא חֹרָתָה קָוֹחָלָמטָו וָמאָנָּה וָורָבָה (Eldar (1994, 130).

\textsuperscript{11} זומַע שַוֶא אִנֵנָתוּוּ בֵּהֶآ אָלוּלָמטָא וַו פֶצֶלָמטָא חֹרָתָה (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:

\begin{itemize}
  \item ʿjaːʕaˌbod (Morag 1977, 53 | L [BHS]: יַעֲבֹֹ֑וד Exod. 21.2 ‘he will work’)
  \item šaˈnaː (Morag 1977, 56 | L [BHS]: נָֹּ֑השַָּׁ Gen. 47.28 ‘year’)
\end{itemize}

\textsuperscript{12} For this interpretation see Eldar (1983, 47).
[ɑ] quality:

wajjiˈtɑbˑ (Morag 1977, 54 | L [BHS]: יִטַּב ַיִַּוַַ Esther 1.21 ‘and [the matter] was good’)

ˈbaːʕaˌra (Morag 1977, 56 | L [BHS]: עֲרָָ֥הבַָּּ Esther 1.12 ‘[his anger] burned’)

Aleppo

[a] quality:

jaʕaˈqọːb (Katz 1981, 45 | L [BHS]: יַעֲקֹב Gen. 47.28 ‘Jacob’)

ʃaˈnim (Katz 1981, 45 | L [BHS]: נִִ֔יםשַָּׁ Gen. 47.28 ‘years’)

[a] quality:

lezarˈaˈxa (Katz 1981, 46 | L [BHS]: לְזַרְעֲךַָ֥ Gen. 48.4 ‘to your (ms) seed’)

Jerba

[a] quality:

ˈwenaˈfale (Katz 1977, 82 | L [BHS]: וְנָּפַָ֥ל Exod. 21.18 ‘and he falls’)

joˈmar (Katz 1977, 83 | L [BHS]: יֹאמַר Exod. 21.5 ‘[the slave] will say’)

hiʃˈʃa (Katz 1977, 83 | L [BHS]: הַשַָּּׁאִַ Exod. 21.3 ‘woman’)

[a] quality:

ˈjiqqɑː (Katz 1977, 84 | L [BHS]: יִקְּבִ הֵּ Exod. 21.10 ‘he will take’)

weʃˈʃaˈiḥa (Katz 1977, 75 | L [BHS]: וֶּשַׁאָּﬠַ הֶ Exod. 21.3 ‘[his wife] will leave’)

In the Karaite transcriptions long *pataḥ* and *qames* are generally represented by *mater lectionis ʿalif*, e.g.

[vaɪjɪŋɡɔːˈmaːl] (BL Or 2539 MS A, fol. 63r, 2 | L [BHS]: יבִּגָּמַ֑ל 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 ʿalif 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.

[voʊʔɔːˈsaːaf] (Genizah MS 12, Khan 1990a, 151 | L [BHS]: שַׂאָפוּ (Num. 19.9 ‘and he will gather up’)

[ˌwɔʔoˈhɑːːs] (Genizah MS 12, Khan 1990a, 151 | L [BHS]: שֵׂאַף Num. 19.8 ‘and he will bathe’)

[ʰaːˈhɑːθ] (II Firkovitch Arab.-Evr. 1, Harviainen 1994, 36 | L [BHS]: אַחַת Gen. 4.19 ‘the one’)

[jaɪstɾoːˈʔeːl] (II Firkovitch Arab.-Evr. 1, Harviainen 1994, 36 | L [BHS]: יִשְׁרָאֵל ‘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
\textit{patah} are marked by the Arabic vowel \textit{fatha}, but \textit{fatha} is not marked on syllables with \textit{qames}, e.g.

\begin{itemize}
\item [nəʔaːˈθaːn] (BL Or 2554 fol. 38v, 1 | L [BHS]: נָתַן Cant. 1.12 ‘it gave’)
\item [jəlaːdəθaːχɔː] (BL Or 2554 fol. 87r, 9 | L [BHS]: נְלָדַּתְךָ Cant. 8.5 ‘she gave birth to you’)
\end{itemize}

\subsection*{I.2.1.4. The Quality of \textit{Qames} in Other Traditions}

The medieval Babylonian pronunciation tradition also had a qualitative distinction between open \textit{patah} and rounded \textit{qames}. This is reflected by Babylonian terminology for the vowels, viz. \textit{miftah pumma} (‘opening of the mouth’, which corresponds to the Tiberian term \textit{patah}, and \textit{miqpaš pumma} (‘contraction (i.e., rounding) of the mouth’, which corresponds to the Tiberian term \textit{qames}). The roundedness of Babylonian \textit{qames} and its proximity in the vowel space to \textit{holem} is reflected also by the representation of the vowel with \textit{waw} in medieval Arabic transcriptions written by Muslims in the eastern region of the Islamic world where Babylonian Hebrew pronunciation was used, e.g. al-Bir\=un\=i, \textit{Chronology of Nations} (Khan 2013d): חַמָּה (‘sun’), אָב (‘Av’), בְּתוּלָּה (‘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 \textit{vav} that corresponds to \textit{qames}, e.g. בָּרָך (‘blessed’ (Tiberian בָּרָך).

The roundedness of qameš 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 qameš. 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]: Ps. 119.161 ‘without cause’)

אברים (4Q27 f6–10.12 | L [BHS]: Num. 16.1 ‘and Abiram’)

מים (4Q57 f9ii +11 +12i +52.40 | L [BHS]: Is. 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.

כבישים (1QIsa a 5.3 | L [BHS]: Is. 5.17 ‘sheep’)

בנייכך (1QIsa a 41.16 | L [BHS]: Is. 49.17 ‘your [fs] children’)

כבודה (1QIsa a 18.11 | L [BHS]: Is. 23.7 ‘its former time’)

חש (4Q59 f4–10.2 | L [BHS]: Is. 8.3 ‘Hash’)

צער (1QIsa a 5.17 | L [BHS]: Is. 5.28 ‘like flint’)

¹³ Data supplied by Aaron Hornkohl.
Vowels and Syllable Structure

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.)

Ίωυᾶν (Göttingen Septuagint | L [BHS]: Ἰωάν Gen. 10.2 ‘Javan’)  
Ἰωβέλ (Göttingen Septuagint | L [BHS]: Ἰωβέλ Gen. 4.20 ‘Jabal’)  
Γαυλὼν (Göttingen Septuagint | L [BHS]: Γαυλὼν Deut. 4.43 ‘Golan’)

The exceptional case Ιωυᾶν may be explained as an imitation of the Greek word with a similar meaning, Ἰωάν. 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.)

ουεσοκημ (Ambrosiana Palimpsest | L [BHS]: נַשְׁחָּקֵם Psa. 18.43 ‘and I crush them’)

εμωσημ (Ambrosiana Palimpsest | L [BHS]: מְחָצֵם Psa. 18.39 ‘I strike them’)

σφωθαϊ (Ambrosiana Palimpsest | L [BHS]: שְָפָתֵי Psa. 89.35 ‘my lips’) 

ολδ (Ambrosiana Palimpsest | L [BHS]: דָל Psa. 49.2 ‘(the) world’)

The first two forms most likely reflect an /ɔ/ 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 ɔ occurs corresponding to Tiberian long qames, e.g.

zochor (Jerome, Commentary on Isaiah, ed. Gryson, VIII.23.56 | L [BHS]: זָכָר Isa. 26.14 ‘male’)

chauonim (Jerome, Commentary on Jeremiah, ed. Reiter, 100.21–22 | L [BHS]: כַוָּנִים Jer. 7.18 ‘cakes’)

gob (Jerome, Commentary on Ezekiel, ed. Glorie, V.16.85 | L [BHS]: גֶב Ezek. 16.24 ‘pit’)

bosor (Jerome, Commentary on Isaiah, ed. Gryson, X.14.82–84 | L [BHS]: בָשָר? Isa. 34.6 ‘flesh’)

15 Yuditsky compares σφωθαϊ to forms like בְּשַפְותּוֹ and בָּשַפָּה 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 | L [BHS]: רָאָה Amos 7.7 ‘plumbline’)

hissa (Jerome, *Hebraicae Quaestiones in Libro Geneseos*, ed. de Lagarde et al., 45.1 | L [BHS]: נוֱּ֑֭֫֩שָּׁ֥א Gen. 2.23 ‘woman’)

ethan (Jerome, *Commentary on Jeremiah*, ed. Reiter, 72.14 | L [BHS]: בֱָּ֑֭֫֩דָּ֥ן Jer. 5.15 ‘enduring’)

aiala (Jerome, *Hebraicae Quaestiones in Libro Geneseos*, ed. de Lagarde et al., 70.20 | L [BHS]: נוֱּ֑֭֫֩שָּׁ֥א Gen. 49.21 ‘doe’)

emsa (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Zechariah, III.12, p. 863, line 132 | L [BHS]: נוֱּ֑֭֫֩שָּׁ֥א 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]: הַבֱָּ֑֭֫֩צוּר [lege הַבֱָּ֑֭֫֩צוּר] Zech. 11.2 ‘thick (ms)’)

ciceion (Jerome, *Commentary on the Minor Prophets*, ed. Adriaen, Jonah, IV, p. 414, line 126 | L [BHS]: נוֱּ֑֭֫֩שָּׁ֥א 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,
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.\(^\text{16}\)

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.

מִדְבָּּ֑רָּה (Morag 1963, 100 | L [BHS]: מִדְבָּּ֑רָּה אֲשֶׁר Is. 16.1 ‘in the desert’)

### I.2.1.5. Segol and Şere

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 *şere* 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

\(^{16}\) See §1.1.20 and Ben-Ḥayyim (1946, 194–96), Kutscher (1979, 496–97) and Mishor (1998).
vowel qualities. The vowels pataḥ and segol were pronounced with spread, open lips, whereas there was some degree of closure of the lips in the pronunciation of qames and șere. In a later version of this terminology, segol was referred to as pataḥ qaṭan ‘small pataḥ’ and șere as qames qaṭan ‘small qames’ with Hebrew adjectives qualifying the originally Aramaic term.

The term 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 shewa under the samekh is attested in some early Masoretic treatises. In Hidāyat al-Qāriʾ it has the form סגולה with a feminine ending.

The term șere is from the Aramaic verb צְרָא ‘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. It is not clear

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18 Baer and Strack (1879, §10), Dotan (2007, 634). The attribute 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 qaṭṭīn ‘narrow’ is used to describe the higher front vowels (Posegay 2020). An Arabic version of this terminology is found in the Masoretic treatise Kitāb al-Muşawwitāt (ed. Allony 1963, 140–42): al-qamṣa al-kabīra ‘big qames’ (= qames), al-qamṣa al-ṣaghīra ‘small qames’ (= șere), al-patḥa al-kabīra ‘big pataḥ’ (= pataḥ), al-patḥa al-ṣaghīra ‘small pataḥ’ (= segol).
what the original form of the name ṣere was. The author of
Hidāyat al-Qāriʾ states that it means ‘splitting’ (šāqq) (through the
lips), suggesting that he read it as a participle צָרֵי. In some
manuscripts of Hidāyat al-Qāriʾ, however, it is vocalized צֵרִי. It
is sometimes spelt, moreover, צָרֵי both in Hidāyat al-Qāriʾ and in
Saadya’s work, with mater lections yod after the ṣade, and this is
vocalized צֵירִי in some places. In a Masoretic treatise published
by Allony and Yeivin (1985, 96) it has the form Ɽא. It is likely
that the term is related to the Jewish Babylonian Aramaic word
צִירְיָא ‘split, fissure.’ 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. סגוֹל, צֵירֵַ and eventually also changing the quality of the second
syllable in symbolic representation of the pronunciation of the
vowel, resulting in forms such as סֶגֵל. In some Masoretic treatises and early grammatical texts,
segol and ṣere are referred to by the phrases ‘three dots’ ( שלושת
נקודות, thalāth nuqṭat) and ‘two dots’ (שתי נקודות, nuqṭatāni)

22 E.g. Hidāyat al-Qāriʾ, long version, edition in vol. 2 of this book,
§II.L.2.17.
23 E.g. Hidāyat al-Qāriʾ, long version, edition in vol. 2 of this book,
25 Steiner (2009, 496). For other vocalizations of the vowels see Dotan
(2007, 634).
respectively. This is probably a relic from a period in which only the names pataḥ and qameṣ were in existence.

Hidāyat al-Qāri’ describes the articulation of segol as being on ‘the lower surface of the mouth,’ as is the case with pataḥ, but with ‘contraction of the sides of the mouth’. 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.’ 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’ (פתח קטן) in some Masoretic sources. The result is an open-mid unrounded [ɛ].

In the Karaite transcriptions, long segol is represented by mater lectionis ʾalif, e.g.


29 ימלא מוהה ננבי פמה אלספליימ (Dotan 1997, 445).

30 This interpretation of פתח קטן is in the Yemenite redaction of Hidāyat al-Qāri’ known as the Arabic Mahberet ha-Tījān (J. Derenbourg 1871, 16; Eldar 1994, 123).
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[barz'el] (BL Or 2549 fol. 145r, 4 | L [BHS]: בַּרְזִֶ֔ל
Ezek. 4.3 ‘iron’)

The quality [ɛ] was an allophone of Arabic long /ā/, due to a process known by the medieval grammarians as ʾimāla ‘inclining’, i.e. inclining towards the vowel /ī/.

*Hidāyat al-Qāriʾ* presents the articulation of the vowels ʂere and ḥireq as involving similar gestures. The place of articulation of ʂere 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, ʂere is produced, but if it covers them, ḥireq is produced.³³

The Masoretic term ‘small qameṣ’ (קמץ הקטן) for ʂere would refer to the lesser degree of closure of the lips than in the articulation of qameṣ.

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³¹ מחלַאלצריַוהוַאלאסנאןַבלאַאטבאקַלאנהַישקַבינהאַשקא, long version, edition in vol. 2 of this book, §II.L.2.15.5.


³³קרבַטרףַאללסאןַקליַאסנאנהַלםַיטבקהא (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 חֶרֶק in the manuscript of Saadya’s grammar book. The vocalization as a segolate form חֶרֶק is found in some manuscripts of Hidāyat al-Qāri’ and medieval sources, or חֶרֶק. In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form חֲרַק. The form חֶרֶק 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 Hidāya. The vowel is also referred to in some early sources as ‘one dot’ (נקודהַ אחת, 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 šere and ḥireq are normally represented by Arabic mater lectionis yā’, e.g.

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35 E.g. Hidāyat 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 חָרַק ‘to cut a gap’) referring to the narrow opening of the lips.

The choice of mater lectionis yāʼ to represented the quality [e:] of šere was no doubt due to its being perceived as approximating more closely to the prototypical quality of Arabic /i/ than to that of Arabic /ā/.

I.2.1.7. Ḥolem, Shureq and Qibbuṣ

According to Hidāyat al-Qāri, the meaning of name ḥolem סחֹלֶַ is ‘fullness’ since the vowel ‘fills the mouth’.38 In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form חולם. An alternative name for the vowel in some Masoretic sources is מְלֹאַפוּם 'filling the mouth'. This is presented in opposition to קיבּוּץַפוּם 'contraction of the mouth' (also called קבעּוּץ פנס) which refers in these sources to the /u/ vowel of shureq and qibbuṣ.39 This terminology relates to the smaller rounding of the lips in the production of the shureq quality. A few medieval

38 סח, 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 ḥolem as a segolate חַלֶם or חֵלֶם. Some early sources refer to ḥolem by the description the ‘upper dot’ (ַחֶלֶם, al-nuqta al-fawqāniyya) or similar phrases.

_Hidāyat al-Qāri’_ states that the place of articulation of the ḥolem is the root of the tongue and the ‘place of swallowing’, i.e. the pharynx and that the ‘movement of the vowel (i.e. the airflow in its realization) is across the whole area of the mouth’. According to Saadya’s description, ḥolem 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.

The _Hidāya_ interprets the name shureq as ‘whistling’, because it ‘gathers the lips together’, i.e. the lips are rounded in the position they have when one whistles. The _Hidāya_ 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 without a vowel

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41 Ben Yehuda (1980, vol. 3, 1466-67). The manuscript of Saadya’s grammar book has חַלֶם (Dotan 1997, 447). This vocalization is also found in the Genizah fragment of a Masoretic treatise CUL T-S NS 301.69.


45 חוכתא אֵלֵפֵם זְךַּאָמִּם נְִזַּא חַאֵדִיַּל וַלַּא אַלָּא אַסֶּפֶל (Dotan 1997, 445).

letter).\textsuperscript{47} It occasionally refers to the sign ꝏ, however, by the term \textit{al-zujj} (literally: ‘the arrow-head’).\textsuperscript{48} The term \textit{qibbuṣ} was introduced by Joseph Qimḥi, who categorized them as two separate vowels, the former long and the latter short.\textsuperscript{49}

In some medieval sources, including manuscripts of the \textit{Hidāya}, the name \textit{shureq} is vocalized as a segolate שֶׁרֶק.\textsuperscript{50} In the Masoretic treatise published by Allony and Yeivin (1985, 92) it has the Aramaic form שֶׁרֶק. According to the \textit{Hidāya}, the place of its articulation was ‘the lips (when) gathered together like (for) whistling.’\textsuperscript{51} Likewise, Saadya states that it is pronounced ‘between the teeth and the lips’.\textsuperscript{52}

In the Karaite transcriptions, long \textit{ḥolem} and long \textit{shureq/qibbuṣ} are normally represented by Arabic \textit{mater lectionis wāw}, e.g.

\textsuperscript{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).

\textsuperscript{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 \textit{Treatise on the Shewa} (ed. Levy 1936, ט).


\textsuperscript{50} Dotan (2007, 634).


\textsuperscript{52} לפי Mae בֶּן אלספֶּנֶא וּאלשֶׁפק (Dotan 1997, 447).
Sporadically *mater lectionis* ʾalif represents *holem* in the transcriptions, e.g.

[BHS]: *הַגָּדִֹל* (BL Or 2544 fol. 74v, 2 | L [BHS]: *הַגָּדִֹל* Exod. 3.3 ‘the great’)

[BHS]: *תִ חְיָ֜וּן* (BL Or 2539 MS A, fol. 93v, 5 | L [BHS]: *תִ חְיָ֜וּן* Deut. 8.1 ‘you (mpl) will live’)

Such a transcription could be an attempt to represent the lower quality of *holem* compared to that of *shureq/qibbuṣ* 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,\(^{53}\) which represents *holem* by ʾalif, e.g: *

\[\text{نوُسَابَاَوُع} (\text{نُسَابَاَوُع})\] 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) *șere*, *hireq* and (iii) *shureq/qibbuṣ*, *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 \( u \) (raf\^c ‘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}^c \text{ al-kabir} & \ ‘\big \text{ raf}^c’ = \text{ḥolem} \\
\text{al-raf}^c \text{ al-ʾasghar} & \ ‘\small \text{ raf}^c’ = \text{shureq} \\
\text{al-naṣb} \text{ al-ʾakbar} & \ ‘\big \text{ naṣb}’ = \text{qames} \\
\text{al-naṣb} \text{ al-ʾawsat} & \ ‘\intermediate \text{ naṣb}’ = \text{patan} \\
\text{al-naṣb} \text{ al-ʾasghar} & \ ‘\small \text{ naṣb}’ = \text{segol} \\
\text{al-khafḍ al-ʾasghar} & \ ‘\small \text{ khafḍ}’ = \text{ṣere} \\
\text{al-khafḍ al-ʾakbar} & \ ‘\big \text{ khafḍ}’ = \text{ḥireq}\(^{55}\)
\end{align*}
\]

\( \text{Hidāyat al-Qāri}\) makes a similar classification, using both the names of Arabic case vowels (naṣb, khafḍ, raf\(^c\)) and also the generic names of Arabic vowels (fat\(\h^a\), kasra, ḍamma). The Hebrew vowels pataḥ, segol and qames\(s\), for example, are identified as variant types of fat\(\h^a\), which are termed ‘big fat\(\h^a\)’, ‘medium fat\(\h^a\)’ and ‘small fat\(\h^a\)’ respectively. This does not correspond to Saadya’s classification of degrees of height but rather relates to varying degrees of lip-spreading. The vowel pataḥ was pronounced with the maximal degree of lip-spreading and qames\(s\)....


\(^{55}\) Dotan notes that the terms al-khafḍ al-ʾasghar and al-khafḍ al-ʾakbar 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 'alif, yā' and wāw. Any other qualities of Arabic vowels were variations (furū‘) of these basic qualities, e.g. [ɛ] was termed 'alif mumāla ‘inclining 'alif' (i.e. inclining towards $i$) and [ɑ] or [ɔ] 'alif al-tafkhīm ‘'alif of thickness'.\textsuperscript{57} The three-way classification of Tiberian vowel qualities also corresponds to the three Arabic matres lectionis 'alif, yā' and wāw that are the normal transcription of the vowels of these three categories respectively in the Karaite transcriptions, viz. 'alif = pataḥ, qames, segol, yā' = šere, ḥireq and wāw = shureq/qibbus, ḥolem.

\textit{Hidāyat al-Qārī} correlates these groups of vowels with the Hebrew vowel letters (i) 'alef/he, (ii) yod and (iii) vav when the vowels were pronounced long.\textsuperscript{58} This reflects the theory that long vowels were the result of ‘soft letters’ (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-Qārī}, long version, edition in vol. 2 of this book, §II.L.2.3.–§II.L.2.8.


\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.

Examples:ךְָּ֫לֶ֫ ‘king’, נֶַ֫עַר ‘youth’, חָּכֶָ֫ה ‘wisdom’, הַהֶ֫וּא ‘that’, יַעֲלֶֶַ֫ ‘he goes up’, וּשִׁחֵ ת ‘they have ruined’ (Nah. 2.3), ובֶּרֶכְיִָּׂ֖ה ‘Berechiah’ (1 Chron. 2.24).

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.\(^{60}\) 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 *pataḥ* in words such as שָּׁמַר and זָּכַר ‘indicates the existence of ’*alef*’ (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): העי.
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. רָּבֶַָ֫ and שָּׁמֶַ֫ר should be represented as [dɔːˈvɔːɔʀ̟] and [ʃɔːˈmɑːɑɹ̟] 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)

Qameş

שָּׁרָֹּ֑ה [sɔːˈrɔː] (Gen. 21.7 ‘Sarah’) — מִנְּאוֹרָה (BL Or 2539 MS A, fol. 63r, 1)

נִסִָּׂ֖ה [nisˈɔː] (Gen. 22.1 ‘he tempted’) — נְס (BL Or 2539 MS A, fol. 66r, 7)

הַדָּבָָ֛ר [haddɔːˈvɔːɔɹ̟] (Gen. 21.11 ‘the word’) — הְדִדְבָּר (BL Or 2539 MS A, fol. 63r, 8)

אַבְרָָ־ה֚ם [ʔavʁɔːˈmɔːɔ] (Gen. 21.11 ‘Abraham’) — אַבְרָָ־ה֚ם (BL Or 2539 MS A, fol. 63r, 8)

Mareiymi beṭsefim "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 Yeşira (ed. Lambert 1891, 76–77; 1889, 125).
Patah

[vaˈjaːjas] (Gen. 21.8 ‘and he made’) — [vaˈɟɟaːʕas] (BL Or 2539 MS A, fol. 63r, 3)

hanˈnaːʕɑr̟ (Gen. 21.17 ‘the boy’) — [hanˈnaːʕɑr̟] (BL Or 2539 MS A, fol. 64r, 5)

hamˈmaːjim (Gen. 21.15 ‘the water’) — [hamˈmaːjim] (BL Or 2539 MS A, fol. 64r, 1)

[vaˈjiggoˈmaːl] (Gen. 21.8 ‘and he was weaned’) — [vaˈɟɟɔːˈmaːl] (BL Or 2539 MS A, fol. 63r, 2)

bassaˈvaːχ (Gen. 22.13 ‘in the thicket’) — [bassaˈvaːχ] (BL Or 2539 MS A, fol. 68r, 3)

Segol

hagˈgever (Psa. 52.9 ‘the man’) — [hagˈgever] (BL Or 2551 fol. 9v, 3)

mippˈnecːɔːχ (Isa. 26.17 ‘before you’) — [mippˈnecːɔːχ] (BL Or 2548 fol. 186r, 4)

[miˈʃtʰeː] (Gen. 21.8 ‘feast’) — [miˈʃtʰeː] (BL Or 2539 MS A, fol. 63r, 3)
Vowels and Syllable Structure

బరֵזִל (Ezek. 4.3 ‘iron’) — בַּרְזִל (BL Or 2549 fol. 145r, 4)

אֲבֹתֵיכֶם (Exod. 3.16 ‘your fathers’) — אֲבֹתֵיכֶם (BL Or 2544 fol. 77v, 8)

Sha

וַתֵּשֶׁב (Gen. 21.16 ‘and she sat’) — וַתֵּשֶׁב (BL Or 2539 MS A, fol. 64r, 4)

וְהָגָם (Gen. 21.8 ‘to be weaned’) — וְהָגָם (BL Or 2539 MS A, fol. 63r, 3)

גָּרֵשׁ (Gen. 21.10 ‘cast out!’) — גָּרֵשׁ (BL Or 2539 MS A, fol. 63r, 6)

Hi

וּוְהוֹרִִד (Deut. 21.4 ‘and they will bring down’) — וּוְהוֹרִִד (BL Or 2539 MS A, fol. 105r, 7)

וְהוֹרִִד (Gen. 22.9 ‘and he built’) — וְהוֹרִִד (BL Or 2539 MS A, fol. 67r, 9)

אִם (Gen. 15.4 ‘if’) — אִם (BL Or 2539 MS A, fol. 58r, 4)
מִן (Exod. 2.7 ‘from’) — מִֵ֖ין (BL Or 2540, fol. 6r, 4)

**Ḥolem**

סָנָנָו (Gen. 21.22 ‘his host’) — סָנָנָו (BL Or 2539 MS A, fol. 64v, 9)

הָגָדְו (Exod. 3.3 ‘the great’) — הָגָדְו (BL Or 2544 fol. 74v, 2)

וּמִּגְדָּנִית (Gen. 24.53 ‘precious things’) — וּמִּגְדָּנִית (BL Or 2539 MS A, fol. 76v, 4)

**Shureq/qibbuṣ**

וַיַּק (Gen. 22.19 ‘and they rose up’) — וַיַּק (BL Or 2539 MS A, fol. 68v, 6)

גְּבַוּל (Psa. 78.54 ‘border of’) — גְּבַוּל (BL Or 2551 fol. 32v, 13)

נְאֶּם (Jer. 2.22 ‘utterance of’) — נְאֶּם (BL Or 2549 fol. 3v, 12)

יְרִיחְו (Deut. 4.28 ‘and they (mp) will smell’) — יְרִיחְו (BL Or 2539 MS A, fol. 87v, 4)
I.2.2.3. Open Unstressed Syllables

(marked by shading in the roman phonetic transcription)

Qamesh

Qameš [haggaʃədo:ol] (Exod. 3.3 ‘the great’) — הַֹ֥גָּדִֹׂ֖ול (BL Or 2544 fol. 74v, 2)

יַָּ֥מִָ֥ים [jo:mi:im] (Jer. 31.38 ‘days’) — יָָ֥מִּ֖ים (BL Or 2549 fol. 93v, 8)

בְּעֵינֶּ֣יךְ [be:ʕeːnɛːχɔː] (Gen. 21.12 ‘in your (ms) eyes’) — בֵּּ֥עַּ֥יֵּנָּ֖א (BL Or 2539 MS A, fol. 63v, 2)

Patah

Pataḥ [haːhiː] (Gen. 21.22 ‘that’) — הָּֽהַּּּּּאֹּּּּי (BL Or 2539 MS A, fol. 64v, 8)

כַּחְֶּ֥סֶד [kʰaːˈħɛːsɛd] (Gen. 21.23 ‘like the kindness’) — כִּּּּּּךָּּּּחָּּּּאָּּּּסֶּּּּּדֶּּּּדֶּּּ (BL Or 2539 MS A, fol. 65r, 3)

לַַחַֹ֣דֶ (Neh. 9.1 ‘of the month’) — לַָּוֵּּחָּּדֶּ (BL Or 2556, fol. 52v, 8)
Segol

[beˈħɔːɾɛv] (Num. 14.43 ‘by the sword’) — [bəˈħɔː拉萨] (Genizah MS 1, Khan 1990a, 26)

[vanɛːʕɛˈzɔːv] (Isa. 27.10 ‘forsaken’) — [wənˈɛːʕɛˈzəv] (BL Or 2548 fol. 187r, 12)

[neʃəː] (Num. 15.24 ‘it [f] was done’) — [nəˈɛːʕəʃə] (Genizah MS 1, Khan 1990a, 27)

Ṣere

[ɛːˈleːχ] (Exod. 3.11 ‘I will go’) — [잀이ː히] (BL Or 2540, fol. 9r, 1)

Ḥireq

[mɪˈhuːs] (Deut. 23.11 ‘from outside’) — [mɪˈhuːס] (BL Or 2539 MS A, fol. 113v, 5)

[mɪˈhuːt] (Gen. 14.23 ‘from a thread’) — [mɪˈhʊUt] (BL Or 2539 MS A, fol. 57r, 8)
Holem

[ʔeloːhiːim] (Gen. 21.22 ‘God’) — (BL Or 2539 MS A, fol. 65r, 1)

[ʔɛloːˈhiːim] (Gen. 21.22 ‘God’)

הָּרִַ֣אשֹׁנִִַ֔ית

[ʔɔːɾ̟iːʃoːˈniːθ] (Jer. 25.1 ‘the first’)

וּוַיַּעֲבִ ַד

[vaɟɟaˈviːðuː] (Exod. 1.13 ‘and they made to serve’)

I.2.2.4. Closed Unstressed Syllables

(marked by shading in the roman phonetic transcription)
Qameṣ \(^{61}\)

 kald (BL Or 2539 MS B, fol. 126v, 12)

 kal (BL Or 2548 fol. 32r, 12)

 wāt (BL Or 2539 MS B, fol. 128r, 10)

 Pataḥ

 nihmēt (BL Or 2543 MS A, fol. 8r, 5)

 hazē (BL Or 2543 MS A, fol. 2r, 7)

 Segol

 wulnehē (BL Or 2539 MS A, fol. 65r, 3)

\(^{61}\) The distinction between long and short qameṣ is expressed by the terms qameṣ gadol and qameṣ ḥatef in the works of the early Hebrew grammarians of Spain (Lambert 1889, 124).
Vowels and Syllable Structure

The vowels ḥolem and şere 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. אָמֵבִֶַ֫ [meːˈviː] ‘brings’, הַשּׁ לְחָָ֛֣ן [haʃʃulˈhɔːn] ‘the table’, וֹמְקוֹמֶַ֫ [maq̟oːˈmoː] ‘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).

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/ ḥolem /ō/, ṣere /ē/, long shureq /ū/, long ħireq /i/ (typically written with yod), e.g.

- שָׁתֶָּ֫ה [ʃɔːθɔː] ‘he drank’
- הַעֵדֶַָּ֫ [ʕeːðɔː] ‘community’
- בֵּית [beːθoː] ‘his house’
- קוֹמ [ˈq̟uːmuː] ‘arise!’
- יִירֶָּ֫א [jiːˈr̟ɔː] ‘he fears’

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.

\[\text{עָּמֶַ֫ד} /\text{ʕɔːˈmaːd}/ \text{‘he stood’}\]

\[\text{לָּהֶֶ֫ם} /\text{lɔːˈhɛːm}/ \text{‘to them’}\]

\[\text{מִֶ֫ן} /\text{ˈmiːn}/ \text{‘from’}\]

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 (C\text{\text{-}}\text{V̄}) 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 ḥaṭef qameṣ, e.g. צְרִי [sˁɔˈɾ̟i] ‘balm’, מִידֳַ [dɔˈmiː] ‘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/ [ha:'hu:] סַחַ֫ ה ‘that’

*/jihhēθū/ > /jiheθū/ [ji:'heθu:] שַׁחַ֫ ה ‘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. תִּבָּיַד /habbajiθ/ ‘the house’, לֶ֫אַפ /mippʰ soirée/ ‘from here’, שָׁבָּר /jibber/ ‘he shattered’, or have a long vowel phoneme, e.g. הָ֫עָּם /hɔ̄ʕɔ̄m/ ‘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. עָ֫לְט ‘they go up’, אָ֫ל ‘he brought up’, צָהֳרֵיִם ‘noon’. Here the lengthening is conditioned by metrical factors. This will be discussed below (§I.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. בֶּ֥רֶכְיִָּׂ֖ה [bɛːrɛχˈjɔːhuː] ‘Berechiah’ (1 Chron. 2.24). This also appears to have a metrical motivation (§1.2.6.).

To the category of vowel phonemes that lack a specified length feature we should add also /e/ and /o/. These are represented by the šere and holem 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 šere and holem 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 šere and holem (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. בֶּ֥רֶכְיִָּׂ֖ה [ˈʀ̟ɑːɑ v] ‘much’, and in forms deriving from the *qill and *qull pattern, the vowel is šere and holem respectively, e.g. בֶּ֥לֶַ֫ [ˈleːev] ‘heart’, וּזֶַֹ֫ [ˈʕoːoz] ‘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, šere and holem in verbal forms of the patterns יַ֥יקָּטָל, יִקְּטָל, קָּטַל, יִהְיָּ֫ [pausal form], which would have the phonemes /a/, /e/ and /o/ respectively:
In syllables that do not have the main stress, the vowels /e/ and /o/ are generally realized phonetically as [ɛ] or [ɔ] respectively, which overlap in quality with the phonemes /ɛ/ and /ɔ/, e.g.

/ˈvajjɛrɛd/ [ˈvajjɛrɛd] ‘and he came down’

/ˈqɔðʃɔː/ [ˈqɔðʃɔː] ‘holiness’

/ˈhɔːliː/ ‘sickness’

/ˈqɔðʃiːm/ [ˈqɔðʃiːm] ‘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 ואת object marker/‘with’ (Psa. 47.5, Psa. 60.2, Prov. 3.12) and at least two cases of כל ‘all’ (Psa. 35.10, Prov. 19.7), e.g.  

בֶַ֣ןַיָּאִ יר (Esther 2.5 ‘son of Yair’)  
את אֵרֶם נְהַרְאִים (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-Qāriʿ, long version, edition in vol. 2 of this book, §II.L.3.2.5., §II.L.3.2.6. The sources differ regarding the number of cases of כל 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]: כָּל־מַעְיָּנַ֥י (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.

אֹהָלִָּם [ˌʔoːhəˈliːim] (Gen. 25.27 ‘tents’); cf. singular אֹל /ˈohl/ (see §I.2.6. for further details concerning the underlying form)

הֵעֲלִָּה [ˌheːʕaˈluː] (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] אַהֲוָא,), 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:65

Verbal forms

אַאֲלָל (Ambrosiana Palimpsest | L [BHS]: אֲלָל Psa. 89.35 ‘I will [not] profane’)

וֹוִיְיָהַה (Ambrosiana Palimpsest | L [BHS]: יְיָה Psa. 18.33 ‘and he set’)

65 Data supplied by Ben Kantor.
ουβαρεχ (Ambrosiana Palimpsest | L [BHS]: וברך Psa. 28.9 ‘and bless! (ms)’)

ουκ*σσες (Ambrosiana Palimpsest | L [BHS]: וקוק Psa. 46.10 ‘and [he] shatters’)

ιδαββερ (Ambrosiana Palimpsest | L [BHS]: ידבר Psa. 49.4 ‘[my mouth] will speak’)

ιμαλλετ (Ambrosiana Palimpsest | L [BHS]: וਮלט Psa. 89.49 ‘[he] will rescue’)

εχαζεβ (Ambrosiana Palimpsest | L [BHS]: אכאב Psa. 89.36 ‘[he] will rescue’)

ιαδομ (Ambrosiana Palimpsest | L [BHS]: מידום Psa. 30.13 ‘[it will not] be silent’)

ισροφ (Ambrosiana Palimpsest | L [BHS]: שרוב Psa. 46.10 ‘[he] burns’)

ερδοφ (Ambrosiana Palimpsest | L [BHS]: ורדוף Psa. 18.38 ‘I chase’)

ηζχορ (Ambrosiana Palimpsest | L [BHS]: זזכור Psa. 89.51 ‘remember! (ms)’)

*qill and *quill nominal forms

λεβ (Ambrosiana Palimpsest | L [BHS]: לב Psa. 32.11 ‘heart’)
εμ (Ambrosiana Palimpsest | L [BHS]: שֶּ֛ם Psa. 35.14 ‘mother’)

βαες (Ambrosiana Palimpsest | L [BHS]: שָׁנַּ֛ב Psa. 46.10 ‘with fire’)

οζ (Ambrosiana Palimpsest | L [BHS]: עָֹ֥ז Psa. 30.8 ‘strength’)

λαχολ (Ambrosiana Palimpsest | L [BHS]: וָּלֶּ֥ל Psa. 18.31 ‘for all)

Segolate forms

ιεθερ (Ambrosiana Palimpsest | L [BHS]: יְֵֶ֝֗תֶר Psa. 31.24 ‘remainder/abundance’)

ρεγε (Ambrosiana Palimpsest | L [BHS]: רֵֶּ֨גַע Psa. 30.6 ‘a moment’)

κεσθ (Ambrosiana Palimpsest | L [BHS]: קֶ שֶׁת Psa. 18.35 ‘bow of (cstr.)’)

μενεγד (Ambrosiana Palimpsest | L [BHS]: מִנֶּ ִֽגֶד Psa. 31.23 ‘from before’)

δεφχ (Ambrosiana Palimpsest | L [BHS]: דֶּּ֧֥פֶח Psa. 89.42 ‘(the) way’)

βεχι (Ambrosiana Palimpsest | L [BHS]: בֵֶּ֗כִי Psa. 30.6 ‘weeping’)

βοκρ (Ambrosiana Palimpsest | L [BHS]: בֹּ קֶר Psa. 46.6 ‘morning’)
κορ (Ambrosiana Palimpsest | L [BHS]: ֶרֶ֖ו 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]: הָּאֵל Psa. 18.31 ‘God’)

εκκης (Ambrosiana Palimpsest | L [BHS]: שׁעְִ֝קֵּ Psa. 18.27 ‘crooked’)

κωλ (Ambrosiana Palimpsest | L [BHS]: ַקול 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]: ךְֹ֑תֵל Psa. 32.8 ‘you go’)

ιησηβ (Ambrosiana Palimpsest | L [BHS]: יֵשֵֹׁ֑ב Psa. 9.8 ‘he sits’)

ιδαββηροθ (Ambrosiana Palimpsest | L [BHS]: וּיְדֶַ֫בֵָּר Psa. 35.20 ‘the speak’)

ιαλληλου (Ambrosiana Palimpsest | L [BHS]: יַחַלֵֹ֑ל Psa. 89.32 ‘they violate’)

ιεσμωρου (Ambrosiana Palimpsest | L [BHS]: יִשְׁמֹ ר Psa. 89.32 ‘they (do not) keep’)

This evidence supports the assumption that the ṣere and ḥolem 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 ניחמ ‘he was comforted’ צוּמִח ‘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 צוּמִח, i.e. the forebear of a hypothetical form מצח. 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/ [q̟oː.ol] ‘voice’

דיֶַָ֫/ [jɔː.ɔð] ‘hand’

וּםלָּקֶַ֫/ [lɔː.ˈq̟uː.u m] ‘to rise’

וּ systemd/ [hiʃ.mi.ið] ‘he destroyed’

דיֶַָ֫/ [beː.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. רֶ֫וּש ‘head’ (= Tiberian שׁור), which, according to Ben-Ḥayyim (2000, 67), developed from *rōoš with the first nucleus dissimilating.
The occurrence of this epenthesis appears to reflect a constraint against syllables heavier than two morae. An open syllable with a long vowel (C\(\text{V}\)) 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 (CV\(\text{C}\)) would have three morae. The constraint causes the CV\(\text{C}\) syllable to be broken into two bimoraic syllables on the phonetic level C\(\text{V}\).VC.

The underlying syllable structure of a word such as בֹּק could be represented thus: /q\(\text{ō}\).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 \(\omega = \) prosodic word, \(\sigma = \) syllable, and \(\mu = \) mora:

\[
\begin{array}{c}
  \omega \\
  \sigma \\
  \mu \\
  q \\
\end{array}
\]

/q\(\text{ō}.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.o̞.l], 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 /jɔ̞.ð/, /lɔ̞.qū.m/, /hij.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 ['qoː.o̞.l] 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:

['qoː.o̞.l]

(* .)

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 רֹעַ [ˈɾoː.aː] ‘badness’ (< *ruʿ, root רעש) and מֹחַ [ˈmoːaʔ] ‘marrow’ (< *muḥḥ, root מעש). The constraint against syllables heavier than two morae and the splitting

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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/ [ˈʁoː.aʕ]. 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:

עָּמֶַד /ʕɔ̄.mað/ [ʕɔː.ˈmaː.að]
ליֵַפ /lɔ̄.χɛm/ [ˈlɔː.ˈχɛː.ɛm]
ן /ʔoz/ [ˈʔoː.oz]
לב /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.

מַָּ֣לֵאַמָֹּ֑יִם (Psa. 65.10 ‘full of water’)
וּהֵָ֥בִיאַלָָּ֛נ (Gen. 39.14 ‘he has brought for us’)
תַֹ֣אכַלַלִֶ֔חֶם (Gen. 3.19 ‘you will eat bread’)
וִַ֣יפַתַתִֹ֔אַר (1 Sam. 25.3 ‘beautiful of form’)
Vowels and Syllable Structure

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’)

אָשִָׁ֥יבַל (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’)

ןִינַָּ֣םַיָֹּ֑חַד (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.ˈsˁuː.ʊð ˈsˁɑː.jið].

Likewise, the accent is not retracted from the final syllable when the epenthetic vowel is clearly discernible in the form of a furtive pataḥ, 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 *sere*. Some of this variation reflects the fact that *sere* 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 *sere* 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.

\[
\text{אֵַּ֤לֶךְַלִי ַ (Cant. 4.6 ‘I go’)}
\]

\[
\text{יִוָָּּ֥תֶרַבָּּ הּ (Zech. 13.8 ‘it will be left in it)}
\]

\[
\text{יְכַָ֥חֶשַׁבָּּ הּ (Hos. 9.2 ‘it will fail them’)}
\]

In some cases, there is retraction of an accent on *sere* 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 *sere* remains long (generally indicated by a *gaʿya*), since its length is not dependent on stress, e.g.

\[
\text{אַֹ֣הֵ בַדָֹּ֑עַת (Prov. 12.1 ‘loves knowledge’)}
\]

\[
\text{שָֹׁ֥לֵ ףַחָּ רֶב (Jud. 8.10 ‘drawing a sword’)}
\]
לְמִתַּּּ֤ע בַגוֹי (Isa. 49.7 ‘one abhorred by the nations’)

Retraction even takes place in such forms where the šere occurs before a guttural and has a furtive patah, e.g.

בַּוָֹּקֵ עַַמַ ים (Isa. 63.12 ‘cleaving the waters’)

לְגַע בִּ (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]: הַנּוֹתֵן Psa. 18.48 ‘the one who gives’)

νωσηρ (Ambrosiana Palimpsest | L [BHS]: נֹצֵר Psa. 31.24 ‘preserving’)

ωζηρ (Ambrosiana Palimpsest | L [BHS]: עֹזֵר Psa. 30.11 ‘helper’)

ααφης (Ambrosiana Palimpsest | L [BHS]: הֶחָּפֵץ Psa. 35.27 ‘the one who delights’)

μαλαμμεδ (Ambrosiana Palimpsest | L [BHS]: מְלַמֵד Psa. 18.35 ‘trains (ms)’)

⁶⁸ Data supplied by Ben Kantor.
In the Hexapla, \( \varepsilon \) is the counterpart of Tiberian \( \text{"šere} \) also in verbal forms (§1.2.3.2.). This isolated use of \( \varepsilon \) 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 \( \eta \), representing long ‘e’, as a counterpart of \( \text{"šere} \) in the Tiberian tradition, e.g.

\[
\begin{align*}
\text{αηλ} & \quad \text{(Ambrosiana Palimpsest | L [BHS]: הָּאֵל Psa. 18.31 ‘God’)} \\
\text{εκκης} & \quad \text{(Ambrosiana Palimpsest | L [BHS]: שׁעְִ֝קֵּ Psa. 18.27 ‘crooked”)}
\end{align*}
\]

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 Qur\'ān, when a long vowel occurred in a closed syllable on account of a subsequent geminated consonant, e.g. \( \text{"šābbatun} \) ‘young woman’, \( qūṣṣa \) ‘he was avenged’, the long vowel was pronounced longer than a long vowel in an open syllables.\(^{70}\) The grammarian Ibn Jinnî in his work \( \text{al-Khaṣāʾiš} \) states that this phenomenon arose from the fact that syllables such as \( \text{"šāb} \) 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 \( \eta \) 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 (\(\text{ḥarf al-madd}\)) or ‘soft’ letter (\(\text{ḥarf al-lin}\)), i.e. \(\text{šā (ش)}\) would be analysed as \(\text{šīn + a + quiescent soft ʾalif}\). 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 \(\text{šaa-ab etc.}\),\(^72\) 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 (\(\text{hamza}\)), called by Sibawaihi \(\text{hamza bayna bayna}\) (‘sound between \(\text{hamza}\) and zero’). Although the virtually null articulation of the \(\text{hamza bayna bayna}\) 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 \(\text{hamza bayna bayna}\) 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 *pataḥ*, 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 *pataḥ* is *shureq* or *ḥolem*:

Whenever the accent is on the letter before a *vav*, its pronunciation is light, between the lips, as in רַּ֤וּחַ 'spirit' and נִיחֹּ֨וֹחַ 'soothing'.

Glides before furtive *pataḥ* are mentioned also in a Genizah fragment of a Masoretic treatise:

If one of the letters כ, ח or ט occurs at the end of a word and under the letter before it there is either א or י, then they are separated by יא (i.e. [ja]), as in וְשָּׁמֵעַ 'and he heard', שָּׁמֵחַ 'joyful', פֹרֵחַ 'flourishing', מַשְׁמִיעַ 'causing to hear'. If א is over it, they are separated by וַא (i.e. [wa]), as

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in יְהוֹשע ‘hearing’, נִיחוֹח ‘fragrant’, and it also occurs, cases such as יְהוֹשע ‘Joshua’.

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 רֵוֹחַ thus: [ˈɾ̟w̃aw̃ ]. A word with a hireq or šere before furtive pataḥ can be represented with a palatal glide thus: שִיח [ˈsi:jah] ‘plant’.

In most modern reading traditions in Arabic-speaking Jewish communities the glide before the furtive pataḥ is geminated (Morag 1952), e.g.

Baghdad

jeso'hejjah (Morag 1977, 55 | L [BHS]: יִשְׂחָק Isa. 53.8 ‘[who] considers …?’)

'ruwwah (Morag 1977, 55 | L [BHS]: רָח Ecc. 11.4 ‘spirit’)

Jerba

ha'rejjaʕ (Katz 1977, 87 | L [BHS]: הַּרֵח Isa. 1.16 ‘doing evil’)

'ruwwah (Katz 1977, 87 | L [BHS]: רָח Deut. 34.9 ‘spirit of’)

In some traditions, the gemination of the glide alternates with the lack of it, e.g.

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75 CUL T-S NS 301.32: "ואן אספה נבך כלמה תחך מִן חֲתָנוֹ מְמַעְמָה יָאָמא יַאָשֶׁר אָלָדֶיהָ. קֶבֶלּ אָמא אָא אָא וְיִמָּה בַּיֵּם אָא מַחְלִי שֶׁמֶּךָ פֵּרַב מֵעֶמֶת אָאָא וְיִמָּה אָא מַחְלִי שֶׁמֶּךָ. פֶּתֶחֶה בַּיֵּם אָא מַחְלִי שֶׁמֶּךָ נִיחוֹח יְהוֹשע אָא אספה נבך מַחְלִי שֶׁמֶּךָ יְהוֹשע."
Yemen

rejjah ~ reːjah (Morag 1963, 134 | L [BHS]: רֵֹ֑יחַַ Cant. 2.13 ‘france’)

ja DGijjah ~ ja DGiːjah (Morag 1963, 134 | L [BHS]: יַגִָ֥יהַַ Isa. 13.10 ‘[he] will lighten’)

nɞwwah ~ nɞːwaḥ (Morag 1963, 134 | נ ‘Noah’)

ruwwah ~ ruːwaḥ (Morag 1963, 134 | רוה ‘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.

\(\text{רֵֹ֑יחַַ} \) (BL Or 2555 fol. 23r, 1 | L [BHS]: רוח Ecc. 4.4 ‘spirit’)

\(\text{מַגִַּ֤יעַַ} \) (BL Or 2555 fol. 86v, 10 | L [BHS]: מנייס Ecc. 8.14 ‘that which reaches’)

\(\text{וְהַנֹּגֵ עַ} \) (BL Or 2559, fol. 5v, 13 | L [BHS]: ונה ע Lev. 22.4 ‘whoever touches’)

It is attested also in some medieval manuscripts of Rabbinic Hebrew, e.g. הַטִיַּח (Mishnah, Kerim 5.10 ‘the plastering’).

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:

76 Epstein (1950), Morag (1952, 236).
Vowels and Syllable Structure

[Cuu] > [Cuw], e.g. ['ɻuːwah] > ['ɻuwwah]

[Cii] > [Cij], e.g. [mag'giːja] > [mag'gijaf]

The geminated [j] would, according to the normal principles of Tiberian pronunciation be realized as [ʜ], so a more accurate transcription would be [mag'gijaf].

A similar type of gemination of glides is reflected in other contexts in the standard Tiberian vocalization, e.g. אֲדֹמִים (1 Kings 11.17 ‘Edomites’), רְמִיָּּ֜ים (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 מצריים (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.

muwwåb (מְוַּֽב Gen. 19.37 ‘Moab’)

ֹלֶֽעַֽוָּֽמִים (Gen. 1.1 ‘God’)

ruwwi (רוּֽהִּֽי Gen. 6.3 ‘my spirit’)

miyyådåm (מַֽיֵּֽאַדָּֽם Gen. 6.7 ‘from man’)

miyyor (מַֽיֵּֽאוּר Gen. 11.31 ‘from Ur’)

miyyëlåb (מַֽיֵּֽיָּֽלֵֽאַֽב Gen. 49.12 ‘than milk’)

A possible example of the opposite process is the reading by Ben Naftali of the word יִיֶָּרֶה (Exod. 19.13 ‘he will be shot’) as רִֶ֔היִיַָּ without gemination of the second yod, which is reported in
Kitāb al-Khilaf (ed. Lipschütz 1965, יַדְיוֹב). 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

haˈreˑjˈjaʕ (Katz 1977, 87 | L [BHS]: הָּרֵ עַַ, Isa. 1.16 ‘doing evil’)

ˌhoˈfeːjˈjaʕ (Katz 1977, 87 | L [BHS]: הוֹפִ יעַַ, 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.

אַכְנִֹ֑יעַַ (BL Or 2551 fol. 42r, 7 | L [BHS]: עַכְנִיעַַ, Psa. 81.15 ‘I shall subdue’)

הוֹכֵַּ֤חַַ (BL Or 2551 fol. 66r, 3 | L [BHS]: הוֹכֵַּ֤חַַ, Lev. 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

פִּתֵ ח (T-S A11.1, Blapp 2017, 48 | L [BHS]: פִּתֵ ח Job 39.5 ‘he has loosened’)

מוֹכִָ֥ח (T-S A11.1, Blapp 2017, 47 | L [BHS]: מוֹכִָ֥ח Job 40.2 ‘he who reproves’)

מַדּוּע (T-S A12.1, Blapp 2017, 71 | L [BHS]: מַדּוּע Ruth 2.10 ‘why?’)

בִּזְרַ֣וֹע (T-S A13.18, Blapp 2017, 125 | L [BHS]: בִּזְרַ֣וֹע Psa. 89.11 ‘with an arm of’)

European manuscripts

וְלִנְטֹ עַ (Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: וְלִנְטֹ עַ Jer. 18.9 ‘and to plant’)

יַגִָ֥יה (Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: יַגִָ֥יה Isa. 13.10 ‘it (does not) shine’)

פִסִֵׂ֖ח (ASCAMO 57.2 v, Pilocane 2004, 29 | L [BHS]: פִסִֵׂ֖ח 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.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).
Yemen

פוֹחֵחַ (Morag 1963. 128 | פֹֹוֹחֵּּחַ Mishnah, Megillah 4.6, ‘clad in rags (ms)’)

The development of the furtive pataḥ after close ([i:], [u:]) and close-mid ([e:], [o:]) 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: וְרוּ Gen. 1.2 ‘and the spirit of’)

zāru (BHS: זָרוּ Deut. 33.20 ‘arm’)

šū (BHS: שֹׁעַ Gen. 38.2 ‘Shua’)

maz’rī (BHS: מָזְרִיעַ Gen. 1.11 ‘producing seed’)

ʾarqi (BHS: רָקִיעַ Gen. 1.6 ‘expanse’)

The Tiberian Pronunciation Tradition of Biblical Hebrew
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 (ן) in the Tiberian vocalization system was read either as a vowel or as zero. 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.

תְכַסֶָ֥ה [tʰaχasˈseː] ‘you (ms) cover’ (Job 21.26)

מְדַבְּרִַ֣ים [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 qāʾinayn* ‘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* (שֶׁבֶת). 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 מְלָכִים ‘kings’, סִימְנִים ‘signs’, נֻגָּתִים ‘melodies’, תוֹעֲשָׁת ‘movements’ or Arabic terms such as *mulūk* ‘kings’, *naghamāt* ‘melodies’, *muṣawwitāt* ‘sounding forms’, ḥarakāt ‘movements’ and *ʾanḥā* ‘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 shewa.

In the Greek and Latin transcriptions, it is frequently represented as an [e] quality, e.g.\(^81\)

Septuagint

\[\Gamma\epsilon\rho\alpha\rho\alpha (\text{Göttingen Septuagint} \mid L \ [BHS:] \text{גרר \ Gen. 26.1 ‘to Gerar’})\]

\[\text{Netwph} (\text{Göttingen Septuagint} \mid L \ [BHS:] \text{נץפּה \ Ezra 2.22 ‘Netopha’})\]

Origen

\(^79\) See, for example, Crosswhite (2000; 2001; 2004).

\(^80\) E.g. in the unstressed syllables of Belarussian: ’kol ‘pole’ > ka’la ‘pole’ (genitive); ’sept ‘whisper’ > japtats‘ to whisper’. This phenomenon is discussed in the context of Tiberian Hebrew by Himmelreich (2019), although he does not apply it to the vocalic shewa.

\(^81\) Data supplied by Ben Kantor.
γεδουδ (Ambrosiana Palimpsest | L [BHS]: צְדוּד Psa. 18.30 ‘a troop’)

σερουφα (Ambrosiana Palimpsest | L [BHS]: צְרוּפוּת Psa. 18.31 ‘refined’)

Jerome

bethula (Commentary on Isaiah, ed. Gryson, III.16.21 | בְּתוּלָּה ‘virgin’ [comments on Isa. 7.14])

mecchenaph (Commentary on Isaiah, ed. Gryson, VIII.7.11 | L [BHS]: מִכְנֵַּף Isa. 24.16 ‘from the edge of’)

In Origen, there is sometimes no vowel where Tiberian has a vocalic shewa, e.g.

βδαμι (Ambrosiana Palimpsest | L [BHS]: בְּדָּמִי Psa. 30.10 ‘in my blood’)

φλαγαυ (Ambrosiana Palimpsest | L [BHS]: פְּלָּגֵָּיו 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.82

ןְמַנְזָה (T-S NS 249.6, Dietrich 1968, 78* | L [BHS]: מַמְזָה 1 Chr 6.16 ‘of the resting of’)

יְםָבָה (T-S 12.195, Kahle 1930, 84 | L [BHS]: יַםָבָה Psa. 55.11 ‘they will go round’)

82 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):

\[\text{יְסִׂ֖וֹד} \quad \text{(Yeivin 1985, §8.13 | L [BHS]: \text{יְסִׂ֖וֹד} Lev. 4.25 ‘the base of’)}\]

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

\[\text{רְפָּאִָ֥ים} \quad \text{(Ya’akov 2013, 1014 | L [BHS]: \text{רְפָּאִָ֥ים} Isa. 26.19 ‘shades’)}\]

\[\text{לְמַַ֣עְלָּה} \quad \text{(Ya’akov 2013, 1014 | L [BHS]: \text{לְמַַ֣עְלָּה} Ezra 9.6 ‘higher/above’)}\]

Western Kurdistan

\[\text{שְׁלֹמֹה} \quad \text{Šalomo (Sabar 2013, 480 | \text{שְׁלֹמֹה} ‘Solomon’)}\]

\[\text{נְשָּׁמָּה} \quad \text{našāma (Sabar 2013, 480 | \text{נְשָּׁמָּה} ‘soul’)}\]

Eastern Kurdistan

\[\text{תְפִלִּין} \quad \text{tafillim (Sabar 2013, 481 | \text{תְפִלִּין} ‘phylacteries’)}\]

\[\text{בְּרִיתַמִילָּה} \quad \text{barit mila (Sabar 2013, 481 | \text{בְּרִיתַמִילָּה} ‘circumcision’)}\]

Kerala (festive reading)

\[\text{גְדוֹלִָ֔ה} \quad \text{[gaːdoːˈloː] (Forsström 2013, 462 | L [BHS]: \text{גְדוֹלִָ֔ה} Esther 8.15 ‘large (fs’)}}\]
In most Sefardi reading traditions vocalic shewa is realized higher in the region of [e], e.g.

Baghdad

‘mətte’mol (Morag 1977, 67 | L [BHS]: מַתְמִל Exod. 21.29 ‘from yesterday)

Jerba

ʔəgˌgedoˈla: (Katz 1977, 101 | L [BHS]: הוֹגֶדֶּה Exod. 14.31 ‘the big (fs)’)

Aleppo

jeˈne’ (Katz 1981, 54 | L [BHS]: שנים Gen. 48.1 ‘years of’)

Tripoli

šeˈlumu (Artom 1922, 6 | לָעָלָה ‘Solomon’)

Tunisia

weroxˈbu (Henshke 2013, 864 | L [BHS]: וְרֹכֶב Exod. 15.1 ‘and its rider’)

Karaite traditions (Lithuania, Poland, Ukraine, Crimea and Istanbul)

bəe-torat (Harviainen 2013, 457 | L [BHS]: בְּהַתָּורת ‘in the teaching of’ Psa. 119.1)

Italy

metunim (Ryzhik 2013, 363 | מְתוּנִים ‘moderate’ (mpl))
Kerala (regular reading)

[ʃefiˈpon] (Forsström 2013, 461 | L [BHS]: פִיפִֹׂ֖ןשְַׁ 'adder' Gen. 49.17)

In Morocco, vocalic shewa is frequently realized as the high vowel [i], e.g.

hagidulá (Akun 2010, 186 | L [BHS]: דֹלֵָּ֗הַַ Exod. 14.31 ‘the big (fs’))

Ashkenazi reading traditions often have zero where Tiberian has a vocalic shewa, e.g.

Northeastern Ashkenazi

[krejˈvɔ] (Katz 1993, 74 | קְרוֹבָּה ‘close’)  
[gvul] (Katz 1993, 74 | גְבוֹל ‘border’)

In some traditions, it is often realized as the central vowel [ə], e.g.

Mideastern Ashkenazi

[mədiːˈnu] (Glinert 2013, 194 | מְדִינָּה ‘country’)

Central Ashkenazi

[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, e.g.

בְּעֶרְכְךַָ֛ם [beˈʔeːɾ̟kʰaˈχɔː] ‘by your evaluation’ (Lev. 5.15)

וְהָּיִָּׂה [vɔhɔːˈjɔː] ‘and it became’ (Gen. 2.10)

בָּר [beʔeʔeɾ̟] ‘well’

מְאֶ֫וֹד [moˈʔoːoð] ‘very’

מְחִֶ֫יר [miˈħiːiɾ̟] ‘price’

בְּאֵ֫ר [beˈʔeːɾ̟e] ‘well’

מְעַוָּר [muʕuːˈχɔː] ‘pressed’ (1 Sam. 26.7)

Before yod, it was realized as a short vowel with the quality of short ḥireq [i], e.g.

83 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. [ך] (T-S AS 68.100 | L [BHS]: כָּאָמְרָּת Ps. 119.76 ‘according to your promise’), [י] (T-S AS 68.100 | L [BHS]: יְהִי־לִבִּי Ps. 119.80 ‘let my heart be’), [ט] (T-S AS 68.100 | L [BHS]: וֶאֶשְׁמַרָּה Ps. 119.88 ‘and I will keep’), [ך] (T-S AS 68.100 | L [BHS]: בְּעָנְיֵ י Ps. 119.92 ‘in my affliction’) (Outhwaite 2020).

בְּיָום [biˈjoːom] ‘on the day’ (Gen. 2.17)
לְיִשְרָּאֵל [lijisrˁɔːˈʔeːel] ‘to Israel (Gen. 46.2)
הַתְיָשִים [hattʰijɔːˈʃiːim] ‘the goats’ (Gen. 30.35)
דַמְּיַוןת [tʰaðammiˈjuːn] ‘you liken’ (Isa. 40.18)

According to the introduction to Kitāb al-Khilaf, where Ben Asher vocalized a preposition ב 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 [lijisʁɔːˈʔeːl], 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 [liːis-]

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, ב and ל, i.e. types of vocalization such as לִישְרָּאֵל, בִַּישְרָּאֵל, וִַישְרָּאֵל.85

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. Ḥatef Signs

The sheva sign is combined with some of the basic vowel signs to form the so-called ḥatef signs. In the standard Tiberian vocalization these compound signs include:

| ḥatef pataḥ  | (א) | [a] |
| ḥatef segol  | (א) | [ɛ] |
| ḥatef qames  | (א) | [ɔ] |

In such signs the vocalic reading of the sheva is made explicit and also its quality.

In the Aleppo Codex (A) there are sporadic examples of a ḥatef hireq sign,⁸⁶ e.g.

A: הבששת התעבית (Psa. 14.1 ‘they have acted corruptly and have done abominable deeds’ | L [BHS]: הנשחתה התעבית)

In ḥatef signs the sheva sign is normally placed to the right of the vowel sign. There are, however, some isolated variant forms of ḥatef signs in the early manuscripts in which the sheva 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). Ḥatef 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 ḫaṭef 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 ḫaṭef sign is misshapen with the vowel sign component often squeezed into the space above the shewa sign (Phillips 2020).

A: יִתְפֹּרְאָה ‘it was rent asunder’ (Isa. 24.19)

L: קְלַלְתּ ‘the curse of’ (Jud. 9.57)

The stacking of shewa above the vowel sign and writing inside the letter, especially ḫet and he, is common in Non-Standard Tiberian manuscripts.\(^\text{87}\)

The default pronunciation of vocalic shewa with the quality of [a] was equivalent to that of the ḫaṭef pataḥ sign (ʕ). Both the

\(^{87}\) Kahle (1930, 58\(^\text{a}\)), Díez Macho (1963, 37) and Blapp (2017, 79).
vocalic *shewa* and the vowels expressed by *ḥaṭef* 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: [tʰaχašəː]. Likewise, the *ḥaṭef patah* in *ךְָ֊הֲמֶלֶךְ* [ha’mɛːleχ] ‘interrogative + king’ would have been read with the same quality and quantity as the *patah* in *ךְָ֊הֲמֶלֶךְ* [ham'ɛːleχ] ‘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, *ךְָ֊הֲמֶלֶךְ*, or by a *shewa* that is adjacent to it, i.e. after it, as in *רָבְרַאָה*; the ‘*alef* 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 *ḥaṭef* 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

---

88 תוחת אַל לְכַלְכָּל פִּלָּא בֵּֽד לָּהּ מֵשָׁא בַּהַה אַלּא אַל יִנָּעֵשׁ אֲלֵד הָאִלֵּבָּהּ כָּל מִחְלָּנְא פְּרָ. The lacunae in Levy’s text can now be supplied from the Geniza manuscript, CUL Or 1080.13.3.2, fol. 2v; cf. Yeivin (1981, 46), Eldar (1988, 127).
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.

<table>
<thead>
<tr>
<th>Text</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>הַפָֹּ֑עֲַם</td>
<td>T-S A2.30</td>
</tr>
<tr>
<td>וְאָּמְרְתִַָּׂ֖</td>
<td>CUL Or 1080.A3.21</td>
</tr>
<tr>
<td>בְּשָּּׁנִָּׂ֖</td>
<td>T-S AS 67.133</td>
</tr>
</tbody>
</table>

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.

---

89 The data for this and the following two examples were supplied by Estara Arrant.
Genizah manuscripts

הָכְמָה (T-S A13.18, Blapp 2017, 125 | L [BHS]: Psa. 90.12 ‘wisdom’)

ורְבָּם (T-S A13.18, Blapp 2017, 125 | L [BHS]: Psa. 90.10 ‘their strength’)

European manuscripts

נֶבוֹר (Codex Reuchlinianus, Morag 1959, 230 | L [BHS]: 2 Sam. 15.19 ‘foreigner’)

חָגְלָה (ASCNON B.I.1r, Pilocane 2004, 29 | L [BHS]: Num. 27.1 ‘Hoglah’)

Even some of the Standard Tiberian Masoretic codices contain a few cases of ḥatef signs and shewa in closed unstressed syllables, e.g.

בַּחֲרְטִּם (L [BHS], Exod. 9.11 ‘on the magicians’)

הָעֲרְבִַּיִם (L [BHS], Exod. 30.8 ‘the evening’)

חֱזַַַוּיֶַַ (L [BHS], 2 Sam. 10.11 ‘they are strong’)

יַעְכְרְךַַ֦ (L [BHS], Josh. 7.25 ‘he brings trouble on you’)

וּוַהֲרְגְנ  ה (L [BHS], Jud. 16.2, ‘and we will kill him’)

מִולָ֔כְלֶ (B | L [BHS]: Lev. 20.3 ‘to Molech’)

The ḥatef qamesh representing a short qamesh 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 qamesh. In such cases, the use of the ḥatef in a closed

syllable clearly has orthoepic motivations. Ḥaṭef qames signs are marked frequently in this context in A (Yeivin 1968, 19), e.g.

שֹׁדְדָה (A | L [BHS]: וּדִַׂ֖וְשֳׁדְַ Jer. 49.28 ‘and destroy!’)

מָשְׁכ (A | L [BHS]: וְשָּׁדְד Ezek. 32.20 ‘drag away!’)

נַבְּרָה (A | L [BHS]: 2 Chron. 6.42 ‘remember!’)

They are found occasionally in L, e.g.


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.

כָּל לַשׁוֹן רָאתָ נִצֵּא כָּל לַשׁוֹן רָאוּי הָתִּךְ

Whenever the verb is from the root ‘to fear’, (the prefix) has a long vowel (e.g. וּיְרָא [jiːˈʔuː] ‘they fear’), whenever it is from the root ‘to see’, (the prefix) has a short vowel (e.g. וּיְרָא [jiːˈʔuː] ‘they see’).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 ḥaṭef 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 ḥaṭef 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.

בִיטה֬ (Tiberian: הִבִּיט [hibˈbiːitˁ] ‘he watched’)  
שֵמֶר (Tiberian: יִשְׁמֶר [jiʃˈmoːor] ‘he guards’)

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,
one of the purposes of both being to indicate the shortness of the vowel.

I.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 וְתִסְפְּרָה ‘you shall count’ (Lev. 23.16) was considered to have been composed of two prosodic units [tīs-pārāh]. The sources refer to these prosodic units by the Arabic term maqṭa (literally: ‘point of cutting off’), which is used in the Arabic grammatical literature to refer to a syllable. The treatise Hidāyat al-Qāri 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 (maqṭa), 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 וּהָאֲחַשְׁדַרְפְּנִים ‘and the satraps’ (Esther 9.3), הַמְצַפְצִים ‘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 \( תִּסְפְר \) would consist of three syllables parsed into two feet:\(^{98}\)

\[
[(tʰis.) (pʰa.ˈר̟u:)]
\]
\[
(*) (. *)
\]

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:

- \( חַשְׁלַבִּים \) ‘the frames’ (1 Kings 7.28, < חַשְׁלֵבַים)
- \( יִדְבָּר \) ‘and he spoke’ (Gen. 8.15, etc. < יִדְבַּר)
- \( הַמְַּדַבֵָּר \) ‘the one speaking’ (Gen. 45.12, etc. < הַמְַּדַבֵּר ‘the one speaking’)
- \( בַּנְחַשְׁתִּים \) ‘with bronze fetters’ (Jud. 16.21 < בַּנְחַשְׁתִּים)

\(^{98}\) 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.
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 וּ֖תִֽסְפְּרֵֽו it will be noticed that the first syllable by itself has the status of a foot, i.e. [(tʰis.) (pʰa.ᵲuː)], 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.ᵲuː), 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.99 The metrical parsing of וּ֖תִֽסְפְּרֵֽו [(tʰis.pʰa.ᵲuː)] 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 [ˈruːː]. 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>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>x</td>
<td>x</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).

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 קָוָל ['qoː: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, ĆVC (Kager 1993). A word-final syllabic sequence such as ['qoːol] can be preceded by a vocalic shewa, e.g. בְּקָוָל ‘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.

יִכְתְּבֶַ֫ [yiχθa'vυː] ‘they (m) write’ (< *yaktubū)

סְפָּרִֶַ֫ [safɔːr̟iːm] ‘books’ (< *siparīm)

דְבָּרִֶַ֫ [davɔːr̟iːm] ‘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.

מָלְכֵֶַ֫ [malyeː] ‘kings of’ (< *malakeː)

לֵשְׁמוּאֵֶַ֫ [liʃmuːʔeːl] ‘to Samuel’ (< *la-Šamūʾeł)

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:101

/mq̟ō.м̟о/ [ma.ˈq̟oː.ˈmoː] ‘his place’ מַקְוָלָה
/yiχ.т̟ʊ/ [yiχ.ˈta.ˈvuː] ‘they write’ יִכְתְבָה
/sf̟5.р̟i.м̟/ [sa.ˈʃ̟ə.ˈr̟iː.im] ‘books’ סְפָּרִים
/dv̟5.р̟i.м̟/ [da.ˈv̟ə.ˈr̟iː.im] ‘words’ רְכָּרִים

The only exception was the shewa in forms of the feminine numeral שְׁתֵּים / שְׁתֵּי ‘two’ and the first component in שְׁתֵּים עַשְׁרֵה ‘twelve’, which was silent /[ˈʃ̟taːjim]/ /[ʃteː]/ /[ʃteːm]. It is for this reason that in many medieval manuscripts the accent yetiv is written on these words, e.g.

L: שְׁתֵּים (Lev. 23.17)
L, A: שְׁתֵּים (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. הָעֲצָמָה ‘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:

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).
[ʔeifferences], although this vowel is not written in the manuscripts. According to the author of *Hidāyat al-Qārī* old and reliable codices (*al-mašāhif al-'utuq al-jīyād*) mark *pashṭa* (שַׁחַת) rather than *yetiv* (שֵׁית) on this word, and this is occasionally found in the extant early codices, e.g.

C: שָׁתי (Ezek. 1.11)

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:

As for שָׁתי, some people read this word with a mobile shin (i.e. a mobile shewa on the shin) on account of the necessity (of doing so) due to the fact it occurs in initial position and with strengthening of tav (i.e. with dagesh). Some people do not permit the reading of the shin as mobile and add a hamza (i.e. glottal stop, ’alef) before pronouncing it, although it is not written, in order to be able to pronounce the shin as quiescent (i.e. pronounce the shewa on the shin as quiescent). This (latter) is our reading.

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103 Long version, MS II Firkovitch, Evr.-Arab II 418, fols. 21r–21v.

104 II Firkovitch, Evr.-Arab II 365, fol. 6r: שָׁתי is not written, in order to be able to pronounce the shewa on the shin as quiescent). This (latter) is our reading.
The silent shewa in שְׁתֵּי / שְׁתַיִם 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):

/ʃ.tʰe/ [ʃ.'teː] שְׁתֵּי

By contrast, in the imperative verbal form שְׁתִּ֔ה 'drink (ms)!’ (Gen. 24.14) the shin and the tav form the onset of a syllable and are split by an epenthetic: /ʃθē/ [ʃa.'θeː].

The variant reading of שְׁתֵּי / שְׁתַיִם 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 consonants had ceased to operate.105

When the preposition מִן ‘from’ is prefixed to the word שְׁתִּים 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 [miʃʃa.'θeː] ‘avenge of one of my eyes’

(Jud. 16.28)

105 For this phenomenon after guttural consonants see §I.2.5.4. below.
In Jonah 4.11 the *shin* remains ungeminated and the *hireq* of the prefixed preposition is lengthened in compensation. The lengthening is indicated by a *gaʿya*:

L: מִ שְׁתֵים־עֶשְרֵ הַרִבָּ֝וַֹה הַרֵּׁ בֵּהוּ '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* is silent. He indicates, however, that some people read the *shewa* here vocalic and maintain the *dagesh* in the *tav*.106

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.,

/ytʰvū/ [ytʰa.ˈvu:] יְהָבֹה ‘They write’

A *shewa* under a geminated letter with *dagesh* within a word was likewise vocalic, e.g.

/hɑːm.mlɔː.χɪ.im/ [hm.ma.lɔː.χi.im] הָמְלָכִִׂים ‘The kings’ (Gen. 14.17)

1.2.5.4. **Ḥaṭef Signs on Guttural Consonants**

The discussion above concerning the epenthetic vocalic *shewa* has been concerned so far with cases in which it has developed

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106 II Firkovitch, Evr.-Arab. II 365, fol. 21r.
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 (הע assembler) 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 ẖaṭef
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 הינש ‘they go up’ would have the historical
syllable structure *jaʕ.lū, in line with, for example, חסינ ‘they drink’. This can be regarded also as the underlying
phonological syllable structure /jaʕ.lū/.

(ii) A short epenthetic is added after the guttural. This creates
a short open phonetic syllable [CV], viz. [jaʕ.ə.luː].

(iii) The vowel in the syllable preceding the guttural is
lengthened, viz. [jaʕ.ə.luː]. 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:

/jaʕ.lū/ > [jaʕ.ə.luː] חנש ‘they go up’
/heʕ.lɔ̄/ > [heʕ.ə.ˈloː] חם ‘he brought up’
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/ > [beʔ.ðō.om] בַּאֲדִ֔וֹמ_ ‘in Edom’ (Gen. 36.32):

The fact that an underlying short /e/ and short /o/ in forms such as /heʕ.ļū/ and /tʔoh.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:

_/heʕ.ļū/ > (i) [heʕ.ļu:] > (ii) [heʕ.ļu:]
_/tʔoh.rɔ̄/ > (i) [tʔ.ɔ̄.hɔ.ˈr̟ɔː] > (ii) [tʔ.ɔ̄.hɔ.ˈr̟ɔː]

The short vowel phonemes /e/ and /o/ are normally realized with the quality of [ɛ] and [ɔ] respectively when they are short and [e:] and [o:] when they are lengthened in syllables with the main stress, e.g. בֵֶַ֫/ [ˈleː.ev] ‘heart’, צעֶַֹ֫/ [ˈʕoː.oz] ‘strength’ (§I.2.3.2.). In a few sporadic cases the /e/ and /o/ vowels before gutturals are realized as [ɛ:] and [ɔ:], e.g.

/הֵעֲלִָּ֔ה/ (Hab. 1.15 ‘he has brought up’)
/הֹעֲלִָּ֔ה/ (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.

\(/h\text{ē}.\text{ʕ}lū/ [\text{heː.ʕa.ˈluː}]\)

\(/h\text{o}.\text{ʕ}lɔ̄/ [\text{hoː.ʕa.ˈلو}]\)

Manuscripts with Babylonian vocalization exhibits many forms in which stage (ii) posited above for the development of most Tiberian forms (e.g. \(/\text{heʃ}.\text{lū}/ > (i) [\text{heː.ʕe.ˈluː}] > (ii) [\text{heː.ʕe.ˈluː}]) 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):

ךָָּ֣הָה [nɔʔaˈɾɔː] or [naʔaˈɾɔː] ‘young woman’ (1 Kings 1.3 | L [BHS]: נַעֲרַָּ֣ה)

דיָָּ֣מִֹיע [jɔʔaˈmiːð] or [jaʔaˈmiːð] ‘He will build up’ (Prov. 29.4 | L [BHS]: דַּעֲמִַ֣יד)

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. פַּשְּׁם 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
guttural had not taken place. This is seen in the following examples, in which epsilon reflects a short vowel:\textsuperscript{107}

\[ \varepsilon\varepsilon\eta\eta \ (\text{Ambrosiana palimpsest} \mid \text{L [BHS]: הֶ עֱטִֵ֨יתַָּ Psa. 89.46 ‘you wrapped’}) \]

\[ \varepsilon\varepsilon\lambda\iota\iota \ (\text{Ambrosiana palimpsest} \mid \text{L [BHS]: הֶ עֱלִַ֣יתַָּ Psa. 30.4 ‘you lifted up’}) \]

\[ \varepsilon\varepsilon\mu\iota\delta\iota\ (\text{Ambrosiana palimpsest} \mid \text{L [BHS]: הֶ עֱמִַׂ֖דְתַָּ Psa. 31.9 ‘you established’}) \]

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\textsuperscript{108} 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 \( ha\text{ṭef} \) vowels in certain forms with gutturals in contrast to other forms that have silent shewa.

\textsuperscript{107} Data supplied by Ben Kantor.

\textsuperscript{108} Cf. Hall (2011, 1577–78), who discusses this function of epenthesis in languages.
As shown by DeCaen (2003) and Alvestad and Edzard (2009), one factor that conditions the occurrence of ḫaṭef vowels on gutturals, at least on het, is sonority of the following consonant. They have shown that a ḫaṭef vowel tends to occur when the following consonant is high in sonority, e.g. in שׁוֹיַחְר ‘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. יֶחְדַל ‘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 ḫaṭef vowel.

Variations, however, occur in inflections of the same verb, where the same consonants are involved, e.g. וּיַחְשִׁב ‘they consider’ (Isa. 13.17) vs. יַחְשֹׁב וּן ‘they consider’ (Psa. 35.20). In such cases the ḫaṭef 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.

| Level 3 | x |
| Level 2 | x | x | x |
| Level 1 | x | x | x |
| Feet:   | (*) | (*) | <*> |

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,\(^{109}\) as shown in the following grid:

<table>
<thead>
<tr>
<th>Level 3</th>
<th></th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Level 1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Feet</td>
<td>(*)</td>
<td>(. *)</td>
</tr>
<tr>
<td></td>
<td>jaː.</td>
<td>ha</td>
</tr>
</tbody>
</table>

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.

\[\text{עִנְּשֵׁנֵנִי} [\text{ʃɔː.}'\text{ma.}:\text{af.}:\text{nu.}] ‘we heard’ (Deut. 5.24)

\(^{109}\) 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).
If the accent moves forward after the attachment of a suffix in such forms, however, a hatef appears, e.g.

שְּמַעֲנָה [ʃa.ma.ʔa.ˈnuːhɔː] ‘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 שְּמַעֲנָה can be represented thus (extrametrical syllables in angular brackets):

ʃɔː.ˈmə.əf nuː

(*) (* *) <*>

Here, since the syllable following the guttural is extrametrical and unfooted there is no rhythmic motivation for a hatef, which is a weak syllable that is obligatorily footed and metrically bound to a following strong syllable.

The metrical structure of שְּמַעֲנָה is:

ʃa. ma. ʃa. nuː hɔː

(.* ) (.* ) <*>

For extrametrical syllables at the right periphery of words see Kager (2007, 204).
Here the accent on the syllable after the guttural licenses the hatef in that it can be footed and bound metrically to this strong footed syllable.\textsuperscript{111}

Apparent exceptions to this are cases where a conjunctive accent are retracted by nesiga onto a syllable before a hatef vowel, e.g.

- מַה־נַעֲשֶה (Jonah 1.11, ‘what shall we do to you?’)
- כַּהַמֶּנָּה (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 hatef, e.g.

- הַשַּׁעְרָּה (Deut. 25.7 ‘to the gate’; contrast שֻׁעֵר Neh. 13.19 ‘the gates of’)
- לְמֵַעְלָּה (Exod. 25.20 ‘above’; contrast מִּעֲלֵַ֤ה Lev. 11.5 ‘it brings up’)
- וָּמִַ֔עְלָּה (Exod. 38.26 ‘and upward’)
- מַעֲלָּה (Deut. 28.43 ‘above and higher’)

\textsuperscript{111} According to J. McCarthy (1979, 164) the hatef 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:

צֹעֲרָּה (Gen. 19.23 ‘to Zoar’)

הָאִֹׂ֖והָלָּה (Gen. 18.6 ‘into the tent’)

There is general agreement across the model Standard Tiberian manuscripts regarding the marking of haṭef signs on gutturals. The reason a composite haṭef 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

וּשׁוּיַחֲבְּ (1 Kings 13.13 ‘and they saddled’)

וּיַחְשִֹׁ֔ב (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 יַעְקִֹ֔ב ‘he supplants’ (Jer. 9.3) and the proper name יַעֲקֹב.
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. יִמְחֲא [jim.ḥa.ʔa] ‘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 qames, e.g. יִמְחֲא [jim.ḥa.ʔa] ‘he set up’, יִמְחֲש [jim.ḥa.ʔa] ‘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 ḫatef sign, e.g.

תֿחְנִי (T-S A11.1, Blapp 2017, 44 | L [BHS]: חֲנִַ֣ית Job 39.23 ‘spear’)

עְשַֹּׁ֣קיַַ (T-S A11.1, Blapp 2017, 44 | L [BHS]: עֲשַֹּׁ֣קיַַ Job 40.23 ‘it will oppress’)

הֿאֶעְנ ֵַֹ֑ (T-S A11.1, Blapp 2017, 43 | L [BHS]: אֶ עֱנֶֹ֑ה Job 40.5 ‘I will answer’)

חְל ֹי (T-S A13.18, Blapp 2017, 124 | L [BHS]: לֹ ףיַחֲַ 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 ḫatef.
vowel on the ’alef in the standard vocalization of the words representing the qere (אֱלֹהִים = יהוה, אָדֹנַי = יהוה). 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 haṭef 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: אֲדֹנַי (Gen. 15.2)
L: אֲדֹנַי (Gen. 15.8)

In some Standard Tiberian manuscripts the Tetragrammaton is vocalized with haṭef segol when the qere is 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 haṭef pataḥ (יהוה) when the qere is אֱלֹהִים, e.g. II Firkovitch Evr. II B 3. Likewise, in Non-Standard Tiberian manuscripts, haṭef 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 haṭef sign is marked on a guttural where the standard Tiberian tradition has a silent shewa, e.g.

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

תָּרֵ֗וֹתָּ (T-S A12.1, Blapp 2017, 71 | L [BHS]: והתרה Prov. 31.18 ‘her merchandise’)

לָֹּ֑הִַב (T-S A12.1, Blapp 2017, 71 | L [BHS]: הנובה Prov. 31.23 ‘her husband’)

תָּרֵ֗וֹתָּ (T-S A12.1, Blapp 2017, 71 | L [BHS]: והתרה Prov. 27.6 ‘and excessive’)

הי (T-S A12.1, Blapp 2017, 74 | L [BHS]: והיה Ruth 2.13 ‘I will be’)

הֿנ ַָּשְבַּעֲַת (T-S A12.1, Blapp 2017, 71 | L [BHS]: והנשתבעה Prov. 27.20 ‘will [not] be satisfied’)

European manuscripts

וּ ַנּעֲַמ ָּ (Codex Reuchlinianus, Morag 1959, 224 | L [BHS]:—we heard’)

מַאְפִֵׂ֖ל (Codex Reuchlinianus, Morag 1959, 224 | L [BHS]:—darkness’)

מַעְיָּנִים (BL Add MS 21161, fol. 160v | L [BHS]:—springs’)

The occurrence of a dagesh in the בגדכפת letter after the hatef in forms such as תָּרֵ֗וֹתָּ and מַאְפִֵׂ֖ל indicates that the guttural must originally have been vowelless and the epenthetic hatef vowel was inserted at a late period after the rule of fricativization of בגדכפת consonants following vowels had ceased to operate. The same applies to the occurrence of the Non-Standard
Tiberian *dagesh* in the nun of נֶעֲַמָּּׁ, 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 בִּנְדָּכֵת in word-internal position marked by *dagesh* (a miniature *gimel* over the letter) (Yeivin 1985, 342), e.g.\(^{114}\)

\[\text{הָעֲַמָּּׁ} \quad \text{hiˈʔiː 'they moved away'} \quad \text{(L [BHS]: Job 32.15)}\]

\[\text{מַעְגְּלֹתָּ֥יו} \quad \text{mʕagloˈʔeːwən 'his paths'}\]

\[\text{אַרְבַּעְתִּים} \quad \text{ʔarbaʕətəm 'the four of them'}\]

I.2.5.5. **Ḥaṭef Signs on Non-Guttural Consonants**

Ḥaṭef 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 ḥaṭef 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 ḥaṭef signs on non-guttural consonants emerged

\(^{114}\) Data supplied by Shai Heijmans.
at a later stage in the development of the Tiberian vocalization system than hâtetf signs on guttural consonants.

The main difference in the marking of hâtetf signs on non-guttural consonants is the extent to which the vocalic shewa with its default pronunciation of [a] was replaced by a hâtetf patah sign. The Aleppo Codex (A) exhibits a particularly advanced tendency to mark hâtetf patah in such contexts, and there are many examples where A has hâtetf patah but L and other manuscripts have simple shewa, e.g.

A: חַַהַ מֲרַצֵַַּ֤ (L [BHS]: חַַה מֲרַצּ 2 Kings 6.32 ‘the murderer’)
A: לַ מֲמִתִ ים (L [BHS]: לַ מְמִתִי Job 33.22 ‘to those who bring death’)
A: בְּמַטְלְתֵּיִם (L [BHS]: בְּמַטְלְתֵּיִם 1 Chron. 16.5 ‘with the cymbals’)
A: הַ נֲקַלַַָּּּ֤הַ (L [BHS]: הַ נֲקַלַָּּ֤הַ 1 Sam. 18.23 ‘does it seem to you a little thing?’)
A: קַ֤וּלָּקֲַ (L [BHS]: קַ֤וּלָּקֲַ 1 Kings 21.19 ‘they licked’)

The manuscript L marks hâtetf patah in place of vocalic shewa in a number of cases, e.g.

L: וּ שְׁלַָ֥ח (Gen. 22.18 ‘they shall bless themselves’)
L, A: סֵפַּט (Job 33.25 ‘his flesh became fresh’)
L, A: יוּ שְׁבֵָ֥ה (Jud. 5.12 ‘and take captive!’)
In some model manuscripts, however, \textit{ḥatef 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 \textit{Diqduqe ha-Ṭeʿamim} to have added a \textit{pataḥ} sign to many instances of vocalic \textit{shewa} under non-guttural consonants, some of which have simple \textit{shewa} in L (ed. Dotan 1967, §20), e.g.

\begin{quote}
כִַּ֤יםכֲַסֹ (Exod. 25.20 ‘covering’ | L [BHS]: טככיכִַּ֤יםכֲַסֹ)

חָּה ַוַ נִּפְתֳַ (Gen. 43.21 ‘and we opened’ | L [BHS]: וַ נִּפְתָּּ֤ה)

עָָ֥השִׁ מֳַ (Psa. 39.13 ‘hear’ | L [BHS]: שִׁ מְעָָ֥ה)

אַָּּ֤הוְנִקְרֳַ (Zech. 8.3 ‘and it will be called’ | L [BHS]: וְנִקְרְאַָּּ֤ה)
\end{quote}

There are also differences in the manuscripts and among the Masoretic authorities with regard to the replacement of a vocalic \textit{shewa} by a \textit{ḥatef} sign on a non-guttural consonant before a guttural consonant with the purpose of indicating the quality of the \textit{shewa}. This is referred to in \textit{Diqduqe ha-Ṭeʿamim}, which states that there was no consistency among the Tiberian Masoretes in the marking of \textit{ḥatef qameṣ} in words such as (ed. Dotan 1967, §19):

\begin{quote}
גוּתְחָה (Gen. 43.21 ‘and we opened’ | L [BHS]: גוּתְחָה)

שִׁ מְעָָ֥ה (Psa. 39.13 ‘hear’ | L [BHS]: שִׁ מְעָָ֥ה)

וְנִקְרְאַָּּ֤ה (Zech. 8.3 ‘and it will be called’ | L [BHS]: וְנִקְרְאַָּּ֤ה)
\end{quote}

This was a measure to ensure that the \textit{shewa} was read with the quality of the \textit{qameṣ} after the guttural rather than its default
pronunciation with the quality of *patah*.\(^{115}\) 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 *ḥaṭef qames* in this context in L, e.g.

( Jer. 20.15 ‘he made him happy’)

The Aleppo Codex exhibits a greater tendency to use a *ḥaṭef* sign in these circumstances (Yeivin, 1968, 35), e.g.

A: ְֶהְוָּקָּה נָהוֹי (L [BHS]:Josh. 21.4 ‘the Kohathite’)

As we have seen, A even uses an innovative *ḥaṭef 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.

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.

\(^{115}\) Compare the remarks of David Qimhi (*Sefer Mikhloz*, ed. Rittenberg, 1862, 138b): ‘Nor shall wisdom teach you, nor shall understanding and knowledge of a guttural be given to you. Likewise with *ḥaṭef qames*, as in “and from rebuking you” (Isa. 54.9), the reading of the [vowel on] the *gimel* is similar to *ḥaṭef qames* on account of the ‘ayin. There are accurately vocalized codices in which the *gimel* is vocalized with *ḥaṭef qames*. ’
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шуיא (T-S A12.1, Blapp 2017, 75 | L [BHS]: שִׁיעָי Prov. 29.13 ‘and a man’)

In Non-Standard Tiberian manuscripts shewa before yod, which is pronounced as [i], is frequently replaced by hireq, e.g.

_genizah manuscripts_

שתי (T-S A12.1, Blapp 2017, 75 | L [BHS]: שְׁתי Prov. 31.20 ‘and her hands’)

מוטלי (T-S A13.20, Blapp 2017, 151 | L [BHS]: מוֹטַלְּי Psa. 69.4 ‘waiting’)

_European manuscripts_

 wyłącznie (Codex Reuchlinianus, Morag 1959, 234 | L [BHS]: יְלַכְּנֶל Josh. 6.26 ‘he will found it’)

יְלַכְּנֶל (Codex Reuchlinianus, Morag 1959, 234 | L [BHS]: יְיֵלִיל 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.

שהב [jeθeˈvuː] (Gen. 47.6 ‘let them dwell)

שד [ʃəd] (Gen. 49.8 ‘your hand’)

שד [ʃəd] (Jud. 2.22 ‘they guarded’)

שד [ʃəd] (2 Kings 25.18 ‘the guards of’)

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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.

\[\text{kʰoˈʔoːotˁˈjɔː} \] '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. 

\[\text{q̟oː.ol} \] 'voice' (§I.2.4.). The underlying syllable structure of words such as 

\[\text{ʃɔː.ɔm.ˈʀ̟u} \] could, therefore, be represented \[ʃɔ̄.m.r̟u\], with a stray extrasyllabic consonant, just as it has been proposed to posit the existence of an extrasyllabic consonant in word-final position, viz. \[q̟o.1/\]. 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:

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/ʃ5.m.rū/ \[
/ʃɔː.ɔm.ʀ̟u\] 'they guarded'
```
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 [qo:la] or [ʁo:ʃa] was not licit. So the epenthetic came before the consonant, forming a closed syllable [VC]: ['qo:ol], which constituted a trochaic foot (\( . * \)) metrically. In principle, the word-internal consonants in a sequence such /C\V̄CC\V̄/, as in שָּׁמְר, 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\V̄CC\V̄/ and /C\V̄CCVC/ 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.əm.ˈʁuː] would be [(\( . * \) \( . * \))], i.e. [(ʃɔ.əm).(ˈʁuː)]. 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:\(^{117}\)

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\(^{117}\) 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.
Level 3  x
Level 2   x  x
Level 1   x  x  x
Feet  (*  .)  (*)
ʃɔː  ɔ  ˈʀ̟ uː

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 *ḥaṭef* signs, e.g.

כֹהֲנִים [kʰoːhaˈniːim] ‘priests’
צֹעֲָּּ֥קִָּ֥ים [sˁoːʕaˈqiːim] (Gen. 4.10 ‘crying out’)
לֹחֲצִָּ֥ים [loːħaˈsˁiːim] (Exod. 3.9 ‘pressing’)
כֹ אֲבִֵ֗ים [kʰoːʔaˈvim] (Gen. 34.25 ‘being in pain’)

Hypothetically it could have been possible for a type of fur-tive *pataḥ* vowel to have been inserted before the guttural, i.e. [loːwaḥsˁiːim], by analogy with gutturals in word-final position, as in, for example, [moːwaḥ] מֹחַ ‘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 [jagˈgiːʕa] (L [BHS]: יַגִיעַ Isa. 8.8 ‘it will reach’)

מַדִ֖וּעַ [madˈduːʕa] (L [BHS]: מַדִ֖וּעַ 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 ḫatef 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.

L: יָֽלֵֽקָֽק [lɔːq̟aˈq̟uː] ‘they licked’ (A: יָֽלֵֽקָֽק, 1 Kings 21.19)

118 Data supplied by Shai Heijmans.
The Tiberian Pronunciation Tradition of Biblical Hebrew

L: וּשָּׁבְב [sɔvaˈvu:] ‘they surrounded’ (A: סָּבֶב, Josh. 6.15)

L: ושׁוֹטְט [ʃoːtːɑˈtːuː] ‘run to and fro!’ (A: שׁוֹטֶשׁ, Jer. 5.1)

L: עֹלְלָוֹת [ʕoːlaˈloːoθ] ‘gleanings’ (A: עֹלֲלָוֹת, Jud. 8.2)

L: חֹקְָּקִָ֥י [ḥoːq̟aˈq̟iː] ‘one who carves’ (A: חֹקַר, Isa. 22.16)

L: בְּתוֹכְכִֶׂם [baθoːχaˈχɛm] ‘in your presence’ (Gen. 23.9)

L: הֹלִ יכֲךַָ֜ [hoːliːχaˈχɔː] ‘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 C̄V̄CC 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. The fact that the syllable CVC with a short vowel was bimoraic and not subject to any change to optimalize its weight, e.g.

L: הִנְנִי [hinˈniː] ‘behold me’ (Gen. 6.17)

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L, A: הַרְרֵי־קֶֹ֑ודֶם [haˈɾeːiqem] ‘the mountains of old’ (Deut. 33.15)

L, A: רִבְבַ֣וֹתַאֶפְרִַ֔יִם [riˈboːtəfiprim] ‘the ten thousands of Efraim’ (Deut. 33.17)

L, A: חִקְרֵי [hiqreː] ‘decrees of iniquity’ (Isa. 10.1)

L, A: הָלִּיתָה [haliˈtah] ‘its wailing’ (Isa. 15.8)

L: וְשָׁדְד [vaʃɔðˈðuː] ‘and devastate!’ (A: וְשָׁדְד, Jer. 49.28)

Note that in the last example, A indicates the shortness of the vowel in the closed syllable by ḥaṭef gumes 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 [jim̩sˁɔːˈʔuːnniː] ‘they (m) will find me’ (Prov. 8.17)

L, A: יְשַׁחֲר נְנִי [jaʃaːˈχaːrˁunniː] ‘they seek me’ (Hos. 5.15)

L, A: יְכֶַ֫בְּדָָ֥נְנִי [ˌjaˑχabbaˈðɔːɔnuniː] ‘he honours me’ (Psa. 50.23)

L, A: יִמְצָּא נְנִי ... יְשַׁחֲר נְנִי ... יְכֶַ֫בְּדָָ֥נְנִי [jimsˁɔːˈʔuːnni: ... jaʃaːˈχaːrʔuːnni: vaˈloːjimsˁɔːˈʔuːnniː:] ‘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 שָׁמִַ֖ע and שְׁמַע (§I.2.5.4.) The occurrence of vocalic shewa after the main accent in לֶא 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: 'בָּזְזָב ['bɔːzazuː ˈbaːaz] ‘they took plunder’ (A: וּבָּזָב, Isa. 33.23)

L: 'נָסָּה 'וֹנָסָּה [ˈnoːsasɔː ˈvoː] ‘it drove it on’ (A: נָסָה, Isa. 59.19)

L: 'וִיסָ֥וֹב [viːˈsoːvavuː 'ʕiːiʀ̟] ‘and they go around the city’ (A: וִיסָוֹב, Psa. 59.7)

L: 'יְחַֹ֣קֲק [joˈħoːq̟ aq̟uː ˈsˁeːdəq̟] ‘they decree what is just’ (A: יְחַֹק, 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: 'תִתְבָּוֹנְנ ['tɪtəbhɔːnən] ‘you will understand it’ (A: תִתְבָּוֹנ, 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. 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 'תִתְבָּוֹנ (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-Teʾamim* (1967, vol. 2, 192) that the *shewa* was silent in all these cases.
identical letters after the vowel \textit{ḥolem} was read in all cases without exception as vocalic (ed. Levy 1936, יז-טז).

I.2.5.7.4. Long Vowel in a Prefixed Particle before Resh

According to the \textit{Treatise on the Shewa} published by Levy (1936), if \textit{resh} with \textit{shewa} is the first letter of a noun and is preceded by a prefixed grammatical particle that is vocalized with \textit{qames} or \textit{šere}, the \textit{shewa} was pronounced vocalic. The relevant passage is as follows (Levy 1936, יח-יז):

Rule concerning the \textit{resh} that causes \textit{shewa} to be vocalic: Whenever \textit{resh} has \textit{shewa} under it and is the second letter of the word, the \textit{shewa} is always pronounced like \textit{pataḥ}, as in יְחוֹלָֹ֑לוַּהָּרְפָּאִָ֥ים (Job 26.5 ‘the shades tremble’), and as in מֶרֶכֶּבָּהִֹ֑ים (Psa. 1.4, etc. ‘the wicked’), מֶרֶכֶּבָּהִֹ֑ים (2 Chron. 35.7 ‘from the possession of’), בַּכֶּרֶךֶּבָּהִֹ֑ים (Ezra 1.6 ‘with goods’), בַּכֶּרֶךֶּבָּהִֹ֑ים (Gen. 19.2, etc. ‘in the street’), בַּכֶּרֶךֶּבָּהִֹ֑ים (Prov. 7.12, etc. ‘in the streets’), בַּכֶּרֶךֶּבָּהִֹ֑ים (Neh. 4.15 ‘[held] onto the spears’), בַּכֶּרֶךֶּבָּהִֹ֑ים (Neh. 4.10 ‘and the spears’), and other cases. Know that this rule applies only when it [i.e. \textit{resh}] is preceded by \textit{qames} or \textit{šere} [lit. two dots]. If it occurs without these two signs (preceding it), it is never pronounced like \textit{pataḥ}, as in לִרְצוֹן (Jud. 9.37 ‘coming down’), מִרְדֹּף (Neh. 2.19 ‘rebelling’), בָּרְחִׂ֖וֹב (Ezra 10.9, etc. ‘in the open square of’), בָּרְחֹבֹ֑וֹת (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.\(^{122}\)

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. הרשע [hɔːrʃʊ:im], ברכש [meːrɔˈχuːʃ]. 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. ברוח [bɔːrɔˈχoːv]. 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. בחרוט [bɔːrɔˈħoːt] (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:

\[
\text{hɔː.} \quad \text{riminal} \quad \text{ʃiː.} \quad \text{im}
\]

\(*\) \\(\cdot\) \(*\) \(*\)

122 שרט אלירש אליבי תורק אלישא: כל רוש התות שא פאלאצקי אליאווי או אלבל我々

ימחב אלישא עלולו מללו קריאים יוהלן מרחש עלולו ובליהם ברכש בחרות בחרהונת

ברוקס וחרמיה ניגזרה. ואעלס או שרטאיה או ייני קבלה קמין או שחי קדועה פקט.

ואמא או נמי ברי אלימעכי פלא מפגח אבראה מחלו יווני מוידיס מזרדן מרתון

לרצן מרצון ורצון. עליה ארצישי כל אולימרים ויהיו אלבל我々 אליאווי אראנץ או

קבלה או אלישא יתורכ התות היא אוסמא פקט פלא תבלמע מעע אלפאפעיא מחלפק.
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):

וּ ָ֥יָּרְדִִ֔ים [(jɔː.ɔɸ).ˈðuː] ‘they went down’ (Exod. 15.5)

וּ ֵ֨יֵרְד [(je.ɛɾ).ˈðuː] ‘they (m) will come down’ (1 Sam. 13.12)

י וֹרְדִִ֔ים [(joː.ɔɹ).ˈðiː.im] ‘coming down (mpl)’ (Jud. 9.37)

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’), מֵרַ֣עֹת (Ezek. 34.10 ‘from feeding’), מֵרְדַָ֣ה (Gen. 46.3 ‘from going down’) the *shewa* would be silent, viz. [meɛ̄rəʔoθ], [meɛ̄rəʔoθ], [meɛ̄rəˈðɔː]. 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 מֵרַ֣עֹת (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* /ɔ̄/ or long *šere* /e/. 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. מֵרַ֣עֹת /mē.ɾχū.ʃ/ [meː-ɾa.ˈχuː.ʃ]. 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 *resh*, i.e. /bir.ḥō.v/ > /bii.ẓhō.v/. Ev-
idently, there was a constraint against this additional adjustment
of the syllable structure.

The *Diqduqe ha-Ṭeʿamim* (ed. Dotan 1967, §20) includes
some cases of constructions consisting of a prefixed particle with
*qameš* or *šere* before *resh* as examples of the practice of the Mas-
orete Pinḥas Rosh ha-Yeshiva to use *ḥatef pataḥ* to indicate that
a *shewa* on a non-guttural consonant was vocalic, viz.

- מִרְפִּידִים ‘from Rephidim’ (L [BHS]: מִרְפִּידּים, Exod. 19.2)
- הָּרְחַת ‘the respite’ (L [BHS]: הָּרְחַת, Exod. 8.11)
- הָּרְחַב ‘the fourth’ (L [BHS]: הָּרְחַב, Gen. 2.14, etc.)
- הָּרְבִיעַת ‘the property’ (L [BHS]: הָּרְבִיעַת Num. 16.32, 1 Chron. 27.31, 2 Chron. 21.17)
- הָּרְשִׁים ‘the bad ones’ (L [BHS]: הָּרְשִׁים, Exod. 9.27, etc.)

With the exception of הָּרְבִיעַת (Num. 16.32), L vocalizes all
cases of *resh* in these constructions with a simple *shewa*. Even in
Num. 16.32 the *ḥatef pataḥ* is misshapen and the *pataḥ* appears
to have been added during a later revision. As one would expect,
A marks a *ḥatef pataḥ* in many cases to indicate explicitly that the
*shewa* was vocalic. The extant examples include:

- הָּרְבִיעַת ‘the fourth’ (L [BHS]: הָּרְבִיעַת, 1 Kings 6.37)
- הָּרְבִיסִים ‘and the rough places’ (L [BHS]: הָּרְבִיסִים Isa. 40.4)
- הָּרְבִיסִים ‘and the wicked’ (L [BHS]: הָּרְבִיסִים, Isa. 57.20)
- בָּּרְשָׁעִים ‘(do not envy) the wicked’ (L [BHS]: בָּּרְשָׁעִים, Prov. 24.19)
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)
- הָּרְבִיעִָ֜ית ‘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:

- מֵרְא וֹת (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 ħāṭef 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 hatef sign to represent this quality, e.g.

הרותים ‘the distant ones’ (Isa. 46.12, 66.19)

וברחבות ‘and in the squares’ (Cant. 3.2)

מרחב ‘from the square of’ (2 Sam. 21.12)

Some of the Karaite transcriptions use the Arabic sukun symbol to mark explicitly that a shewa is silent. It is significant that examples can be found in the manuscripts of the sukun 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.

وحבו וברחבות [wuvɔɔʁɔʁɔ] (BL Or 2554 fol. 56v, 9 | L

[BHS]: ובחרבות 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 שור ‘to drive out’, לאכ ‘to eat’, דבר ‘to bless’, דיר ‘to go down’, and ההל ‘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 בִּ'רֲךֵָ֥נִי ‘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: וּבָּוַוְהִתְבָָּּ֥רְכ [vīhiθˈbɔːɔʀ̟χuː ˈvoː] ‘they will bless themselves in him’ (A: וּהְתָבָּרְךָ, Jer. 4.2)

L: וּבֹ֑וַֹוְיִתְבָָּּ֥רְכ [vījiθˈbɔːɔʀ̟χuː ˈvoː] ‘and may they bless themselves in him’ (A: וּוְיִתְבָּרְךָ, Psa. 72.17)

L: וּנִָּׂ֖אַבָָּּ֥רְכ [ˈbɔːɔʀ̟χuː ˈnɔː] ‘bless!’ (A: וּבָָּּ֥רְכ, 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: וּבָּּ֥רֲכֵָ֥נִי [bɔːォχeːniː] ‘bless (ms) me!’ (Gen. 27.34)

L: וּבָּּ֥רֲכָ֥וַּיְהוֵָּ֗ה [bɔːォχuː] ‘bless the Lord’ (A: וּבָּּ֥רֲכ, Psa. 103.20)

L: בַּעֲבִׂ֖וּרַתְבָּרֲכַָ֥נִּיַנַפְשֶׁך [tavɔːォχaːnːiː] ‘in order that your soul blesses me’ (Gen. 27.19)

L: וּבָּּ֥רֲכִׂ֖וַּיְהוָּ ה [bɔːォχuː] ‘bless the Lord’ (Jud. 5.2)


\(^{124}\) According to *Diqduqe ha-Ṭeʿamim* (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 ḫatef 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 ḫatef pataḥ more regularly, such as the manuscript known as L17:125

L: וּבָּרְכִֶ֔נּוּ [wuvɔːχuː] ‘and bless’ (L17, Aכִׂוּבָּרֲַ, 2 Sam. 21.3)
L: לַֹ֣אַבָּרֲַ [θavɔːχɛːɛnnuː] ‘do not bless him’ (L17, Aכִֶ֔נּוּתְבָּרֲַ, 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:126

L: מְבַָּ֣רְַכִֶ֔יך [maˌvɔːχɛːχɔː] ‘and I will bless those that bless you’ (Gen. 12.3)

According to Masoretic sources,127 Ben Asher read a shewa on the resh in forms from the root שׁגר ‘to drive out’ as vocalic

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 ḫatef pataḥ in L, L17 and other manuscripts attributed to Samuel ben Jacob.

126 This is confirmed by Hidāyat al-Qārī, which states that מְבַָּ֣רְַכִֶ֔יך ‘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: וּלֹ אַאֲגָּרְשֶָׁנּ [ʔaɾɔːɾ̟aˈʃeːɛnnuː] ‘I will not drive them out’ (Exod. 23.29)

L: וּאֲגָּרְשִֶׂ֖נּ [ʔaɾɔːɾ̟aˈʃeːɛn.nuː] ‘I will drive them out’ (Exod. 23.30)

L: וּוַאֲגָּרְשִֶׂ֖נּ [ʔaɾɔːɾ̟aˈʃeːɛn.nuː] ‘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: וּוַיְגָּרֲשֵֵׁ֗ה [ˌvaːɾ̟aˈʃeuː] ‘and he drove him out’ (Psa. 34.1)

There was one exception, in which Ben Asher read the shewa as vocalic (indicated by hatef patah in L and A):

L, A: וּוְיֹגָּרֲשֵֵׁ֗ה [ˌvaːɾ̟aˈʃeuː] ‘and he drove him out’ (Psa. 34.1)

By contrast, Ben Naftali read the shewa in all forms of the root ושֶר as silent.¹²⁸

The same applies to the root אכש.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


vocalized with a ḫatef pataḥ. In L the marking of ḫatef pataḥ is not systematic. The ḫatef sign is found in only 14 cases out of 24, and in some of these the ḫatef appears to be a later modification of an original simple shewa sign.  

L: תֹ אכֲלִֶ֔נָּּה [tʰoːχaˈlɛːɛ nnɔː] ‘you shall eat it’ (Gen. 3.17)  
L: יֹאכֲלִֶ֔נָּּה [joːχaˈlɛːɛ nnɔː] ‘he may eat it’ (Lev. 6.11)  
L: וּתֹאכֲלֶֹ֑נּ [tʰoːχaˈlɛːɛ nnuː] ‘you may eat it’ (Num. 18.10)  
L, A: תֹ אכֲלֶֹ֑נּ [tʰoːχaˈlɛːɛ nnʊː] ‘you (ms) shall eat it’ (Ezek. 4.12)  

Examples from L with simple shewa:

L: יֹאכְלֶֹ֑נּ [joːχaˈlɛːɛ nnʊː] ‘he may eat it’ (Lev. 7.6)  
L: וּנַֹ֣אכְלִֶ֔נּוּוְַ [vanoːχaˈlɛːɛ nnʊː] ‘that we may eat him’ (A: לֶַ֣נּוּוְנֹאכֲַ, 2 Kings 6.28)  
L: וּנַֹ֣אכְלִֶ֔נּוּוְַ [vanoːχaˈlɛːɛ nnʊː] ‘that we may eat him’ (A: לֶַ֣נּוּוְנֹאכֲַ, 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: וּיֹאכְל [vaɟɟoːχˈluː] ‘and they ate’ (Jos. 5.11)  
L, A: יֹאכְל [joːχˈluː] ‘they will eat’ (1 Kings 21.23)

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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: אוכְּלֶֹ֑יהַָּ [ʔoːoχˈleːχɔː] ‘those (m) who eat it’ (Ecc. 5.10)

By contrast, Ben Naftali read the *shewa* as silent in all forms of the root לָאכankind, including those that are followed by a suffix with *segol* and geminated *nun*.\(^{131}\)

According to *Diqduqe ha-TeV’amim* (ed. Dotan 1967, §25), when forms from the roots ד"ר ‘to come down’ and יד‘ו ‘to go’ are in *dehq* constructions (§I.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 *haṭef pataḥ*, but most of these are the result of later corrections from an original simple *shewa* sign,\(^{132}\) e.g.

L: אֵרֲדָּה־נַָּ֣א [ʔeːʀَ̟اːðɔˑ-ˈnnɔː] ‘I will go down’ (Gen. 18.21)

L: אֵלֲכָּהַנֵָּ֗א [ʔeːla.χɔˑ-ˈnnɔː] ‘let me go’ (Exod. 4.18)\(^{133}\)

L: נֵלֲכָּה־נָּ֞א [ˌneːlɛkɔˑ-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 *haṭef pataḥ*, e.g.

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\(^{131}\) *Kitāb al-Khilaf* (ed. Lipschütz 1965, 17, 1). Phillips (2020) suggests that the frequent lack of *haṭef 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 אֵלְכָּה according to the vocalization of the first hand in the manuscript.
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L, A: נָלַכֶּהַ (1 Sam. 26.11)

L, A: נָלַכֶּהַ (2 Kings 6.2)

L, A: ‘I shall go’ (Jer. 40.15)

L, A, L17: נָלִכָּה (1 Sam. 9.6)

L, A, L17: ‘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 נָלַכֶּהַ, he cites the following examples:

L: נִיְרָשָּׁה (A: נִיְרָשָּׁה, Psa. 83.13) ‘let us take possessions for ourselves’

L: נ וֹתְרָּה (A: נ וֹתְרָּה, Ezek. 14.22) ‘there is left in it’

L: יִרְעָּה (A: יִרְעָּה, Isa. 15.4) ‘his soul trembled’

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 הֶלְכָּה according to the vocalization of the first hand in the manuscript.
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L: יְשֵׁיזְבִנּ [jaʃe:zavinʰ] ‘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: יָשָּׁהַ ‘it has oppressed me’ (Isa. 38.14)
L, A: יָשָּׁהַ ‘it did that’ (Isa. 41.20)
L, A: יָשְׁבָּהַ ‘it breathed upon it’ (Isa. 40.7)
L, A: יָרְבָּ ‘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]: יָשָּׁהַ [BHS]: יָשָּׁהַ 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: יָנְרָבָּ ‘I would approach him’ (Job 31.37)
L, A: יָנְרָבָּ ‘columns’ (Joel 3.3)

A: יָנְרָבָּ ‘the power has gone’ (L [BHS]: יָנְרָבָּ, 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 (דִּבְרֵי יִשְׂרָאֵל) [Dan. 6.17]. The consonants in potential contact here, nevertheless, are still relatively weak (fricatives). The distribution of ḫatef 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. אֲכָלֵנָה Gen. 3.17) or a following word to which the first word is bound prosodically by maqqef or deḥiq (אַלְכָּה 2 Kings 6.2, אֶלָּכְתָה 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-Qārī' refers to the
quick reading and compression of vowels in constructions with *dagesh* associated with *dehiq* (see §1.2.8.1.2.). 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 maqef to what follows is sometimes transcribed without a *mater lectionis*, reflecting the shortening of the vowel, e.g.

هذ (Genizah MS 13, Khan 1990a, 13 | L [BHS]:_jobs 181.3 ‘majesty’)

هن (Genizah MS 13, Khan 1990a, 13 | L [BHS]:_jobs 181.3 ‘wealth’)

This potential contraction would have been prevented by reading the *shewa* as vocalic.

In forms with suffixes such as תֹּאכֲלִֶ֔נָּּּה 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 בְּרָכִּי, in a form without the stress before the *resh* such as בּוֹרֵכִי (Gen. 27.34) the *resh* may have been weaker than in a form in which the stress is placed before the *resh*, such as והבּוֹרֵכִי (Jer. 4.2), and this motivated a reading with vocalic *shewa* that made the sonorant *resh* more salient in the first type of form.
I.2.5.7.6. Eliphelehu

In A a *ḥaṭef pataḥ* is written on the pe after a long vowel in the proper name Ṣ-apiṭ ʾelī♣e·le·hu [vɛːʔɛˌliˌfaˈleːhuː] ‘and ‘Eliphelehu’ (וּוֶאֱלִֵ֨יפֲלֵָ֜ה, 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’ < אֱלִיָּה). The vocalic *shewa* evidently reflects the interpretation of the name as a compound with a morphological division after the initial element Ṣ-apiṭ.

I.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.ˈɪːː] (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.

I.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.

הַמְדַבֵָּר [hα̂mːaðabˈbeːɛr] ‘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.mðab.bē.r/ > /haa.mðab.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 תְרוּמִָּ֔הַהַ מְס כַָּ֣ן ‘he who is impoverished in respect to offering’ (Isa. 40.20), רָמַר ‘the one speaking’ (Gen. 45.12, etc.), except for one case, namely הַזִֶׂ֖הַהַמְשׁ גָָ֥ע ‘this madman’ (2 Kings 9.1).135

In all such words in L a gaʿya occurs on the pataḥ after the he, with the exception of הַמְשִׁגָּע (2 Kings 9.11). In A the vocalic shewa in such forms with an article is represented by ḫāṭef pataḥ, e.g. הַמְשִׁגָּע (Isa. 40.20), קִסָּרָה (2 Sam. 14.10), but in הַמְשִׁגָּע (2 Kings 9.11) simple shewa is marked, reflecting the fact that it was read as silent.

Hidāyat al-Qāriʿ 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: בַּמְצָֹּד ‘in the stronghold’ (1 Chron. 11.7)
L, A: לַמְנֵה ‘to the stronghold’ (1 Chron. 12.9)
L, A: לַמְנַצֵָ֥חַ ‘to the choirmaster’ (Psa. 4.1, and passim)
L, A: לַמְנִָ֥י ‘for destiny’ (Isa. 65.11)

As in הַמְשִׁגָּע, the shewa in these words without gaʿya was silent. The passage in Hidāyat al-Qāriʿ 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 ḫāṭef pataḥ in the cited words (הַמְנַדִִׂ֖ים הַמְחַכִַ֣ים). In the medieval manuscripts words fitting the description in this passage have gaʿya and vocalic shewa (indicated by ḫāṭef pataḥ in the extant sections of A), with only a few exceptions, e.g. הַמְיַלֶּדֶת.

‘the midwife’ (Gen. 35.17) and, if the vowel letter is ignored, ‘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-Qārī 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 הנְדַבְּרִים ‘those who speak’ (Exod. 6.27), הנְמַרְרִים ‘those that curse’ (Num. 5.19), apart from some exceptions that deviate from this rule, for example הנְבַקְשִׁים ‘those who seek’ (Exod. 4.19, etc.).

In a form such as הנְדַבְּרִים 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-Ṭeʿamim (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: הנְדַבְּרִים [ˌhaˑmdabbaˈrimon] ‘those who speak’ (Exod. 6.27)
L: הנְיַלְדוֹת [ˌhaˑmjallaˈdoʊθ] ‘the midwives’ (Exod. 1.17)
L, A: הנְמַמְרָות [ˌhaˑnməməˈmort] ‘the snuffers’ (2 Kings 25.14), הנְמַמְרָות (Jer. 52.18)

138 A similar list is cited in the treatise on the shewa (ed. Levy 1936, וב).
L, A: הַמְקַטְרִַ֣ים [ˌhaˑmq̟ɑttˁɑˈʀ̟iːm] ‘those who burn incense’ (2 Kings 23.5)

L: והַמְהַלְלִֹ֑ים [ˌhaˑmhallaˈχiːm] ‘those who move’ (Ecc. 4.15)

L, A: הַמְבַשְּׁלִ֔ים [ˌhaˑmvassaˈʀ̟iːm] ‘those who cook’ (Ezek. 46.24)

L, A: הַמְשַחֲקִׂ֖וֹת [ˌhaˑmsʔaːħaˈq̟oːθ] ‘the ones (fpl) playing’ (1 Sam. 18.7)

L, A: הַמְעַשְרִִ֔ים [ˌhaˑmʕassaˈʀ̟iːm] ‘those who collect tithes’ (Neh. 10.38)

L, A: הַמְמִשְׁרִִׂ֖ים [ˌhaˑmʔɔːʀ̟aˈʀ̟iːm] ‘those that curse’ (Num. 5.19)

L: הַמְחָלָּל [ˌhaˑmħulˈlɔːɔ] ‘the one profaned’ (Ezek. 36.23)

L, A: הַמְשַׁמְשָּׁרָ֖ים [ˌhaˑmʃaʃʃaˈʀ̟iːm] ‘those who make straight’ (Prov. 9.15)

L, A: הַמְיַשְּׁרִֵ֗ים [ˌhaˑmjaʃʃaˈʀ̟iːm] ‘those who make straight’ (Psa. 68.12)

L: הַמַּשַּׁרְרִים [ˌhaˑmʃɔːʀ̟aˈʀ̟iːm] ‘the singers’ (Ezra 2.41)

L, A: הַמְמַשְׁרִִׂ֖ים [ˌhaˑmmsʔaʃʃaˈfiːim] ‘those who chirp’ (Isa. 8.19)

L, A: הַמְקַבְּרִִ֔ים [ˌhaˑmq̟abbaˈʀ̟iːm] ‘those who bury’ (Ezek. 39.15)

L, A: הַמְקַטְרוֹת [ˌhaˑmq̟ɑttˁɑˈʀ̟oːθ] ‘(altars) for burning incense’ (2 Chron. 30.14)

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 haṭef with an identical quality. These syllabic patterns may be represented thus: מִשְׁתַחֲוִים מֵתְפַלְפְלִים מֵתְכָּבְלִים and מְחַלְפָלְלִים. Examples of each of these are:

הַ כַרְמְלִ ית [ˌhaˑkkʰaɾmaˈliːθ] ‘the woman of Carmel’ (1 Sam. 27.3)

נִ תְחַכְמִה [ˌniˑθħakkʰaˈmɔːθ] ‘let us deal wisely’ (Exod. 1.10)

הַ מַחֲנִה [ˌhaˑmmaːħaˈnɛːθ] ‘the camp’ (Gen. 50.9)

מִ שְׁתַחֲוִים [ˌmiˑʃtʰaːħaˈviːim] ‘prostrating (mpl) themselves’ (Gen. 37.9).  

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].

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.

תוֹנָה (with vocalic shewa additional to the pattern) ‘the Canaanite woman’ (1 Chron. 2.3)

וָּלְכּ (with a vowel of different quality before the ħaṭef) ‘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.

נָאְמָנָה ‘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-TeVʾamim have the syllabic patterns that are suitable for minor gaʿya, e.g. [haˑm-sʾufsʾaʾfi:im] ‘those who chirp’ (Isa. 8.19), [haˑmḍab-baʾr̟i:im] ‘those who speak’ (Exod. 6.27) and as [haˑm-sa:ḥaʾq̟oːθ] ‘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-TeVʾamim as cases with silent shewa under the mem have conjunctive accents, viz. תַּפַּעֲלִים (L and A) ‘the snuffers’ (2 Kings 25.14), קְמָפָרִים (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. עָרָרִים (L) ‘those that curse’
(Num. 5.19), הַ מְשֹׁרְרִים (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 הַ מְשֹׁרְרִים (L and A) ‘the oppressed’ (Isa. 23.12) and הַ מְח לָּּל ַ (L and A) ‘the one profaned’ (L and A, Ezek. 36.23). By contrast, the puʿal participle הַ מְכַשְׁשֵׁי (A וְהַ מְכַשְׁשֵׁי, Ezek. 48.11), which is identical in syllable structure to הַ מְח 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. הַ מְבַקְשִׂים (L) ‘those who seek’ (Exod. 4.19), in which the shewa on the qof is silent. An analogous case is וְהַ מְמַלְאִִׂים (L) ‘and those who fill’ (A הַ מְמַלְאִַּם, Isa. 65.11). The cited forms with vocalic shewa, confirmed by the occurrence of hafetz 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: הַ מְדַבְּרִים ‘those who speak’ (A: דַבְּרִיםהַ מֲַ 2 Chron. 33.18)

L: הַ מְשַׁלְּחִים ‘those that send’ (A: שַׁלְּחִיםהַ מֲַ 2 Chron. 32.31)

L, A: הַ מְצֹרָּעִים ‘the ones abhorring’ (Mic. 3.9)

Also cited is הַ מְצֹרָּעִים (L) ‘the lepers’ (A הַ מְצֹרָּעִים, 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 הַ מֲַקְלָבִים ‘those who lap’. A version of the rule
specifies המלךָּי, 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: המלךָּי (A המלךָּי, Jud. 7.6)

L, L17, A: המלךָּי (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: המרgone והמרgone ‘those who spy’ (A: המרgone, Josh. 6.22)

L: המרgone והמרgone (A המרgone, 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.bri.m/ [haˈmðabbəːɹi:m]

Some words beginning with the article + mem with shewa (הַמְַ) 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: חַמְּק שָּׁרוֹתַ֒הַַ [hamʔɔːʃʃɔːˈʀ̟oːθ] ‘the ones bound’ (Gen. 30.41)
L: חַמְּאָדָּמִִ֔ים [hamʔɔːdðɛːˈmiːim] ‘those dyed red’ (Exod. 39.34)
L: חַמְּאָרְרִַּ֤ים [hamʔɔːˈɾ̟əɾ̟iːim] ‘the cursing’ (Num. 5.22)
L: חַמְּאַֹ֣רָּשִָּ֔ה [hamˌʔoʃʃɔːˈɾ̟ɔːʃɔː] ‘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 הַmem with minor gaʿya. In Exod. 6.27, for example, it is reported that Ben Asher read המדבר without minor gaʿya whereas Ben Naftali read this המדברים with minor gaʿya (ed. Lipschütz 1965, 196). In this case, L corresponds to the reading of Ben Naftali (הַמְַ ‘the ones who speak’). Ben Asher read the shewa on the mem in the word המְַ in Josh. 6.22 and Josh. 6.23 as
vocalic, but Ben Naftali regularly read it as silent (ed. Lipschütz 1965, 20, דכ).

When the *patah* of the article before מ has gaʿya, the Karaite Arabic transcriptions generally represent it as long by transcribing it with *mater lectionis ʿalif*, e.g.

हा माजीम | [BL Or 2549 fol. 82r, 7 | L [BHS]: הַ מְזִמָּּֽתָּה Jer. 11.15 ‘the wickedness’]

हा मावतीम | [BL Or 2544, fol. 111v, 12 | L [BHS]: הַ מְבַקְשִִׂׂים Exod. 4.19 ‘those who seek’]

हा मावतीम | [BL Or 2542, fol. 43v, 6 | L [BHS]: הַ מְיַלְּדֹת 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.

हामोशशः | [BL Or 2555 fol. 29r, 3 | L [BHS]: הַ מְשׁ לּ phonetic gaʿya and vocalic *shewa*, Ecc. 4.12 ‘the threefold’]

हामोशशः | [BL Or 2555 fol. 33r, 3 | L [BHS]: הַ מְוָלִלִים minor gaʿya and silent *shewa*, Ecc. 4.15 ‘those who move’]
It is significant that in some manuscripts a phonetic gaʿya on הב is neither marked in the manuscript nor represented in the transcription where it occurs in L and A, e.g.

\[ [\text{hamhal}ˈleː\text{x}] \] (BL Or 2551 fol. 78v, 6 | L [BHS]: הב, A הב, Psa. 104.3 ‘he who walks’)

\[ [\text{hamjal}ˈleː\text{x}] \] (BL Or 2551 fol. 81v, 3 | L [BHS]: הב, A הב, 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 (§I.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.

\[ [\text{hamleːʔ}ˈɔː] \] ‘the one full’ (L: הבלאה, A: הבלאה, Amos 2.13)

\(^{141}\) Named the Codex Babylonicus Petropolitanus in the facsimile edition by Strack (1876).
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הֲמְבֲקֵשִים [hamvaqšiym] ‘those who seek’ (L: הַמְבַקְשִים, A: הַמְבַקְשִים, Jer. 11.21)

הֲמַעֲבִים [hamθa:vi:im] ‘the ones abhorring’ (L, A: הַמַּעֲבִים, 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 הַמְשָּׁע 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.

הַמְלָכִים ‘the kings’ (Gen. 36.31)

הַמְפוֹת ‘the doorposts’ (Exod. 12.7)

הַמְנוֹרָה ‘the lampstand’ (Exod. 25.31)

הַמְצֹרע ‘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 *ga’ya*, e.g.

L: תונ甭[וְהַ נְשַׁמָּ֥וֹת] הַ נְשַׁמָּ֥וֹת `and the desolated ones' (A תונ甭[וְהַ נְשַׁמָּ֥וֹת] 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 ‘alif* in the Karaite transcriptions, even when a *ga’ya* sign is not marked in the transcription manuscript, e.g.

[ha:na[am’mo:0] (BL Or 2549 fol. 106v, 15 | L [BHS]: תונ甭[וְהַ נְשַׁמָּ֥וֹת, A תונ<usize[וְהַ נְשַׁמָּ֥וֹת, 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.

*תונטע[וְהַ נְשַׁמָּ֥וֹת]* ‘the young men’ (Gen. 14.24)

*תונفع[וְהַ נְשַׁמָּ֥וֹת]* ‘the Nephilim’ (Gen. 6.4)

Gemination is sometimes lost in *yod*, but the *shewa* is silent and there is no compensatory lengthening, e.g.

*תונ thụ[וְהַ נְשַׁמָּ֥וֹת]* ‘the children’ (Gen. 33.5)

*תונש[וְהַ נְשַׁמָּ֥וֹת]* ‘the Jebusite’ (Josh. 15.8, etc.)

*תונש[וְהַ נְשַׁמָּ֥וֹת]* ‘for the upright’ (Psa. 112.4)

*תונש[וְהַ נְשַׁמָּ֥וֹת]* ‘on the curtain’ (Exod. 26.5)

In several places the gemination is retained, e.g.
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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 ‘the Levites’ (Exod. 6.25, etc.) without compensatory lengthening. Elsewhere the *lamed* is geminated, e.g.

the frankincense’ (Lev. 6.8)

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.

by the whirlwind’ (A בֵּשֶׁרּ 2 Kings 2.1, 11)

for the badgers’ (A לְשׁנֵים Psa. 104.18)

and the hooks’ (A וּלְשׁוֹפֵחֲיָה, Ezek. 40.43)

In other cases the *shewa* is silent and there is no compensatory lengthening, e.g.

the frames’ (1 Kings 7.28)

the elders’ (A: הוּכֵנִים 1 Kings. 21.8)

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 *ṣade* of this
word (נְפֶרֶדְתִּים), indicating that the shewa was vocalic despite the fact that its structure is appropriate for minor gaʿya.

*Qof* generally retains gemination, e.g.

ףַרְדְּעִִ֔ים, indicating that the shewa was vocalic despite the fact that its structure is appropriate for minor gaʿya.

هַקְּדֵשָָ֛ה ‘the harlot’ (Gen. 38.21)

הַקְּרָּשִִׁׂ֖ים ‘the boards’ (Exod. 26.15)

There are a few exceptions, e.g.

L: הקטניס ‘the small ones’ (A הקטניס Isa. 36.9)

L, A: בַּקְרָּב ‘in the battle’ (2 Sam. 17.11)

L, A: לַקְרָֹ֑ו ‘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)

הַמְעָּרַַ֣תַפָּרִצִֵ֗יםַהָּיָּ הַהַבַּ יִתַהַזֶָ֛ה ‘Has this house become a den of robbers?’ (Jer. 7.11)

וּיִהְבְּוטְנַהָיָּ הַהַרְגֵ נִי ‘Should he treat our sister as a harlot?’ (Gen. 34.31)

וּיִהְלָרְגַנִּי ‘Do you intend to kill me?’ (Exod. 2.14)

וּיִהְלָרְגַנִּי ‘Have you invited us here to impoverish us?’ (Jud. 14.15)

וּיִהְלָרְגַנִּי ‘Have you listened to the council of God?’ (Job 15.8)
On some occasions, a phonetic gaʿya 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: [həmaʃɔːθaiːni:] ‘have you found me?’  (A 1 Kings 21.20)

As is the case with the phonetic gaʿya 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.ʃ5.05.ni/ > /haa.msʃ5.05.ni/ [haːma.sɔːθaiːni:].

In the extant portions of A, the vocalic reading of the *shewa* is made explicit by a *hatef* sign. Further examples:

L: [həmaʃɔːθaiː] ‘Shall I hide?’  (Gen. 18.17)
L: [həvaʁɔːθaiː] ‘one blessing?’  (Gen. 27.38)
L: [hənaqalʃɔː] ‘Is it a little thing?’  (A: 1 Sam. 18.23)
L: [həʃaxarʃeθem] ‘Have you forgotten?’  (A: Jer. 44.9)
L: [həθaʃəʃeθer] ‘Can you bind?’  (A: Job 38.31)
L: [hɑːθə[ləːh] ‘Can you send forth?’ (A: וֹתַַּ֣חַ תְשַׁלַַּ֣ח Job 38.35)

L: [hɑːθəmələː] ‘Can you fill?’ (A: וֹתַַּ֣חַ הַ תְּמַלֵַּ֣א Job 40.31)

In a few cases where ga’ya is marked on interrogative he both L and A have a simple shewa on the following consonant:

L, A: [hɑːθəlaː[nəː] ‘Will the Lord spurn forever?’ (Psa. 77.8)

L, A: [hɑːθəstəkəˈbə] ‘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: [hɑːlɔːˈmiːim].

The lengthening of the patah of the interrogative particle is reflected by mater lectionis ʾalif in the Karaite Arabic transcriptions, e.g.

[ʔaːθəqəˈeɾ] (BL Or 2552 fol. 81r, 15 | L [BHS]: וֹתַַּ֣חַ רִשָּׁהַ תְּקַשֵּׁר, Job. 38.31 ‘will you bind?’)

[ʔaːθəmələː] (BL Or 2552 fol. 85r, 9 | L [BHS]: וֹתַַּ֣חַ גָּמַל הַ תְּמַלֵַּ֣א, Job. 40.31 ‘will you fill?’)

[ʔaːθəsaːhəqˈboː] (BL Or 2552 fol. 84v, 11 | L [BHS], Job. 40.29 ‘will you play with him?’)

The early Tiberian biblical codices exhibit some degree of variation, e.g.
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L: יִתַּהַזֶָה הַבַּיִת הַמְּעָּרַַ֣תַפָּרִצִֵ֗יםַהָּיָּ without gaʿya [haməʕɔːˈrəːʃaːθaθ], ‘Has this house become a den of robbers?’ (A תֶּהֱמְשִׇּׁרַ֣ר [ha:moʃaːθaθ], 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: יֵשֶׁכִּתֵם [haʃkaḥʔaːθaːm], ‘Have you forgotten?’ (A: כַחְתֶּם, I Firk. Evr. I B 3 [haʃkʰaˈθaːm], 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.

הָכְסִיךְ [hakkʰasːaʕɔːqɔːˈθɔːɔ], ‘whether it according to its outcry’ (Gen. 18.21)

הָכְסִיךְ [hakkʰaˈθoːnɛθ], ‘acknowledge now whether it is your son's robe’ (Gen. 37.32)

беָמֵחַי [habbamaːhaˈniːim], ‘is it in camps?’ (Num. 13.19)

הָכְסִיךְ [hakkʰamakˈkʰaːθaθ], ‘Has he struck him as the one who struck him?’ (Isa. 27.7)

הָכְסִיךְ [haʃrɪʔiːˈθɛːɛm], ‘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.

‘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 ḫatef pataḥ sign. A ḫatef 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: ויֹ֑צִלֲל  [sˁiːlaˈloː] ‘his shade’ (Job 40.22)
L, A:  תוֹ֑צְלִַל  [qiːlaˈloːoθ] ‘the curse of’ (Jud. 9.57)
L:  מִ֑לָּלַי  [miːlaˈlaːj giːlaˈlaːj] ‘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.lalo:]
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 תְרִבְבִׂוֹת, Mic. 6.7)

L: בְּחַצְַסָאְסָאְסָאְסָאְסָאְסָא ‘in Hazazontamar’ (Gen. 14.7)

L: וּפִַל ‘and he will mediate for him’ (A: וּפִַל, 1 Sam. 2.25)

L: הָלְל ‘the slain of’ (A: הָלְל, 1 Sam. 17.52)

L: בָּקַל ‘when he cursed’ (A: בָּקַל, 2 Sam. 16.7)

L: מְַה ‘why do you boast?’ (A: מְַה, Jer. 49.4)

L: הָלְל ‘the dung of’ (A: הָלְל, Ezek. 4.12)

L: שְָמָא ‘devastations of’ (A: שְָמָא, Ezek. 35.9)

L: לְַתי ‘the howling of’ (A: לְַתי, Zech. 11.3)

L: בּוֹנַי ‘when I bring clouds’ (A: בּוֹנַי, Gen. 9.14)

L: נְַי ‘be gracious to me’ (A: נְַי, 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: לְְ֝חֶ נְנֵָּ֗הּ [lɛħɛːnaˈnɛːɔh] ‘in order to favour it (fs)’ (Psa. 102.14)

L, A: וּ ִׂ֖הַ לְל [haːlaˈluː] ‘praise’ (Jer. 20.13)

L, A: וּ ָ֥וְהִתְפַ לְל [vihiθaːlaˈluː] ‘and pray’ (Jer. 29.7)

L, A: וּ ָ֥וְהַ לְל [haːlaˈluː] ‘praise the Lord’ (Psa. 106.48)

Sporadically the gaʿya is omitted, though A has a hatef pataḥ, e.g.

A: נְגַשְׁשַָּּׁה [naʁaʃaˈʃuː] ‘we grope’ (L: גַּגְשָּׁה, Isa. 59.10)

L: גֶלֲלֵ֣י [gɛːlaˈleː] ‘the dung of’ (A: גֶלֲלֵי, Ezek. 4.15)

L: יְהַלְלֶֹ֑ךַָּ [jahaːlaˈlɛːɛkkʰɔː] ‘and it will praise you’ (A: יְהַלֲלָ֥וּך, Isa. 38.18)

In the following example, the gaʿya is omitted in both L and A, with a hatef pataḥ indicating the vocalic shewa. There is a musical gaʿya 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. פַלְפְלִיםמְ ַ פַעֲלִיםמְ ַ (§I.2.9.).

L, A: כְ ֶ֭גֶלֲל [ˌkʰaˑʁɛːlaˈloː] ‘like his dung’ (Job 20.7)

In such cases, the hatef pataḥ is often omitted in L, e.g.

L: לָ֥וּיְ הַלְַ [ˌjaˑhaːlaˈluː] ‘they praise’ (A: לָ֥וּיְ הַלֲל, Psa. 74.21)

L: לָ֥וְיְ הַלֲל [jaˈhaːlaˈluː] ‘they praise you’ (A: לָ֥וְיְ הַלֲל, Psa. 84.5)

L: מְשַׁ [jaˈmaːʃaˈʃuː] ‘they grope’ (A: מְשׁ, Job 5.14)

When the word contains a musical minor gaʿya, in L there is often no marking of either the phonetic gaʿya or the hatef pataḥ. Likewise in A the phonetic gaʿya is omitted and also the hatef
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. מַחֲמֵת שֶוֹא, מַחֲמֵת שֶוֹא (§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: וּוְיַהַלְלִים [ˌvaˑq̟aˑləˈluˑ] ‘and they cursed’ (Jud. 9.27)
L, A: וְיַהַלְלִים [viˌjiˑθaˑləˈluˑ] ‘and they will glory’ (Isa. 45.25)
L: וַיַּהַלְלִים [ˌvaˑjhaˑləˈluˑ] ‘and they praised’ (A: הוּוֹלֵת, 2 Chr. 29.30)
L: הוֹלֵת [ˌhiˑθələˈluˑ] ‘glory!’ (A: הוּוֹלֵת, 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 ḫaṭef pataḥ, e.g.¹⁴³

JTS 232/ENA 346: וְיַהַלְלִים [ˌviˑjiθaˑləˈluˑ] (Isa. 45.25)
C: וְיַהַלְלִים [ˌviˑjiθaˑləˈluˑ] (Isa. 45.25)

Both phonetic gaʿya and ḫaṭef 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).
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 ḥatef pataḥ:

L: לִֵ֗יַאַ֣לֲלַי ʻwoe is meʼ (A: אַ֣לֲלַי, Mic. 7.1)

L: וּיֵָּּ֨הַּּ֥לֲל ʻpraise the Lordʼ (A: וּֽהַּלֲל, 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 ḥatef pataḥ, e.g.

[מַּּּאַֽלֲלַי] (BL Or 2555 fol. 72v, 12 | L [BHS]: מְקַלְלֶך Ecc. 7.21 ‘he who curses youʼ)

[יָּּּ֨הַּלֲל] (BL Or 2548 fol. 32v, 12 | L [BHS]: יְהַלֲל, A: יְהַלָּל, Isa. 38.18 ‘and it (msg) will praise youʼ)

[גּוּלֵּּ֥לַי] (BL Or 2549 fol. 149r, 11 | L [BHS]: גָּלַל, גָּלִּיל, Ezek. 4.15 ‘dung ofʼ)

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 gaʿya 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: קִלְלָּתְךִַיָּ הּ ‘your curse’ (Gen. 27.13)

Ben Naftali: קִלְלָּתְךִי

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 gaʿya or ḫaṭef pataḥ in A and/or L are represented as short, e.g.\textsuperscript{146}

L: לְשִׁמְמַהְּ [laʃiˈmaːmoː] ‘into a desolation’ (A לְשִׁמְמַהְּ, I Firk. Evr. I B 3 לְשִׁמְמַהְּ [laʃiˈmaːmoː], Ezek. 35.7)

\textsuperscript{144} Cf. Heijmans (2018, 102).
\textsuperscript{145} Ed. Lipschütz (1965, ז).
\textsuperscript{146} Cf. Heijmans (2018, 103–4).
In some cases, I Firk. Evr. I B 3 marks a dagesh in the following consonant, indicating explicitly that it was closed syllable:

L: [maqalaːlaːavniː] ‘they curse me’ (A מָכָּלְלָלָלֶּ, I Firk. Evr. I B 3 מָכָּלְלָלֶּ, Jer. 15.10)

L: [mahaːlaːeːχoː] ‘those who slay you’ (A מָחָלֵלָלֶּ, I Firk. Evr. I B 3 מָחָלֵלָלֶּ, 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: [ˈhaːlaleː] ‘the slain of’ (I Firk. Evr. I B 3 מָחָלֵלָלֶּ, Isa. 22.2)

In I Firk. Evr. I B 3 this word is marked with a retracted accent (לתל) rather than being unstressed as in L and A, which would have lengthened the vowel.\(^\text{147}\)

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: [wuːqaːโรːʔuː] ‘and read’ (A וּוּ וּ קרָא, Isa. 34.16)

In such cases, A regularly marks the vocalic shewa with hated pataḥ. A hated 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.

[orarily] (BL Or 2554 fol. 35r, 2 | L [BHS]: Cant. 1.8 ‘and graze!’)

[usho] (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: לְצִיֵּּוֹןוּ ‘and regarding Zion’ (Psa. 87.5)

L, A: רְוכֶּּבֶּלֶּבֶּ ‘the war of his heart’ (Psa. 55.22)

L, A: שַׁבֵּּוֹ ‘and capture’ (Jud. 5.12)

L, A: שַׁבֵּּוֹ ‘and seven’ (1 Kings 14.21)

L: לָהַבְדִִ֔יל ‘and to divide’ (Gen. 1.18)

L: זָהַבּוּ ‘and the gold of’ (Gen. 2.12)

L: כְַנִָּּ֔הוּ ‘and like a garden’ (A: כְַנִָּּ֔ה, Isa. 1.30)

L: כְַכָּלִּ ‘as far as I was able’ (A: כְַכָּלִּ, 1 Chron. 29.2)

L: כְַכַלּוֹתִָּ֡ם ‘and when they had finished’ (A: כְַכַלּוֹתִָּ֡ם, 2 Chron. 24.14)
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L: וּסִּגְרִים ‘and the merchandise of Ethiopia’ (A: וּסִיר, Isa. 45.14)

L: וּסִּגַּר ‘and read’ (A: וּסִיר, Isa. 34.16)


L: וּסִּגַּר ‘and let it cover us’ (A: וּסִיר, Jer. 3. 25)

When the vocalic shewa occurs before a guttural with qameṣ, it is represented in A and sometimes also in L by ḫaṭef qameṣ, reflecting the assimilation of the shewa to the quality of the following vowel, e.g.

L, A: וּטֹהְר־יָָ֜דֵ֗י ‘and clean of hands’ (Job 17.9)

L: וּסְעָֹ֑דָּה ‘and refresh yourself’ (A וּסָָ֙דָּה, 1 Kings 13.7)

L: וּצְעִָ֔קִי ‘and cry out’ (A וּצָָ֙קִי, 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 maqqef.148 The examples mentioned in these sources and several other cases with maqqef do not have ḫaṭef pataḥ in L or A, e.g.

L: דְמֵה־לְךַַּוּ ‘make yourself similar’ (Cant. 8.14)

L, A: לִי־וּשְׁלַח ‘and send me’ (1 Chron. 2.7)

L, A: לְכָּל־בָּּנֶָ֛יהַָּ ‘and to all her sons’ (1 Sam. 1.4)

L, A: [ˌwuˑlχɔ-l-hammaqoˑmoˑoθ] ‘and to all the places’ (1 Sam. 30.31)

L, A: [ˌwuˑlχɔl-gibʹboɔɔr] ‘and every warrior’ (1 Chron. 28.1)

L, A: [ˌwuˑvyaˑɾ̟-r̟ɔːɔɛz] ‘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: [ˌwuˑq̟aʁɔːɔnɔn-libʹbo:] ‘and the war of his heart’ (Psa. 55.22)

L: [ˌwuˑsahar-keleton] ‘and the merchandise of Ethiopia’ (A וּ סֲחַר, 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 (§I.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: [ˌwuˑʁɪlibʹbo:] ‘and according to your heart’ (2 Sam. 7.21)

L, A: [ˌwuˑʁəm哺乳ɔˑr̟ɔːɔθ] ‘and with axes of’ (2 Sam. 12.31)

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Yeivin (1980, 247).
L, A: בְּגַלְּחוֹ [ˌwuˑvʁalloˈħo:] ‘and when he shaved’ (2 Sam. 14.26)

*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 *gaʿya*. Minor *gaʿya* was, indeed, the subject of the majority of differences in *Kitāb al-Khilaf*. Examples:¹⁵⁰

**Ben Asher:** וּבְכָּלַחִית (L: בְכָּל־חַיַּ֥תּ ‘and in every beast of’ Gen. 9.10)

**Ben Naftali:** בְכָּלַח

**Ben Asher:** וּבְהָעַלְתּ אָהַרְן (L: וּבְהַעֲלֹ תַאַהֲרֹ ן ‘and when Aaron set up’ Exod. 30.8)

**Ben Naftali:** בְּהָעַלְת

In some cases, Ben Naftali read the *vav* with a phonetic *gaʿya* and the following *shewa* as vocalic where Ben Asher read *vav* without a *gaʿya* and the *shewa* as silent, e.g.¹⁵¹

**Ben Asher:** וּקְטָּרְתִִ֔י (L, A: וּקְטְרִית ‘and my incense’ Ezek. 16.18)

**Ben Naftali:** רְתִי בֶּפֶתַח

In the case of the following example it appears that Ben Asher read the *vav* with a minor *gaʿya* and the *shewa* as silent

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¹⁵⁰ Ed. Lipschütz (1965, י, ב).

¹⁵¹ Ed. Lipschütz (1965, ה, ב).
whereas Ben Naftali read the vav with phonetic gaʿya and the shewa as vocalic:

Ben Asher: ושבערגז (L, A; ר גز–שבעرغזʼ) ‘and full of trouble’ Job 14.1

Ben Naftali: תשבע

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: [jiːsˁɑħaq̟-liː] ‘will laugh at me’ (Gen. 21. 6)
L: [baʃiːqaˈθoːoθ] ‘in the troughs of’ (Gen. 30.38)
L: [haθiːmaˈloːoχ] ‘are you a king?’ (A: כמלך, Jer. 22.15)

152 Ed. Lipschütz (1965, 1).
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L: [ma:jim] 'a gathering of water' (A: ma:jim, 2 Sam. 22.12)

L: [bi:sa\c\a'ε:s] 'in the thicket of trees' (A: no ga'ya, Psa. 74.5)

L: [ʔa:ʒe\]-[ʔe\el] 'the cedars of God' (A: ʔa:ʒe\, Psa. 80.11)

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 (§I.2.5.1.), e.g.

A: [hi:i\i\u: hi:i\i\u:vu:] ‘they have acted corruptly and have done abominable deeds’ (L: [hi:i\i\u: hi:i\i\u:vu:], 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: [ni:v\u\c\h\u] 'hastening' (A: ƀ\b\h, 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: [ʃ\u\m\u\h\u] 'hear!' (L: ʃ\u\m\u\h\u, Psa. 39.13)

153 Forms such as [a\a\u\e\l] 'and I remained’ (Ezek. 9.8) and [b\a\u\c\a\m\u\e\l] ‘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-Ṭeʿamim (ed. Dotan, 1967, §19), however, refers to the practice of some scribes to vocalize this word with ḥaṭef qames (שמועה).

The Treatise on the Shewa refers to the reading of the vocalic shewa in סַלְעִי my rock’ (2 Sam. 22.2, Psa. 18.3) as a ḥireq [sa:liˈʕiː]. 154

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 fathā vowel sign, e.g.

\[\text{מַ מְתַקִִ֔ים} \quad \text{(BL Or 2554 fol. 65v, 1 | L [BHS]: \text{מַ מְתַקִִ֔ים})}

\[\text{כִ נֲרִׂוֹת} \quad \text{(Josh. 11.2, < \text{רִׂוֹתנְַּכִ})}

In some cases, the weak consonant with the vocalic shewa has lost original gemination, e.g.

L, A: לְבָנַהו [vattaʔa:laˈʃe:huː] ‘and he urged him’ (Jud. 16.16, < \text{לְבָנַהוֹ})

L, A: כִ נֲרִׂוֹת [kʰiːnaˈrˁoːθ] ‘Chinneroth’ (Josh. 11.2, < \text{כִ נֲרִׂוֹת})

In many cases in the three books, A has a slanting merkha accent where L has a vertical gaʿya, e.g.

L: חַַ֣רבְַתִ ַ [tʰiːvaˈħaːɾ] ‘you choose’ (A: תִָ֥בֲחַַ֣ר, Psa. 65.5)

L: עַַ֣גלְַתִ ַ [tʰiːlaˈʕaːɾ] ‘it mocks’ (A: תִָ֥לֲעַַ֣ג, Prov. 30.17)

L: לִ שְׁאַ֣וֹל [liːʃoˈʔoːl] ‘for Sheol’ (A: לִָ֥שְׁאַ֣וֹל, Psa. 49.15)

L: בְּכִibilit [ziːveˈheː] ‘the sacrifices of’ (A: בְּכִibilit, Psa. 51.19)

154 Ed. Levy (1936, ה).
In a few cases where A has a merkha, an original gaʿya has been corrected to a merkha in L, e.g.

L, A: אַָ֥נֲשֵָׁ֥י 'the men of' (L first hand: נֲשֵָׁ֥יאַ, Job 34.10)

L, A: וְלִָ֥שֲׁכֵנֵַּ֨י 'and to my neighbours' (L first hand: שֲׁכֵנֵַּ֨יוְלִ, Psa. 31.12)

In the parallel passages of 2 Sam. 22 and Psa. 18, both manuscripts have gaʿya in the 2 Sam. 22 passage whereas in the Psa. 18 passage L has gaʿya and A has merkha:

L, A: סַלְעִָ֥י 'my rock' (2 Sam. 22.2)

L: לְעִָ֥יסַ ַ 'my rock' (A סַָ֥לְעִָ֥י, Psa. 18.3)

Examples such as these with merkha in A from the three books are referred to in §13 of Diqduqe ha-TeXanim (ed. Dotan 1967). The most satisfactory reading of this passage is the variant text that Dotan cites in the apparatus of his edition:

כָּלַ֖תִּיְּךָ֑וְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּךָוְּכַ֖יְּ�しないし
This, apparently original, 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 the shewa is read as a pataḥ (i.e. vocalic). The passage in Diqduqe ha-TeV’amim goes on to give four exceptions to this rule, in which the shewa is silent:

L: נַפְשִׁי ַַשָּׁ מְרַָ֣ה [ˌʃɔːɔmˈʀ̟ɔː] ‘preserve my life’ (A: שָָּׁ֥מְרַָּ֣ה, Psa. 86.2)
L: לִבִֵ֗יַשָּׁ בְרָָ֥ה [ˌʃɔːɔvˈʀ̟ɔː] ‘it has broken my heart’ (A: שָָּׁ֥בְרָָּ֥ה, Psa. 69.21)
L: מְנ וּ־גֵאִ יםטָּּ ַ [ˌtˁɔːɔmˈnuː-ʁ eːˈʔiː]im ‘arrogant men have hidden’ (A: וּטָָּ֥מְנ, Psa. 140.6)

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 lavoro).  

156 The term גרש and the verbal root גרְּשָׁ 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: כל תיבה שורכה ובמרפה אורכה ובוניעה תנווה פחה ומשוכה ‘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.
In A all of these have merkha rather than gaʿya on the first syllable, and the rule in Diqduqe ha-TeV’amim is referring specifically to such cases with merkha. The first example (A שמרָה, 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 שמרָה, since this also had a silent shewa. Such past forms in A all have gaʿya on the first syllable: שמרָה (Psa. 119.167), שמרָה (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: שברְרָה, Psa. 69.21; A: וטמן, 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: ירְאָת, Prov. 8.13) is evidently listed since a

\(^{158}\) Hidāyat al-Qāri’ 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 ṭifḥa 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 שמרָה (Psa. 119.167) and שמרָה (Job 10.12) from the list of exceptions to the rule discussed by Diqduqe ha-TeV’amim, 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: ס־שָּוְא לְכִקְסַַָּ שָׁוְא) ‘like a false divination’ Ezek. 21.28

Ben Naftali: כִּקְסַַָּ שָׁוְא

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.

L, A: סִבְכֵָ֥י [si:vaˈxeː] ‘the thickets of’ (I Firk. Evr. I B 3 סִבְכֵָ֥י סִבְכֵָ֥י) Isa. 10.34

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.

בראשית [baˈʁeːʃiˈʔiːθ] ‘in the beginning’ (Gen. 1.1)

אֱלֹהִֹ֑ים [ʔɛˈloːhiːim] ‘God’ (Gen. 1.1)

הָּאָּ רֶץ [hɔːˈʔɔːʀ̟ɛsˁ] (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.

L: וַיֵַּ֣בְךְַ [vaˈɟɟeː evk] ‘and he wept’ (Gen. 45.15)
L: בִּישְׁפַּ֥ד [vaˈɟɟɪːʃ b] ‘and he captured’ (Num. 21.1)
L: נַשְׁתָּ֣רְדְַ [vaˈɟɟeʃtʰ] ‘and he drank’ (Gen. 9.21)
L: נַשְׁתָּ֥רְדְַ [vaˈɟɟeʃtʰ] ‘may he enlarget’ (Gen. 9.27)
L: נַשְׁתָּ֥רְדְַ [vaˈɟɟiːiftʰ] ‘and [my] heart has been enticed’ (Job 31.27)
L: נַשְׁתָּ֥רְדְַ [viˈjeːerɗ] ‘and may he have dominion’ (Psa. 72.8)
L: נַשְׁתָּ֥רְדְַ [ˈneːerɗ] ‘nard’ (Cant. 4.14)
L: נַשְׁתָּ֥רְדְַ [ˈjaːarɗ] ‘he causes him to dominate’ (Isa. 41.2)
L: נַשְׁתָּ֥רְדְַ [ʔal·ˈtʰoːospʰ] ‘do not add’ (Prov. 30.6)
L: נַשְׁתָּ֥רְדְַ [vaˈɟɟaʃq] ‘and she gave to drink’ (Gen. 21.19)
L: נַשְׁתָּ֥רְדְַ [vaˈɟɟaʃq] ‘and he watered’ (Gen. 29.10)
L: נַשְׁתָּ֥רְדְַ [ˈq̟oːoʃt] ‘truth’ (Prov. 22.21)
L: נַשְׁתָּ֥רְדְַ [ˈjeːʃt] ‘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.\(^{160}\) According to some western medieval sources, the final *shewa* was vocalic in such words when they were not in major pause.\(^{161}\)

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.\(^{162}\)

\[\text{שְׁקוַתִּי (A, S, Gen. 29.10)}\]
\[\text{יֵַ֣שְט (Parma di Rossi 3214 [1278 C.E.], Prov. 7.25)}\]

This practice of omission of the *shewa* by some scribes is referred to in the *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 וַיֵַּּ֕שְׁקְַ (‘and he watered’) (Gen. 29.10, etc.), יֵַ֣שְט ‘let it not turn aside’ (Prov. 7.25), and like 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


letters do not remain bare of pointing, and some people do not mark them.\textsuperscript{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: \textit{וַיִַּגְדְַ} [vaˈɟɟiːhad] ‘and he rejoiced’ (Exod. 18.9)

L: \textit{אַל־יִֶ֭גְדְַ} [ʔal-ˈjiːhad] ‘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 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 \textit{וְֶ֭יֵרְדְַ}, etc. Segolate forms with a medial het such as \textit{זְּרִידי} ‘together’ (2 Sam. 14.16), \textit{מַדְּרֶדְַ} ‘fear’ (Job 4.14) and \textit{שַׁוְּדֵה} ‘bribe’ (Deut. 10.17), by contrast, have an epenthetic before the dalet that must have been inserted at an earlier period, when the fricativization rule was still operating.

\textbf{I.2.5.9.2. Before a Final \textit{ʾAlef} in the Orthography}

When a consonant that closes a syllable at the end of a word is followed by an \textit{ʾalef} that is not read as a consonant or vowel letter, a shewa sign is placed on this consonant, e.g.

\textsuperscript{163} קָשַׁטְׁו... וְזָדוּזָו לָא הָיָה לְמִית אֲלָּפיַיַּלָאִיָּהְוִי לְהָלִיחְוִי. \textit{לְאַלְּאָדוּרְו} הָיָהְוִי [ed. Levy. 1936, ח, and CUL Or 1080.13.3.2, fol. 2r).
L: אַבָּגֶּי [bagˈgaːj] ‘in the valley’ (Deut. 4.46)

L: שָׁוְא [ˈʃɔːəv] ‘emptiness’ (Exod. 23.1)

L: וַיְרִא [vaˈjaːra] ‘and he saw’ (Gen. 1.10)

L: חֵטֶע [heˈetə] ‘sin’ (Lev. 19.17)

The purpose of marking the shewa on the penultimate letter and omitting it on the final ’alef 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 ובש, in which the final letter was read.

The common spelling of the name ‘Artaxerxes’ exhibits a word-final consonant cluster followed by an ’alef that is not read:

L: אַרְתַחְשַׁסְתָּאאַ [ʔaɾtʰaħˈʃastʰ] (Ezr. 8.1)

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: אַרְתַחְשַׁסְתָּאאַ (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: אַרְתַחְשַׁסְתָּאאַ ק, ק, i.e. the correct orthography of the qere ends in ק, without final א. Throughout the rest of the book of Ezra the name is written אַרְתַחְשַׁסְתָּאאַ or אַרְתַחְשַׁסְתָּאאַ, without a qere note, but the vocalization is still clearly intended to correspond to an orthography without a final ’alef. The vocalization, therefore, corresponds to that of a word with a final cluster such as בֵּש, in which the final ’alef is considered part of the appropriate orthography of the word, although
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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 אַַ֣הֲנְתְּהַּ֣ in front of a final he that is not read in the word אַַ֣הֲנְתְּהַּ֣ (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 יָָ֥בֵּ֣ in the valley’ (A יָָ֥בֵּ֣, Deut. 34.6) by analogy with the normal orthography with final ʾalef אות.

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 [vijoːˈlaːdɔːtʰ] ‘and you shall bear [a son]’ (Gen. 16.11)
L: צָּחָּ קְתְַ [sɔːˈħɔːq̟tʰ] ‘you (fs) laughed’ (Gen. 18.15)
L: וְאָּמַָ֥רְתְַ [vɔʔɔːˈmaːɾtʰ] ‘and you (fs) will say’ (Jud. 4.20)
L: קַַּ֤טְתְַלִַ [liq̟ˈq̟qaːtʰ] ‘you gleaned’ (Ruth 2.19)
L: וְהָּלַכְתְ ַ [vɔhɔːˈlaːχtʰ] ‘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 וַיֵּ֥שְׁתְַ and וַיִּ֥שְׁבְַּ (§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 קַּּ֤טְתְַלִַ. 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 רָ. It was then extended to word-final root consonants with dagesh, probably first to tav in forms such as קַּּ֤שְׁתְַלִַ, and subsequently elsewhere, in forms such as יַּּשְׁתְַלִַ and יַּּשְׁתְַמְּ. Finally, it was extended to other word-final consonants in clusters, as in קַּּ֤שְׁתְַלִַ, by analogy with forms such as קַּּ֤שְׁתְַלִַ.

The form תְּלֵדָּה ‘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 יִּשְׁבָּה ‘dwelling in’ (Jer. 22.23) and נִּמְקַּּ נִּנְּתְַ ‘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: תְּשִׁית [ʔɔːˈsiθ] ‘you have done’ (Gen. 3.13)

L: תְּשִׁית [vaʔɔːˈθiθ] ‘and you should drink’ (Ruth 2.9)

L: תְּשִׁית [vaʔɔːˈmiθ] ‘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: [hɔːˈjiːθ] ‘you were’ (A תִּיְתִי, Jud. 11.35)
L: [vɔhɔːˈjiːθ] ‘and you shall be’ (A תִּיְתִי, Isa. 62.3)

This is found more regularly in some other early manuscripts, e.g.

S: [vɔːθ] ‘you have come’ (L: וָאָת, Gen. 16.8)\(^{165}\)

II Firk. Evr. II B 94: [vaʃɔːˈθiːθ] ‘and you will drink’ (L: וְשָּׁתִּי, 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:

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\(^{166}\) 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).
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יתֹפִֹיָ [jɔːfiːtʰ] ‘you are beautiful’ (L [BHS]: יָּּפִית, Cant. 7.7)

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 יַחַד (Exod. 18.9), e.g.

L: יָדַעַת [jɔːˈðaːʕatʰ] ‘you (fs) know’ (1 Kings 2.15)
L: יָגִית [jɔːɡiːtʰ] ‘you have laboured’ (Isa. 62.8)
L: שָלַחַת [ʃɔːˈʃaːħatʰ] ‘you have forgotten’ (Isa. 17.10)
L: הָמִּלָחַת [humˈlaːħatʰ] ‘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 יֵלָכַח (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 בֹגַדכְפַת consonants with dagesh lene, e.g.

סָנָבָעַת [sɔːˈvaːʕatʰ] (BL Or 2549 fol. 234r, 5 | L [BHS]: שָׁבָעַת 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 \textit{tav} and vocalization with \textit{shewa} of the 2fs independent pronoun אַתְַ (in pause אָֹ֑ת, e.g. Gen. 12.11)\textsuperscript{168} has, likewise, arisen be analogy with the form and vocalization of the 2fs suffix on strong verbs. As is the case with the \textit{dagesh} in the suffixes, the \textit{dagesh} in the independent pronoun אַתְַ was read as \textit{dagesh lene} and the \textit{tav} was not geminated.\textsuperscript{169} The lack of gemination is shown by Karaite transcriptions that mark geminated consonants with Arabic \textit{shadda}. In these manuscripts, the \textit{shadda} sign is not marked on the \textit{tāʾ} that transcribes the \textit{tav}, e.g.

\begin{verbatim}
בַּת-מִַ֣יַאִַ֔תְַהַגִָ֥ידִי
\end{verbatim}

[baθ-'mi: 'ʔa:atʰ hag'giːdi:] (BL Or 2544, fol. 10r, 3 | L [BHS]: בַּתְַמִּיַאִּתְַהַגִּידָּי Gen. 24.23 ‘tell whose daughter you are’)

The reading of אַתְַ with ungeminated \textit{tav} is found also in modern oral reading traditions that distinguish between geminated and ungeminated consonants.

In the Karaite transcriptions, the \textit{shewa} sign is sometimes omitted on the \textit{tāʾ} that transcribes the \textit{tav} of אַתְַ, e.g.

\begin{verbatim}
וְאִַ֖ת
\end{verbatim}

[va'ʔa:atʰ] (BL Or 2549 fol. 226r, 1 | L [BHS]: וְאִַׂ֖ת Ezek. 16.7 ‘and you’)

\textsuperscript{168} In L the \textit{shewa} is omitted in אִַ֖ת (Ruth 3.9).

\textsuperscript{169} Some reference grammars, such as Bergsträsser (1918, 141), Bauer and Leander (1922, 219–20), erroneously claim that the final \textit{tav} of the independent 2fs pronoun was geminated by analogy with the 2ms independent pronoun אָֹ֑ת. The analogy, however, was with the 2fs verbal suffix, which was not geminated.
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A similar type of vocalization is found in the 2fs suffix conjugation of the verb ינת‘ to give’, e.g.

L: ננת ‘you (fs) gave’ (Ezek. 16.36)

In contrast to the independent pronoun את, the final tav in this form was pronounced geminate, as demonstrated by Karaite transcriptions, e.g.

[￥aːtʰ] (BL Or 2549 fol. 235r, 2 | L [BHS]: ננת 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: וְחִֹׂ֖שֶׁ ‘and darkness’ (Gen. 1.2)
L: וְיִבְרֶּ ‘and he blessed’ (Gen. 1.22)
L: וּבְתָּ ‘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: וַאֲחִִ֔י ‘your (fs) brother’ (2 Sam. 13.7)
L: וַאֲחִ יך ‘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 Qimḥi (1160–?1235):

But the kaf of the feminine pronoun, as in יָדֵךְ ‘your (fs) hand’, רַגְלֵךְ ‘your (fs) leg’, עֵינֵךְ ‘your (fs) eye’, אָזְנֵךְ ‘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 שֶׁפֶךְ ‘pouring’, חֹשֶךְ ‘darkness’, דֶרֶךְ ‘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).

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: הֲדַדְרִימָם ‘Hadadrimmon’ (A, C: 줄, Zech. 12.11)


171 David Qimḥi, Mikhlol (ed. Rittenberg, 1862, 139b), Chomsky (1952, 17): אֲבָל כִּי כָנֵי הָנִקֵּה כִּי, זַךְ רִגְלָךְ אֲנִי נִקְדַּה בְּשָׁאָר כָּל שֶׁדַּרְדָּל לְכֹל וְלִפְנֵי אַחֲרֵיהֶם לְקֹדֶם בַּעֲדֵי נֵבֶלָה לְכֹל וּלְתָלָה לְתָלָה לְכֹל וְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה לְלַעֲשֵׂיָה L.
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L: קבלעם ‘in front of the people (?)’ (A: קבלעם, 2 Kings 15.10)

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]: בִָּּׂ֖את Ruth 2.12 ‘you have come’)

וְגִלִָּ֥ית (T-S A12.1, Blapp 2017, 80 | L [BHS]: וְגִלִָּ֥ית Ruth 3.4 ‘and you will uncover’)

וְצָּמִֵ֗ת (T-S A12.1, Blapp 2017, 80 | L [BHS]: וְצָּמִֵ֗ת Ruth 3.4 ‘and [when] you are thirsty’)

The shewa is often written on a word-final guttural consonant that is preceded by a vowel, especially het and ‘ayin (§I.1.8., §I.1.16.), e.g.

וֶַ֭תִשְׁכַח (T-S A11.1, Blapp 2017, 48 | L [BHS]: וֶַ֭תִשְׁכַח Job 39.14 ‘and she forgot’)

וַיִּבְרַַּ֤ח (Codex Reuchlinianus, Morag 1959, 233 | L [BHS]: וַיִּבְרַַּ֤ח 1 Kings 11.40 ‘and he fled’)

ָהוֹדַֹ֑ע (T-S A13.18, Blapp 2017, 127 | L [BHS]: הָהוֹדַֹ֑ע Psa. 90.12 ‘teach!’)
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.

God’

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.

man’)

in the temple of’

Ashur’)

2 Sam. 22.7 ‘and he heard’)

Job 39.17 ‘God’)

[does not] give light’)

on him’)

‘and his train’ Isa. 6.1)

man’)
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 Maḥzor Vitry: בּונֶא, קַשֶּׁהוּ, רַבְּ, אֵחִ֭ד, מְעַטְּ, נִגְאַלְּ, עְבַדִּיםְּ (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.

- שָּׁבְרָּ (T-S A13.20, Blapp 2017, 156 | L [BHS]: שָׁבְרָּ Psa. 69.21 ‘has broken’)
- חָּטָּ (T-S A13.20, Blapp 2017, 156 | L [BHS]: חָּטָּ Psa. 70.6 ‘hasten’)
- לוֹ (T-S A13.20, Blapp 2017, 156 | L [BHS]: לוֹ 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.

- נוּחָּטָּ (T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

(T-S A13.20, Blapp 2017, 155 | L [BHS]: כְֶ֭מוֹפֵת Psa. 71.7 ‘like a sign’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 69.21 ‘has broken’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 70.6 ‘hasten’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: לָ֗וֹא Psa. 71.3 ‘to come’)

(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 69.21 ‘has broken’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 70.6 ‘hasten’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: לָ֗וֹא Psa. 71.3 ‘to come’)

(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 69.21 ‘has broken’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: שָּׁ בְַרְַ Psa. 70.6 ‘hasten’)

(T-S A13.20, Blapp 2017, 156 | L [BHS]: לָ֗וֹא Psa. 71.3 ‘to come’)

(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)

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(T-S NS 18.5, Arrant 2020 | L [BHS]: נוּחָּטָּ Num. 14.40 ‘we have sinned’)
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. מֶרֶת, מֶלַּאֵת, מַלְאָכָה, וֶסֶתִּית, וַתָּאָרְפָה, וַתָּאָרְפָה, וַתָּאָרְפָה, וַתָּאָרְפָה.

In some European manuscripts, *mater lectionis ‘alef* is marked by הַטֶּפֶן פַּתָּח instead of shewa, e.g. בְּאֵוֶית, רָעָשִׁים, רָעָשִׁים, רָעָשִׁים. This is unlikely to reflect a consonantal realization of the ‘alef but rather has arisen by analogy with the use on *matres lectionis* of the shewa sign, which alternates with הַטֶּפֶן פַּתָּח 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 شرَعْق, which is always marked on *mater lectionis vav*, e.g. in Mishnaic texts: אֲבָדָו, אֲבָדָו, אֲבָדָו (Sharvit 1968, 24), and also before other *matres lectionis* on which a vowel is marked contrary to the standard Tiberian system, e.g. כְּנָנָא (Bar-Asher 1980, 48). Alternatively, when the *mater lectionis* has a vowel sign, the preceding

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consonant is sometimes also marked with a vowel sign, e.g. בְּצֵאֵתִי, וּבַצֹּאֹן, כָּאָּן.१७४

I.2.6. SYLLABIFICATION AND METRICAL STRUCTURE OF WORD-FINAL SYLLABLES

The syllable structure of words with final consonantal clusters such as יָבְכּ ‘and he wept’ (Gen. 45.15), יָשְׁבִי ‘and he captured’ (Num. 21.1) and קַטְתָל ‘you gleaned’ (Ruth 2.19) can be analysed as having extra-syllabic consonants. These would have the underlying structure /vaj.jev.k/, /vaj.jii.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 קוֹל 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.jii.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 C̅V.CV̄ structure with an epenthetic vowel after the long vowel, as is the case with /q̟ō.l/ ['q̟oːl] and /lev/ ['leːev], viz. [vaj.į:ev.k], [vaj.į:ii:ii.b] and

१७४ एल्डर (1975, 195), बार-एशर (1980, 48). ये तीन श्रेणियों द्वितिर्वस्ती के रूप में मात्रे लिक्शनिस को प्राप्त हुए हैं जो तिबेरियन वॉल्यूम सिग्न के साथ मुख्य जुड़वाणी अरबी-अरबी के मेडिवील भाषा में भी मिलने लगे हैं, देखें क्हान (1992a).
Vowels and Syllable Structure

[liq.'qaːtˤ.t]. The consonant on the word-final periphery would remain extrasyllabic at the phonetic level.

As is the case with words such as [ˈqɔːol] and [ˈleːev], on the level of metrical parsing the unstressed epenthetic in words such as [vaʃ.'jeː.ev.k], [vaʃ.'jiː.i.b] and [liq.'qaːtˤ.t] would belong together with the preceding long vowel in a trochaic foot. The final consonant can be considered to have been extrametrical:

\[
\text{[vaʃ. 'jeː.ev.k]}\quad (*)\quad (^{*} .)
\]

Word-final extrasyllabic consonants can be posited to exist also in segolat forms, e.g. ֶ֫מֶלֶךֶו [ˈmeː.lɛχ] ‘king’, ְפְּרֵסֵר [ˈseː.fɛr] ‘book’, ְדֶשֶׁקֶו [ˈqɔː.ðɛʃ] The underlying forms of these would be /mel.χ/, /sef.r/, /qoð.ʃ/, and the final extrasyllabic consonant would be syllabified by an epenthetic on the phonetic level.\(^1\) 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 [ˈqɔːːol] and be weak syllables bound prosodically to the previous strong syllable in a trochaic foot:

\[
/mel.χ/
\]

\[
[ˈmeː.lɛχ]\quad (^{*} .)
\]

\(^{175}\) 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־יִֶ֭חַד ‘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/ /ʃɔːχa.ħ.t/

[’ji:.həd] [ʃɔːˈχa.ː.eɾ]

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 ʼalef, e.g.

בְּאֵר ‘well’ < *biʾr

זְאֵב ‘wolf’ < *diʾb

שׁבְּאֹ ‘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:əɾ] /bə.ʔe.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. בֵּן [beˈʔeːɛn] (ʼ*ʼ) rather than of a weak unstressed syllable of a foot, as in מֶל [ˈmɛː.lɛχ] (ʼ*ʼ) the articulation of the ʾalef is strengthened. The same orthoepic metrical principle is likely to have given rise to the sere on initial ʾalef in forms such as ‘girdle’ and ‘crib’, which have a קְטוֹל and קְטוּל morphological pattern respectively. The ʾalef with sere 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 sere in verbal forms such as ‘you love’ (Prov. 1.22), where a hatef segol would be expected (cf. Zech. 8.17). Note also the form וּתְאָכְלֵה ‘it consumes him’ (Job 20.26), where this process has preserved the ʾalef, which is normally weakened and after prefixes (cf. וּיֹאכְל ה Isa. 62.9 ‘they will eat it’).

Stress shifts to the epenthetic syllables also in many nouns with a final weak radical, e.g.

| שִׁיר | ‘fruit’ | < *pary |
|––––––|–––––––––|–––––––––|
| בֵּד | ‘kid’ | < *gady |
| בְכֵי | ‘weeping’ | < *baky |

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: ['ʃta:jim], ['ʃte:]. 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.tē/ [ʃ.ˈteː] (§I.2.5.3.).

It has been shown (§I.2.5.6.) that the parsing of a form such as /q̟ō.l/ [q̟oːol] 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. וּשָּׁמְר /ʃɔ̄.m.rū/ [ʃɔː.ɔm.ˈr̟uː] (*.) (*).

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 וּיַעַמְד /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.
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 הָּאַמָּּה 'the cubit' [hɔː.ʔam.mɔː] cannot be retracted to the initial syllable. We propose that the reason *nesiga* is possible in a form such as נַַ֣עַמְדָּה [ˈnaː.ʕ am.ð ɔː] but not in a word such as הָּאַמָּּה [hɔː.ʔam.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, נַַ֣עַמְדָּה has two feet, whereas הָּאַמָּּה has three:

\[
\begin{align*}
\text{naː} & \quad \text{ʔam} & \quad \text{ðɔː} \\
\text{(*)} & \quad \text{(*)} & \quad \text{(*)}
\end{align*}
\]

\[
\begin{align*}
\text{hɔː} & \quad \text{ʔam} & \quad \text{mɔː} \\
\text{(*)} & \quad \text{(*)} & \quad \text{(*)}
\end{align*}
\]

*Nesiga* can take place in a word such as רַָּ֣חֲקָּהַמֶ נִּּי 'it is far from me’ (Job 21.16) since it too consists of two feet:

\[
\begin{align*}
\text{ḥa} & \quad \text{ʔa.qɔː} \\
\text{(*)} & \quad \text{(*)}
\end{align*}
\]

The trochaic foot in a word such as וּיַעַמְדֶַ֫ [jaː.ʔam.ˈðuː] (\*) is analogous to that of a segolate form such as מֶֶ֫לֶ [ˈmɛː.lɛχ] (\*) ‘king’ or נֶַ֫עַר [ˈnaːʕ ə] (\*) ‘youth’, in which the final syllable is unstressed.
A form such as יַעַמְדֶַ֫ [ja.ʕam.ðu:] 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., ישמר /jiʃmrű. The process of derivation would be as follows:

/jaʕmðū/ > (i) [ja.ʕam.ðū] > (ii) [jaː.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 unstressed epenthetic syllable. This would be similar to the proposed derivation of forms with gutturals such as הָעֱלָּה, viz. /heʕ.lū/ > (i) [hɛ.ʕɛ.ˈluː] > (ii) [hɛː.ʕɛ.ˈluː] (§I.2.5.4.).

Another case of a word-internal trochaic foot is in proper names such as ברֶךְיִָ֖ה [bɛː.ɾɛχˈjɔːhu:] ‘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.jɔ.ɦu/  
[bɛ.ɾɛχ ˈjɔ:  hu:]  
(.* )  ⟨(* )  <(* )  

In the Babylonian reading tradition, the vowel before the epenthetic has not been lengthened but rather reduced (Yeivin 1985, 1082):

בְּרַכיָהו [braχˈjɔːhu:]
This can be compared to the lack of lengthening in Babylonian pronunciation of the vowel before the epenthetic of gutturals in forms such as הָרַעַנְ ‘young woman’, which was read as [nɔˈʁaːˈnɔː] or [naˈʁaːˈnɔː] (§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 יַרְחְמְאֵלִי [hɑ.ɾa.ʁa.me.ʔe.ˈliː]. In 1 Sam. 27.10, however, it is vocalized in L as follows:

L: יַרְחְמְאֵלִי (A: יַרְחְמְאֵלִי, 1 Sam. 27.10)

This was also the original vocalization of the form in 1 Sam. 30.29, though it has been corrected to יַרְחְמְאֵלִי. The vocalization יַרְחְמְאֵלִי 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 נִַֽרְדְַ ‘nard’ (Cant. 4.14) and רָּרָּד, ‘he causes him to dominate’ (Isa. 41.2). As in the word-final clusters, the word-internal cluster in יַרְחְמְאֵלִי 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 ḤAṬEF VOWELS**

Some short vowels in open syllables are lexical vowels rather than epenthetic vowels. This applies mainly to a set of vowels
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represented by ḥatef qames. In such cases, the ḥatef 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.

[ḥaṭef qameṣ] /haṭef qameṣ/ (2 Kgs 12.19 ‘the holy things’)< *qoḏăšim; cf. sing. šĕḏār) [ḥaṭef qameṣ] /haṭef qameṣ/ (Psa. 9.7 ‘waste places’)< *hurṿōθ; cf. sing. hurṿān) [ḥaṭef qameṣ] /haṭef qameṣ/ (Psa. 119.69 ‘I guard it’) < *esorennā; cf. šānā [šāmā] /šāmā/ (Psa. 119.69 ‘I guard it’) < *holy; cf. pausal form ḥ̄ûlā /ḥûlā/ (Deut. 7.15)

[raʔ] /raʔ/ (Gen. 16.13 ‘seeing’) < *ru’yā; cf. pausal form rēʔ /rēʔ/ (1 Sam. 16.12)

[śɔr] /śɔr/ (‘balm’) < *ṣury; cf. pausal form šerī /šerī/ (Ezek. 27.17)

[dom] /dom/ (‘silence’) < *dumy

[hor] /hor/ (‘burning’) < *hury

In the examples cited above the ḥatef qames is the reflex of a short round historical vowel. In some cases ḥatef 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.

\[ \text{sıp.פ.ו.ר.י́.מ} / \text{sıp.פ.ו.ר.י́.מ} \] (Lev. 14.49 ‘birds’) < *šippōrīm; cf. sing. \[ \text{sıp.פ.ו.ר} \] (Lev. 14.49)

\[ \text{kֵח.ט.ו.ר.נ.0} / \text{kֵח.ט.ו.ר.נ.0} \] (Exod. 29.8 ‘tunics’) < *kuttōnōθ; cf. sing. \[ \text{kֵח.ט.ו.ר.נ} \] (Exod. 29.8 ‘tunics’)

\[ \text{ב.מ.ו.ת} / \text{ב.מ.ו.ת} \] (Isa. 14.14 ‘the heights of’) < *bōmōθē; cf. sing. \[ \text{ב.מ.ו.ת} \] (Isa. 14.14 ‘the heights of’)

\[ \text{ק.ל.י.ו.ר.נ.0} / \text{ק.ל.י.ו.ר.נ.0} \] (Jud. 9.9. ‘shall I cease?’) < *ḥālātī

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 אָשִׁדוֹדִיִּ֔וֹת אָשִׁדוֹדִיִּ֔וֹת, qere אָשִׁדוֹדִיִּ֔וֹת אָשִׁדוֹדִיִּ֔וֹת ‘Ashdodite, 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 הַקְּדָּשִֹׁ֑ים ‘the holinesses’ (Ezek. 44.13) instead of the more common הַקֳּדָּשִׁים. Compare also וְאֶצְרֶָ֥נָּּ֗ה (Psa. 119.33 ‘and I will keep it’) to אֶצֳרֶ נָּּ֘ה (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 ʿUzzi’el, for example, in his Kitāb al-Khilaf records a variation between the reading of Ben Asher
אֶכְתֲבֶֹ֑נָּּה

I will write it (Jer. 31.33) and that of Ben Naftali (Lipschütz 1965, יְל).

Yeivin (1980, 283) identifies some cases of ḫatef segol on non-guttural consonants as a lexical vowels (‘morphological use’ in his terminology). These are found mainly in Biblical Aramaic, e.g. בֱנַיְתַה (Dan. 4.27 ‘I built it’), קֱרִִׂי (Ezra 4.18 ‘it was read’), גֱלִַ֣י (Dan. 2.30 ‘it was revealed’). A Hebrew example is בְצֶלְצֱלִי (A, C 2 Sam. 6.5 ‘and with cymbals’). L has simple segol here: בְצֶלְצֶלִי. 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 ḥatef qames [ɔ] and ḥatef 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. 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 ḥatef qames. In MS Sassoon 507 (S), for example, the plural form הואֲתָנֹת is vocalized הואֲתָנֹת. The treatise Diqduqe ha-Ṭeʿamim (ed. Dotan 1967, §19) states that some scribes wrote shewa rather than ḥatef qames in the words וּבְצֶלְצֶלִי and בְצֶלְצֱלִי, where the ḥatef qames represented a lexical vowel. The following passage from Hidāyat al-Qāri also refers to the practice

176 For example, Delattre and Hohenberg (2009).

177 Yeivin (1968, 35), Shashar (1983, 21).
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 מָּרְדַּכְי, they read it as pataḥ. 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 תָּנֹוכָּה are variations in notation of the lexical vowel rather than its reduction to an epenthetic.

The form רֳאִי (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 hatef qames 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 צָרִי [sˁɔ.ˈr̟iː] ‘balm’ (Gen. 43.11), i.e., after an alveolar consonant with hatef qames. As remarked in §1.1.20., when the alveolar has vocalic shewa in this environment, as in the word צְרוּפִּה [sˁɑ.rˁuːˈfɔː] ‘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:

\[
\text{[(sˁɑ.rˁuː) (ˈfɔː)]}
\]

\[
(\ast) \quad (ˈ*)
\]

The realization of the resh in צָרִי as an uvular can be interpreted as reflecting the fact that such a hatef qames on a non-guttural consonant was in a separate foot from that of the following syllable:

\[
\text{[(sˁɔ.)(ˈr̟iː)]}
\]

\[
(\ast) \quad (ˈ*)
\]

The foot containing the hatef qames 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 qames 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 ḫaṭef 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:

```
<table>
<thead>
<tr>
<th>Word</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>w</td>
<td>s</td>
</tr>
<tr>
<td>s</td>
<td>s</td>
</tr>
<tr>
<td>φ</td>
<td>φ</td>
</tr>
<tr>
<td>w</td>
<td>s</td>
</tr>
<tr>
<td>s</td>
<td>s</td>
</tr>
</tbody>
</table>
```

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 hatef qames vowel is elided and in this respect it behaves like a vocalic shewa, e.g.

דְָמִָ֥יבִַּּ (Isa. 38.10 ‘in the silence of’ versus דָּמִִׂי (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.

וּצְרִַ֣י [wusˁ.ˈrˁiː] ‘is there no balm in Gilead?’ (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 §I.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 hatef 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 רַחֲקָהַמֶ נִי ‘it is far from me’ (Job 21.16):

\[
[ˈʁ̟ɔː\,ˈḥa.ʔɔː]
\]

\(\text{(*)} \quad (\text{*})\)

Nevertheless, there is evidence that such ḥaṭef qames and ḥaṭef 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 ḥaṭef qames on non-guttural consonants in words like דֳמִי include the following.

These short [ɔ] vowels represented by ḥaṭef 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., קָּדָּשִִׁים (Exod. 29.37 ‘holinesses’)

\[
[ˌq̟ɔː.ð̟ɔː.ˈʃ̟i.ˈim]
\]

\(\text{(*)} \quad (\text{*}) \quad (\text{* .})\)

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 (§I.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.
In some early Tiberian Masoretic manuscripts, moreover, *qames* is written in place of *ḥaṭef qames* also in pretonic syllables that do not take secondary stress, e.g.,

II Firkovitch Evr. II B 10: צָרִי ‘balm’ (Gen. 43.11, most manuscripts have צְרִי)

L: וּיִגָּפֶֹ֑נּ ‘he will strike him’ (1 Sam. 26.10, A and most manuscripts have פֶֹ֑נּוּיִגֳַ)

The same applies to cases of *ḥaṭef segol* that sporadically occur under non-guttural consonants, e.g.,

L: וּ בְצֶלְצֶלִ 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. מְּשֶׁרֶךְ: the stress is on the mem, so you do not lengthen the qameš of the shin.\(^{180}\)

David Qimḥi, *Sefer Mikhloṭ*:

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. זָכַַּ֤רְתִי לָּךְ: ‘I remember for you’ (Jer. 2.2): here the stress is on the קָף 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 זָיִין, although this is qameš.\(^{181}\)

---

\(^{180}\) Bacher (ed.) (1888, 17): הגדולה היא להם עקובה ואורות בכול קריאתם הם עכובות. The Qimḥis classified the Hebrew vowels into ‘big’ vowels and ‘small’ vowels according to their quantity. The ‘big’ vowels were שֵׁרֶךְ, הֹלֶם and long qameš, shureq, and הִירֶק. The ‘small’ vowels were pataḥ, segol, qameš הַחַטּ, short הִירֶק and qibbuṣ.

\(^{181}\) Ed. Rittenberg (1862, 137b–138a): ואם היתה בעד התנועה הגדולה נעתה אחוריה créditoות ובאות אשר לעבדトップ את התנועה החשובה באין שדיא מדיה בגדולה כמו כן כי הוה התנועה בכדי כי היי תנועה הקטנה ונאבט החשובה במשפטי התנועה שבזה לופיifa שתחממותו על כל קריאת היה והאינו שדיא קומписание.
Given that the Karaite transcriptions and other medieval sources clearly indicate that vowels in unstressed open syllables were long, these statements by the Qimḥis 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-ʾIbrānī ‘The Book of the Grammar of Hebrew’, which was published by Eldar (1981, 128):

In the words: ‘Arise! Shine out!’ (Isa. 60.1) you lengthen the beginning of the word because it is feminine, but when it is masculine, you say ‘for the day that I arise as a witness’ (Zeph. 3.8), lengthening the end of the word because it is masculine.

This tendency to reduce the duration of the long vowel in unstressed syllables may explain the occurrence of ḥatef qames in place of the expected qames in the form הַוַּלַדַּא הַwol in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem in place of the expected holem.

182 E.g. Saadya’s commentary on Sefer Yeṣira (ed. Lambert 1891, 76–77).
183 The concept of lengthening vs. non-lengthening/shortening in this passage and also in the extracts from the Qimḥis 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 unstressed open syllables long and cases such as נְדוֹחִים and נְדוֹחִים 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:

וַתְּפֹצַ֣וֹתִיכִֶ֔ם (BL Or 2543 MS A, fol. 7r, 8 | L [BHS]: וּתְפָּוָּ֣וֹתִיכִֶ֔ם 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.

עלָו (Genizah MS 13, Khan 1990a, 13 | L [BHS]: עָּלַָּ֣ו Psa. 109.6 ‘against him’)

שַלָּח (Genizah MS 13, Khan 1990a, 13 | L [BHS]: שֵָּּׁ֨לַַּ֤ח 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 §1.2.7., in some manuscripts words that normally have ḥatef qameṣ in a pre-stress syllable are vocalized with qameṣ, such as II Firkovitch Evr. II B 10: צָּרִי ‘balm’ (Gen. 43.11, most manuscripts have צֳרִי), and לֵב פַרְעֹה ‘the heart of Pharaoh’ (Exod. 7.22). 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. בִּשְׁלֹשִׁים ‘in the thirtieth [year]’
Vowels and Syllable Structure

I.2.8.1.2. *Deḥiq*

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 *qames* [əː] or *segol* [ɛː], which are lax, rather than the tense long vowels *shureq* [uː], *ḥolem* [ɔː] and *ḥireq* [iː].184 The compression takes place typically when (i) the final lax vowels *qames* 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: אַ֫נֶּעְנָה יִדְּדֶהוֹ יִכְּֽוֹ לְעָּנָיָה (Deut. 31.28)

L: יִכְּוֹ לְעָּנָיָה פִּרְפִּרְפִּי (Gen. 38.29)

L: אַ֫רְצָה בְּנֵֽשֶׁעְנָה (Gen. 12.5)

L: מִיָּמָּה לְבַלְּבַלְּלְלַח (Gen. 33.5)

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184 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).

185 For further details concerning *deḥiq* see Yeivin (1980, 292–93).
L: בְּמִרְעֶה־טוֹב ‘in good pasture’ (Ezek. 34.14)
L: תִּהוֹר־בּ ‘will be in it’ (Josh. 2.19)
L: תַּעְשֶׁה־לָלֶךְ ‘you make for yourself’ (Prov. 24.6)

According to Hidāyat al-Qārī, the final vowel here ‘is not dwelt upon or prolonged in pronunciation,’186 ‘it does not have an exhalation of breath but is very compressed.’187 In an anonymous Masoretic treatise, the syllable containing a vowel in deḥiq is described as ‘shortened’ (makhṭūf).188 The vowel can be represented, therefore, as half-long, e.g. בִָּּ֔םַוְאָּעִַ֣ידָּה [vɔʔɔːˈʕiːðɔˑˈbbɔːɔ].

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’).189 This is because the conjunctive accent before the deḥiq is further away, on the second word before the main accent, e.g.

L: הוֹאָּנְבֵּה־בִַּׂ֖יִתַלִשְׁמִֹ֑י ‘He will build a house for my name’ (2 Sam. 7.13)

---

188 Bod. Heb. d 33, fol. 16: ‘בְּאַלְוָרף אַלְוָרף תִּתַּלִשְׁמִֹ֑י וְתִלְפֵּשַׁתָּה נְכָס מַכְשָׁתָה, the letter under which the segol occurs is shortened’.
L: הֲלַמֵּתִָ֥םַתַעֲשֶה־פֶֹ֑לֶא
‘Do you work wonders for the dead?’ (Psa. 88.11)

L: סָ֥וּרָּהַשְׁבָּה־פִֹׂ֖ה
‘Turn aside, sit here’ (Ruth 4.1)

Some cases that are identified as ‘athe me-raḥiq have a disjunctive on the second word before the main accent, e.g.

L: יָאָלְכָּה אִלֵֶׂ֖יהַָּה ‘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 maqqef 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 ‘athe 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: בִ֔וֹאֲשֶַׁ֣רַהוֹרַדְתֵַ֣נוַּ ‘through which you let us down’ (Josh. 2.18)

L: בָּחַ רְתִיַב ‘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 הֵילִי ‘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: נְבֵדָה אָלֶה ‘these servants of yours’ (2 Kings 1.13)
A: נְשָׁה חָד ‘you did a kindness’ (1 Sam. 15.16)
A: רוֹאִית אָמָה ‘I saw yesterday’ (2 Kings 9.26)
L: יָעַלְיוֹן טֶם ‘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: וְעַּשָּ הַפְּסַח ‘and he keeps the Passover’ (Num. 9.14)
A: וְהָלָה מַת ‘death has come up’ (Jer. 9.20)

The dagesh that occurs on the first letter of the second word in deḥiq constructions, such as וְאֶנֶּשׁ פֶּסַח, 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:

\[ \text{בִָּּ֔םַוְאָּעִַ֣ידָּה} \]

Such a process applied also to constructions in which the interrogative word מָּה is joined to the following word by *maqqef* such as the following:

L: ה־זֹֹ֑אתמַַ 'what is this?' (Exod. 13.14)

L: מַה־תִתֶן־לִִ֔י '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 [ˈtʃitˈtaˌb̥eˈl̚iːsima] '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 */ā/. 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 */ā/, 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.

( принял הבאת | Psa. 81.9 ‘I shall testify for you’)

(שכםعالאהמרת | Ezek. 4.2 ‘and set up against it the battering rams’)

(ונִדֶמָּה־שָֹּ֥֑ם | 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 *hiṭa* sign, which indicates that it was pronounced as a short vowel (Yeivin 1985, 338), e.g.\(^{193}\)

\[\text{הִשֵָּּ֨בְעָּהַלִַּ֤י (Gen. 21.23 | L [BHS]: הבָֹהת֔רְגַ\[gaˈrtʰɔ\] \[bbɔː\] ‘[the land] where you have sojourned’) (Gen. 21.23 | L [BHS]: \[bmar̥a\] ttʰoːv] ‘in good pasture’ (Ezek. 34.14 | L [BHS]: \[b̥aː\] tihya bboː] ‘will be in it’ (Josh. 2.19 | L [BHS]: \[t̥i\] נִיְחַה הֶבּ) \]

Likewise, in modern reading traditions the vowel in *deḥiq* constructions is read as short, e.g.

Baghdad

\[\text{וָּאֶקְבְּרֶַ֤הַָּשָּּׁם ַ (Morag 1977, 37 | L [BHS]: \[wəˈqbeˈrəːχˈʃam] (Gen. 48.7 ‘and I buried her there’)) \]

Aleppo

\[^{193}\text{Data supplied by Shai Heijmans.}\]

\[^{194}\text{Data supplied by Ben Kantor.}\]
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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, e.g.

\[\text{מַה־לּ} \] (BL Or 2539 MS A, fol. 64r, 7 | L [BHS]: מַה־לִַ֥ץ Gen. 21.17 ‘What is to you (fs)?’)

\[\text{מַה־תִתֶן־לִִַ֔} \] (BL Or 2539 MS A, fol. 57v, 8 | L [BHS]: מַה־תִתֶן־לִַ֥ץ Gen. 15.2 ‘What will you (ms) give to me?’)

\[\text{מַה־שְּׁמִ֔ו} \] (BL Or 2540, fol. 9r, 7 | L [BHS]: מַה־שְּׁמִ֔ו Exod. 3.13 ‘What is his name?’)

\[\text{מַה־זֹֹ֑את} \] (BL Or 2542, fol. 60v, 11 | L [BHS]: מַה־זֹֹ֑את Exod. 13.14 ‘What is this?’).

In this light, we can understand the qere note in Exod. 4.2:

\[\text{מַה־} \]

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195 Constructions with מַה מַה followed by dagesh are considered to be 'athe me-rahiq in the Masoretic treatise published in Baer and Strack (1879, §29).
This was pronounced [ma-ˈzzɛː] in the reading tradition, as shown by the Karaite transcriptions, e.g.

\[(BL\ Or\ 2540,\ fol.\ 10v,\ 3\ |\ L\ [BHS]:\ qere\ \text{מַהוּ,\ ketiv\ מַהּ)}\]

Exod. 4.2 ‘What is this?’

The qere note indicates that the appropriate orthography for the reading [ma-ˈzzɛː] is מַהוּ, not מַהּ.

There are some Karaite transcriptions that reflect a less careful reading tradition and represent the pataḥ in מַהּ as short, e.g.

\[(Genizah\ MS\ 13,\ Khan\ 1990a,\ 156\ |\ L\ [BHS]:\ מַה־יָָּּּ֥קָּ֥ר)}\]

‘How precious!’ Psa. 36.8

\[(Genizah\ MS\ 13,\ Khan\ 1990a,\ 156\ |\ L\ [BHS]:\ מַה־לְּךַַ֣מַה)}\]

‘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):

\[(Exod.\ 13.14\ |\ L\ [BHS]:\ מַה־זֹֹ֑את)}\]

‘What is it?’ (Exod. 13.14 | L [BHS]: מַה־זֹֹ֑את)

\[(Exod.\ 2.4\ |\ L\ [BHS]:\ מַה־יֵּעָּשִֶׂ֖ה)}\]

‘What will be done?’ (Exod. 2.4 | L [BHS]: מַה־יֵּעָּשִֶׂ֖ה)

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

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196 Data supplied by Ben Kantor.
μεββεσें` (Ambrosiana palimpsest | L [BHS]: מַה־בֶָצַע Psa. 30.10 ‘what profit?’)

The lengthening of the pataḥ in מַה appears, therefore, to be an orthoepic measure in some core streams of the Tiberian tradi-
tion 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 מַה־תֹאמַָ֥ר ‘whatever (your soul) says’ (1 Sam. 20.4), זֶה־בְּנִָ֥י ‘This
is my son’ (1 Kings 3.23), מַה־בְֶרִי ‘What, my son?’ (Prov. 31.2).¹⁹⁷

According to _Hidāyat al-Qāri’_, therefore, the pataḥ in מַה־תֹאמַָ֥ר (1 Sam. 20.4) and the qameš in בִָּּ֔םַוְאָּעִַ֣ידָּה (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 short-
ening 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 vow-
els were read as short in both contexts.

When constructions with הָנָה 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 הָנָה 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 ḫaṭef with an identical quality (i.e. patterns that may be represented thus: מתפליים, מתפליים, e.g. L: ‘What we will serve?’ (Exod. 10.26)

L: ‘and what will you do?’ (Josh. 7.9)

Hidāyat al-Qāriʾ includes the last example מַהְתָּעֲשָׂה (Josh. 7.9) in the section on deḥiq indicating that the pataḥ vowel was compressed. It can be represented, therefore, [uməˑ-ttəːʔaˈseː] with half-long [əˑ]. 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.

ма נאָבּוֹד (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

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.\textsuperscript{199} Stressed vowels with disjunctives were, therefore, generally longer than those with conjunctives.\textsuperscript{200} 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.\textsuperscript{201}

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. \textit{Merkha}, as its name suggests, is said to be a relatively

\textsuperscript{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).

\textsuperscript{200} Cf. the words of the thirteenth-century \textit{naqdan} Yequtiʾel 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).

\textsuperscript{201} The occurrence of \textit{qames} in place of \textit{pataḥ} in pausal forms such as in ‘he guarded’ (Hos. 12.13), for example, must date to a period before the */ā/ > /5/ quality shift took place.
According to *Hidāyat al-Qāri*’, the low, sustained accents, viz. *pashta*, *zaqef*, *tifha*, *’atnah* and *silluq*, were lengthened with a concomitant modulation (*hazz*) and rise in tone (*raf*) 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.

Durational differences of the stressed vowel were

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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).

204 *Hidāyat al-Qāri*’, long version (ed. Eldar 2018, 86–87): פ הכל לחן יבקא בעודה מלא מי אלכלמה הסתותי התוקף פ מי ولכל לוח לא יבקא בברות מדל ארסלנה ‘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 *Maḥberet ha-Tījān*, a derivative of *Hidāyat al-Qāri*’ uses the Hebrew term *hanada* (הנדה) as the equivalent of *hazz* to denote ‘modulation’ (ed. J. Derenbourg 1871, 97); cf. also Hommel (1917, 95). *Hidāyat al-Qāri*’ and its derivative texts only lists *pashta/yetiv*, *zaqef* and *’atnah* in the category of low tone accent (Arabic *waḍ*, Hebrew *niṣṣav*, *šēhiyya*). The accents *silluq* and *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 *Hidāyat al-Qāri*’ (ed. Eldar 2018, 85),
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: יִצְרֵא אָוִי́ ‘creating light’ (Isa. 45.7)

L: הֶיוֹת הָָּוֵה ‘was without form’ (Gen. 1.2)

*Hidāyat al-Qārī* states with regard to such combinations:

When its word (i.e. the word with *pashṭa*) has only one vowel (as in יִצְרֵא אָוִי́), 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 הֶיוֹת הָָּוֵה), the *merkha* is not lengthened’.205

**Notes**

205 Ed. Eldar (2018, 138): אָוִי́ מֵיק פִּי כְּלָמָה אָלָא מֶלֶל אָוִי́ מַעְבָּד אֵסָטוֹפִּי. [In the corresponding passage in the Hebrew *Mahberet ha-Tījān* it is stated that when the word with *pashṭa* has more than one vowel, readers ‘skip over’ (ידִלְלָה הָָּוֵה) the *merkha* and ‘cause its melisma to be swallowed’ (מְבֻלְיוֹטִי) נְתוֹן (ed. J. Derenbourg 1871, 95).
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-Tijān. The two high tones are termed ʾiʿlān (‘announcing’) and rafʿ (‘raising’) and the low tone wadʿ (‘laying down’):206

The meaning of the term ʾiʿlān 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 ʾiʿlān 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-Qāriʾ see Eldar (2018, 85-88).

207 Ed. Neubauer (ed. 1891, 28):...
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: הַָּ֣אָּדִָּ֔ם ‘and the man’ (Gen. 4.1)

L: בְּקִינ וֹתֵיהֶַּ֤ם ‘in their lamentations’ (2 Chron. 35.25)

L: מַבְלִָ֥יגִיתִֵׂ֖י ‘my comfort’ (Jer. 8.18)

In many cases the secondary stress is marked by a *gaʿya* sign, e.g.

L: הָּ אָּדֵָּ֗ם ‘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: הָּ עַמּוּדִָ֛ים ‘the columns’ (Exod. 38.11)

L: שֶַׁ֣עִמָּּּ֑הֶֹ֑ם ‘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: הָּאֲדָּמָָ֛ה ‘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: יַעֲלֶַ֣ה ‘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: הָּאַשְרִ אֵלִֹ֑י ‘and they will serve’ (Jer. 30.9)
L: שָּׁ מְרֻ ַ ‘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.’ri:.im]. A secondary stress may also occur on a long vowel that is separated from the main stress by a geminated consonant, e.g.

L: הָּבַָּּ֣תִִ֔ים ‘the houses’ (Exod. 12.7)
L: אַָּ֣נֵָּּ֗א ‘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.ˈtʰi.im].

In the metrical structure, secondary and main stresses in words such as שָּׁ מְרוּ and הַבַּּ֣֔יִם would occur in adjacent feet, whereas in a word such as הָּ אָּדֵָּ֗ם there is an intervening foot between those of the stresses:

\[
\text{[ʃɔː.ɔm. ŵu:]}
\]

\[(ˌ*) (ˈ*)\]

[hab.ˌbɔː.ˈtʰi.im].

\[(*) (ˌ*) (ˈ*)\]

\[ˌhɔː.ʔɔː.ˈðɔː.ɔm\]

\[(ˌ*) (ˈ*)(ˈ*)\]

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 גָּעְיָּה, reflecting its origin as an Aramaic active participle of the verb הגָּעַר ‘to roar, to low’, or, occasionally, גִיעְיָּה. In \textit{Hidāyat al-Qārī} גָּעְיָּה has an Arabic broken plural גואעי gawāʿī. The sign later came to be known as the מֶתֶג meteg, a term that was introduced by Yequtiʾel 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 ḥaṭefs. 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: וַתַֹ֣אמֶרַשָּרִָּ֔ה ‘and Sarah said’ (Gen. 21.6), וַ יֹּאמֶר ַאַבְרָּהִָּ֔ם ‘and Abraham said’ (Gen. 20:1).

In some Masoretic sources the terms שָׁגֶר garesh, שָׁגֶרָה garsha ‘extending’ and מַאֲרִיך 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).
Vowels and Syllable Structure

20.11, ‘you will know by this’ (Num. 16.28—the šere with secondary stress counts as two full vowels), דְּעִוּנָּן ‘and they will be blessed in your seed’ (Gen. 22.18—the shewa and theḥaṭef 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 פָּתַתְּרִי ‘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.’\(^{211}\)

‘In some books the gaʿya is written whereas in others it is not written but rather the knowledge of the reader is relied upon.’\(^{212}\)

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.’\(^{213}\)

\(^{211}\) *Sefer Ṭaʿame ha-Miqra* (ed. Mercerus, 1565, Eiii): והקוראيطעעם הגעיא בפיו או כתובה או לא כתובה.

\(^{212}\) Hebrew *Maḥberet ha-Tījān* (ed. J. Derenbourg 1871, 98): הכתבין הכתבין ולא כתובה.

\(^{213}\) *Ḥawzat al-Mudarreb wa-l-Balāġa*, 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 gaʿya sign was, in fact, called maʿarikh in some sources (Wickes 1887, 24; A. Ben-David 1957b, 390–91).

Joseph and David Qimḥi 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 qames on the shin in the word שָּׁמַר is longer than that in שְָ֝מַר.214

It has been remarked above that the early Tiberian manuscripts differ in their consistency of marking the secondary stress by gaʿya. Those manuscripts that marked major gaʿya 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 gaʿyas, also indicate subtle differences in the strength of consonants according to their phonetic environment (§1.3.3.). Yeivin has shown that in A, in which major gaʿyas are marked inconsistently, their notation is not random but follows certain trends. If the difference between the gaʿya

214 Cf. the passages from the Sefer Zikkaron and the Sefer Mikhloł 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 gaʿya 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 gaʿya was essentially a marker of vowel duration.

The words that are marked with major gaʿya 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, Yequtiʾel ha-Kohen bar Yehudah, the first scholar to deal systematically with the question of gaʿyas and secondary stress, states explicitly that ‘metegs (= gaʿyas) 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 gaʿya most frequently on those with pashta. After pashta the accents with which it occurs most often are, in descending

\[\text{Citation:} \text{En ha-Qore} (Gumpertz 1958, 141).\]
order, zaqef, ʿatnāḥ, ʿtīfḥa and reviʿā (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, ʿatnāḥ and tīfḥa 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:

\[ 'וֹלֶ֛ל בֶּ֥נֶ֖ה יְרֵ֥בָּמָֽים \]

‘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.

\[ אִםּוֹלֶ֛ל יְהוָּ֥ה יְחִ֖ב בֶּ֥י יִהְתָּלָֽאִריִי \]

‘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.

\[ אָסִיָּ֛וּל הַֽיְּשָּׁ֥ה יְךָ֖בִי \]

‘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. 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 [ʿatnāḥ], 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 phonological features (viz. pataḥ /a/, segol /e/, hireq /i/, qibbus/shureq /u/, /o/, /e/), as opposed to a vowel that is inherently 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 consistently on the first syllable of words with disjunctive accents that have the following patterns: מִ תְפַלְפְלִִַ֔ [ˌmiˑθpʰalpʰaˈliːim], מִ תְקַטְלִִ֔ים [ˌmiˑθq̟ɑttˁɑˈliːim] (with a geminated consonant) and מִ תְפַעֲלִִַ֔ [ˌmiˑθpʰaːʕaˈliːim] (with a hatef preceded by a vowel of the same quality).217 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 hatef 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 transcriptions 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 (גָּעיהַ קטנה) whereas the gaʿya that marked the incidence of secondary stress on an open syllable was termed, as remarked, ‘major gaʿya’ (גָּעיהַ 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

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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 *gaʿya*, e.g.

\[\text{לְיַעֲקֹֹ֑ב} \text{ (BL Or 2542, fol. 43r, 6 | L [BHS]: Exod. 1.7 ‘and they swarmed’) \]

\[\text{נִ תְחַכְמִָּׂ֖ה} \text{ (BL Or 2542, fol. 43r, 9 | L [BHS]: Exod. 1.10 ‘let us deal wisely’) \]

\[\text{וּ לְיַעֲקֹֹ֑ב} \text{ (BL Or 2542, fol. 49r, 13 | L [BHS]: Exod. 6.8 ‘and to Jacob’) \]

For this reason, the vowel with minor *gaʿya* 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 *gaʿya* is on one of the high vowels *hireq* [i] or *shureq* [u], but transcribes lower vowels that have minor *gaʿya* with a *mater lectionis*, e.g.

\[\text{וּ לְיַעֲקֹֹ֑ב} \text{ (BL Or 2549 fol. 18v, 9 | L [BHS]: Jer. 4.16 ‘and they gave’) \]

\[\text{לְמַנְּאָ֖א} \text{ (BL Or 2549 fol. 87r, 6 | L [BHS]: Jer. 23.17 ‘to those who despise me’) \]

\[\text{וּ כְמִשְרְפַ֣וֹת} \text{ (BL Or 2549 fol. 112r, 14 | L [BHS]: Jer. 34.5 ‘and like the burning of’) \]
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.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. עַ ל־הַחֲמִֹ֔ר ‘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: מְכַנֶּנִּית (with vocalic shewa additional to the pattern) ‘the Canaanite woman’ (1 Chron. 2.3)

²²⁰ For further details concerning the representation of minor gaʿya in the Karaite transcriptions, see Khan (1992c).
L: וְיִתְחַכְּד (with a vowel of different quality before the ḥaṭef) ‘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: נִמְצָא־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-Qāriʿ 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.


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 מִתְקַטְלִִ֔ים and מִ תְפִַַ֔לִּים 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 הַכְּנַעֲנִֹ֑ית ‘the Canaanite woman’ (1 Chron. 2.3) and אֲשֶׁר־תְבַשְּׁלוּ ‘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:

\[
[\text{(ˌhɑ'k.) } \text{(kʰa.naː.) } \text{(ʕa.ˈniːθ)}] \\
(ˌ*) \quad (.* \quad (.*).
\]

\[
[\text{(ʔa.ʃɛˑʀ̟) } \text{(tʰa.vaʃ) } \text{(ʃa.ˈluː)}] \\
(.* \quad (.* \quad (.*).
\]

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:

\[
[(mip.) \text{ } \text{(pʰa.neː.) } \text{(ˈχɛːɛm)}] \\
(* \quad (.* \quad (*).
\]

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 (قاتפות) but could not be the same in reverse sequence (מותניים).

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 hatef vowel): מִ תְפַלְפְלִִַ֔, and מִ תְקַטְלִִ֔ים. 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 ga’ya was usually omitted. This explains the phenomenon described in the Diqduqe ha-Ṭeʿamim whereby the ga’ya was omitted if the structures that regularly had it were attached to a following word by maqqef, e.g. וַיִּפְלוּ־שָֹּׁ֑מָּּּה ‘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 ַ ‘what you cook’ (Exod. 16.23) exhibit slightly less consistency in the placement of minor ga’ya 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 hatef, such as לַמִּלְחָּ֖מה ‘to war’ (Num. 21.33) do not have ga’ya 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).

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. והִשְׁמַרְתָּנָּה '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 תְפַעֲלִים מִַוכְפָּה 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. *וּֽוְיִכָּלְמ* ‘so they may be ashamed’ (Ezek. 43.10). Here the secondary stress evidently generally fell on the syllable before the *shewa*: [vi.jikˌkʰɔːˈɔl.ˈmuː]. When the long vowel is followed by a laryngeal/pharyngeal with a vowel of a different quality, e.g. *וַֽיַּעֲבִֵׂ֖ר* ‘and he caused to pass over’ (Gen. 32.24), the tendency for the word to have minor *gaʿya* is greater than when it is followed by a non-guttural consonant with *shewa* (*וּֽוְיִכָּלְמ*), but less than when the vowel preceding the *hatef* is of the same quality (*וַֽיַּעֲקֹד*). 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. *וַֽיַּעֲקֹד* ‘and he bound’ (Gen. 22.9), *וַֽיַּעֲבִֵׂ֖ר* ‘and he caused to pass over’ (Gen. 32.24), *עַ ל־הַחֲמִֹ֔ר* ‘upon the donkey’ (Exod. 4.20).

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.\footnote{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).} 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 munāḥ before zaqef where the occurrence of munāḥ 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
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.\(^{225}\) It may be inferred that this principle influenced vowel duration in Tiberian Hebrew. In the sequence of a vowel, a laryngeal/pharyngeal, and a ʰaṭef 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.\(^{226}\) 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

\(^{225}\) E.g. Lehiste (1970, 20).

\(^{226}\) 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: 

\[\text{draʿ} \text{ ʿarm} < \ast \text{dhirāʿ}, \text{ jnaḥ} \text{ ʿwing} < \ast \text{jināḥ}\] (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.\footnote{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).} We may, therefore, identify this as a second factor that
is likely to have reduced the duration of Hebrew vowels before gutturals.\textsuperscript{228}

Although the articulation of אֶחָד 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 מְצַחָא, אֶבֶן, and forms that used ה as a mater lectionis for a final long vowel. Where אֶחָד 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 אֶחָד with a low vowel shape may explain the following phenomenon of gaʿya distribution in the early manuscripts that has been noted by Yeivin (1968, 99-100). Among the cases of words of regular structure for minor gaʿya that, contrary to expectation, do not take minor gaʿya with a disjunctive accent, there is a large proportion of forms of the pattern עֲלִים with segol + hatef segol, e.g. וַיֶּאֱחֹ֖ז ‘and he took

\textsuperscript{228} 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 מְצַחָא is taken by one of the sonorant consonants that characteristically do not tolerate dagesh in a syllable with shewa, minor gaʿya regularly occurs (Yeivin 1968, 112–13), e.g. וַיְהַלֵּל, ‘and they praised’ (L וַיְהַלֵּל, 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.
hold of’ (Jud. 16.3), ‘and I will do it’ (Isa. 46.11). This can be interpreted as indicating that a long vowel preceding אַף־אֶעֱשֶ נָּּּה 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 אַף־אֶעֱשֶ נָּּּה and containing a vowel nucleus of the same quality, it was apparently longer than a long vowel followed by אַף־אֶעֱשֶ נָּּּה 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. וְלֵַא חַטָּאִ֔וֹת ‘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 וּ ִׂ֖וְיִ לָּחֲמ and they fought’ (Josh. 10.36) and וּמִ גֹאֲלִֵׂנ 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 gaʿya, e.g. תָּּלְחֵמֶת ‘[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 וְיִכָּלְמ ‘so they may be ashamed’ (Ezek. 43.10), it may be expected from the operation of the first factor that the long qames 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 gaʿya than forms such as לַּחֲמִוּת ‘and they fought’ (Josh. 10.5). Evidently, the qames in forms such as וְיִכָּלְמ 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 GAʿYA

The gaʿya sign is sometimes marked next to shewa or hatef signs. This is referred to by the terms gaʿyat shewa or shewa gaʿya. 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.  

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. מְפַלְפְלִים, מְקַטְלִים, מְפַעֲלִים and מְתַפַּלְפְלִים (the counterparts of מְפַלְפְלִים, מְקַטְלִים and מְתַפַַלְפְלִים), e.g. 

L: יִשְׁלַח ‘you should set free’ (Jer. 34.14)
L: כְּשָׁמְעֲךַ ‘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: אוּלֵם ‘but’ (Job 12.7)
L: צְאִי־לָ ‘go out’ (Cant. 1.8)
L: רָאִיתַָּוְ ִֽקָּרִָּ֔אתַָּ ‘you will see and you will read’ (Jer. 51.61)
L: וְ ְֽ֠הָּיָּה ‘and it will be’ (Hos. 2.1)
L: וְ יֹאמְר֞ ‘and let them say’ (Joel 2.17)

L: ‘when they brought out’ (Josh. 10.24)
L: ‘his sneezings’ (Job 41.10)
L: ‘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: ‘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 ʾ_azla_ accent sign that itself marks a secondary stress, e.g.

L: ‘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: ‘blessed is the man’ (Psa. 1.1)
L: ‘they search out iniquities’ (A: ḥָפְשֵׁי עֲוֹלָה, 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 הבשלם) 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. הבשלם, but you do not say הבשלם, 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 והביאו אגרות, והביאו את segurança, והביאו לאשה. 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. והביאו הוא pronounce והביאו הוא. Likewise, לך走去 ‘go out’ (Cant. 1.8) is read with hireq as if it were לך走去 ‘אפים שקבעו;자는 ‘our captors asked us’ (Psa. 137.3) is read בזאת ‘אתם בזאת ‘you will love being simple’ (Prov. 1.22) is read בזאת. 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.\(^{230}\)

The purport of this and similar passages from other Masoretic treatises\(^{231}\) is that a *shewa* with *gaʿya* was pronounced as a long vowel, which was equal in status to a full vowel represented by a vowel 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.

\[(\text{BL Or 2547 fol. 15r, 11 | L [BHS]: } \text{بُنْحِلِل} - \text{Josh. 13.6 'as an inheritance'})\]

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 ʿalif, which represents long [aː]. A lengthened haṭef pataḥ is likewise represented by mater lectionis ʿalif.

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.

(BL Or 2552 fol. 63r, 15 | L [BHS]: יַעֲבֹד Job. 36.11 ‘and they will serve’), in which the shewa before yod is pronounced with the quality of hireq [ˌviˑjaːˈvoːðuː]

(BL Or 2552 fol. 18v, 7 | L [BHS]: יָעֲלָא Job. 12.7 ‘but’), in which the shewa has the quality of shureq before a guttural followed by shureq [ˌwuˑʔuːˈlɔːɔm]
1.8 ‘go out’), in which the shewa is pronounced with the quality of hireq before a guttural followed by hireq [ˌsˁiˑʔiː-ˈlɔːɔχ]

‘and your eyes’), in which the shewa is pronounced with the quality of sere before a guttural followed by sere [ˌveˑʕeˑnɛːχɔː]

‘he who misses me’), in which the shewa is pronounced with the quality of holem before a guttural followed by holem [ˌvoˑhoˑotˁˈʔiː]

In such manuscripts a mater lectionis is also sometimes omitted when the shewa with gaʿya has the quality of [a], e.g.

‘you will send off’)

‘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]: חַ֣וּץמִַ 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]: וּוְיִֽרְאֵו Josh. 4.14 ‘and they (mpl) feared’)

The fact that the *hireq* vowel in a word such as מְחֶוֶצ (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 יִנָּבְרֵדוּ (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 מְחֶוֶצ 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: /vʕē.nɛ̄.χɔ̄/. In a word such as מֵ אָּדָּם ‘from man’ (Gen. 6.7), on the other hand, the long șere would be in the underlying syllable structure: /mē.ʔɔ̄.ðɔ̄.m/ [.ˌmeːˌʔɔ̄.ˈðɔ̄.ɔ̄.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 ‘God’ with shewa, in which the ‘alef has a long vowel. Likewise, ‘my Lord’, הָרָאִִ֔יתַָּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּּে ְיַּּכלכַּּאֶלנַּבַּאלאָםַּאֶלַשְּאֶעַּאְלכַּּאַקַּלכַּּאֶנַּכַּאֶזַּאכַּלכַּאֶנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלנַּבַּאלאָםַּאֶלn. 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.\footnote{Ed. Levy (1936, הָד, lacunae supplied by CUL Or 1080.13.3.2, fol. 1r: פָּרְגֶּלֶג כוֹלָּל לָךְ אֶלְּאָּל אֵלֶּאָּל אֵl. 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.}
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 וּתְשַׁלְּח (1 Sam. 6.3) and such as והֶלְשָׁן (Jer. 34.14) would be the same (indicated by brackets):

וּתְשַׁלְּח
([(ta.ʃal.)(la.ˈhu:)])

וּתְשַׁלְּח
([(ˌtaˑ.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 סְפָּרָיָת ‘holinesses’ (Exod. 26.33). 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:

סְפָּרָיָת ‘holinesses’ (Exod. 29.37)

[(ˌq̟ɔː)(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:

\[
\text{אָמָאָסָנָו (BL Or 2555 fol. 19r, 5 | L [BHS]: בְּ מַעֲשִָּ֔יו Ecc. 3.22)}
\]

‘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.

שְׁעֵי [ja.ˌar.ˈʃaˑʕ.ˈjɔː] ‘Isaiah’ (Isa. 1.1)

וּפְתַחְיֵָֹּ֑ה [wuf.ˌθaˑḥ.ˈjɔː] ‘and Pethahiah’ (Neh. 11.24)

יְדַעְיָּה [jaˌðaˑʕˌjɔː] ‘Jedaiah’ (Neh. 12.6)

שְׁמַעְיָֹ֑ה [ʃa.ˌmaˑʕ.ˈjɔː] ‘Shemaiah’ (Neh. 10.9)

וּוּפְתַּחְיֵָּּ֨ה [wuf.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.

וּוּשְׁמַעְיָֹ֑ה [wuʃ.ˌmaˑʕ.ˈjɔː.huː] ‘and Shemaiahu’ (2 Chron. 35.9)

233 Yeivin (1980, 262) refers to this as a phonetic gaʿya.
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ךְ ָּקַח הל [ˌqaˑḥ.ˈlaˑχ] ‘take for yourself’ (Gen. 14.21)

שַׁם עַם [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.ˌaˑrˑ.ˈloː] to listen to him’ (Jud. 19.25)

לֹא [ˈkoː.ˌlɔːɔχ] ‘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.

שָׂרְגִּון [ˌsaˑrˁ.ˈʁoː.on] ‘Sargon’ (Isa. 20.1)

כַֹחַ לֵב [ˌkʰoː.ˌaˑħ ˈleˑː.ev] ‘strength of heart’ (Job. 36.5)

It is found also on high vowels, e.g.

שַׁ וְעַת [ˌʃaˑv.ˈʕaː.əθ] ‘cry of’ (Jer. 8.19)

סַ רְגִׂוֹן [ˌsaˑrˁ.ˈʁoː.on] ‘Sargon’ (Isa. 20.1)

סַלְנֵה [ˌχaˑl.ˈneː] ‘Calneh’ (Amos 6.2)

עַ רְבָוֹת [ˌʕaˑʀ̟.ˈvoː.oθ] ‘desert plains’ (Josh. 4.13)

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.

זָרִז [ˌzɑˑʁˑ.ɾiˑz] ‘in Ziklag’ (Neh. 11.28)

זָרִז [ˌzɑˑʁˑ.ɾiˑz] ‘in Ziklag’ (Neh. 11.28)

זָרִז [ˌzɑˑʁˑ.ɾiˑz] ‘in Ziklag’ (Neh. 11.28)

זָרִז [ˌzɑˑʁˑ.ɾiˑz] ‘in Ziklag’ (Neh. 11.28)

זָרִז [ˌzɑˑʁˑ.ɾiˑz] ‘in Ziklag’ (Neh. 11.28)
The lengthening of the vowel is reflected by the Karaite transcriptions by an Arabic *mater lectionis*, although the *ga’ya* sign is not always marked in the manuscripts, e.g.

(Bl Or 2556, fol. 65r, 1 | L [BHS]: שְׁמַ עְיָֹ֑ה Neh. 10.9 ‘Shemaiah’)

(Bl Or 2556, fol. 54v, 2 | L [BHS]: פְתַ חְיִָּ֔ה Neh. 9.5 ‘Pethahiah’)

(Bl Or 2552 fol. 7v, 4 | L [BHS]: Job. 5.27 ‘know you!’)

(Bl Or 2552 fol. 47v, 1 | L [BHS]: Job. 33.1 ‘hear please!’)

(Bl Or 2542, fol. 50r, 5 | L [BHS]: Exod. 6.25 ‘he took him’)

(Bl Or 2549 fol. 226v, 9 | L [BHS]: Ezek. 16.8 ‘and I swore to you’)

(Bl Or 2551 fol. 96r, 13 | L [BHS]: Psa. 132.15 ‘I will satisfy (with) bread’)

(Bl Or 2539 MS A, fol. 88v, 1 | L [BHS]: Deut. 4.33 ‘did a people hear’)

Units of Pronunciation and Stress
In some manuscripts, the _mater lectionis_ is occasionally omitted in places where the _gaʿya_ in L occurs on high vowels, e.g.

\[ \text{مشحو} \]

(BL Or 2542, fol. 58v, 7 | L [BHS]: מִשְׁכוֹ) ‘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_.

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\[ \text{مشحو} \]

(BL Or 2542, fol. 58v, 7 | L [BHS]: מִשְׁכוֹ) ‘pull out!’)
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 ḫaṭef pataḥ. 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: ְהֲתִמְַ [ha.θi:.ma.ˈlo:.oχ] ‘Are you a king?’ (A ְהֲתִמְַ, 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 יְשַׁעְיָה [ja.ˈʃaːʕ.ˈjɔː.huː] was orthoepic, just as was the case with the phonetic gaʿya before a vocalic shewa in a word such as חֲתִי [ha.θi:.ma.ˈlo:.oχ]. 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 יְשַׁעְיָה [ja.ˈʃaːʕ.ˈjɔː.huː], 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 ישועה even where L does not have gaʿya on the shin, e.g.

(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: נָּ פֶשׁ־מַ פַח [ˌmaˑpˌpʰaˑh∅ˈnɔːʃəʃ] ‘the breathing out of the soul’ (L [BHS]: נָּ פֶשׁ־מַ פַח Job. 11.20)

L: יִשְׁמַע [viˑjiˑʃˌmaˑʕ∅ˈjɔː] ‘and Ishmaiah’ (1 Chron. 12.4)

L: נְקָח [vaˑʃˌqəˑʔ∅ˈlɔː] ‘and he took for himself’ (Gen. 4.19)

The lengthening is reflected in the Karaite transcriptions, e.g.

(BL Or 2552 fol. 16r, 5 | A נְקָח 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 מִ תְפַעֲלִים. In a structure such as וְיִ שְׁמַ עְיָּ ה[ˌviˑjiˑʃˌmaˑʕ∅ˈ], therefore, the metrical epenthetic ∅ would correspond to the short hatef vowel of מִ תְפַעֲלִים. 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 hatef in מִ תְפַעֲלִים and of the pataḥ with the phonetic gaʿya in וְיִ שְׁמַ עְיָּ ה 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 הָיָּה ‘to be’ and חָּיָּה ‘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.

הָיָּה [ˌjiˑhˈjɛː] ‘it will be’ (Gen. 1.29)

חָּיָּה [ˌjiˑhˈjɛː] ‘he lives’ (Ecc. 6.3)

מִ הְיָ֥וֹת [ˌmiˑhˈjoːθ] ‘from being’ (Jer. 31.35)

וַ ִֽיְהִֵׂ֖י [ˌvˑaˑjˈhiː] ‘and it was’ (Gen. 4.3)

וַ ִֽיְחִַ֣י [ˌvˑaˑjˈħiː] ‘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 הְיֶַ֣ה Jer. 23.17 ‘it (ms) will be’)

(BL Or 2549 fol. 55r, 14 | L [BHS], A: יְ הָיְו, C: יְ הָיְו Jer. 7.24 ‘and they were’)

(BL Or 2549 fol. 58r, 12 | L [BHS], A: יְ הָיְו, C: יְ הָיְו Jer. 7.34 ‘it (fs) will be’)

(BL Or 2549 fol. 92r, 12 | L [BHS]: יִ הְיֶָ֥ה Jer. 31.35 ‘from being’)

(BL Or 2549 fol. 120r, 10 | L [BHS]: יִ הָיְו Jer. 35.7 ‘you (mpl) will live’)

(BL Or 2540, fol. 3v, 4 | L [BHS]: יִ הְיֶַ֣ה Exod. 1.5 ‘and it was’)

(BL Or 2548 fol. 28r, 9 | L [BHS]: יִ הְיֶַ֣ה 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 gaʿya.

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.

וַתְּהִַּ֤י [vattʰiˈhiː] ‘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.

וַתְּהִַּ֤י (BL Or 2547 fol. 34r, 5 | L [BHS]: וַֽתְּהִי Jud. 11.29 ‘and it (fs) was’)

Some manuscripts of the Karaite transcriptions represent only the pataḥ of the forms וַיִּהְיֶַּ֤ה and וַיְחִי but not hireq in the prefixes of these verbs, reflecting the lengthening only of pataḥ, e.g. Or 2539 fols. 56–114:

וַֽיָּֽהְיֵַּ֤ו (BL Or 2539 MS A, fol. 71v, 6 | L [BHS]: ויֵּֽהָיַּ֤ה Gen. 24.15 ‘and it was’)

יִהְיַָ֤ה (BL Or 2539 MS A, fol. 97r, 8 | L [BHS]: יִהְיַָ֤ה Deut. 18.22 ‘he will be’)

יַָ֤הְיוּ (BL Or 2539 MS A, fol. 103r, 4 | L [BHS]: יַָ֤הְיוּ Deut. 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.

\[\text{ Мыhoot }\] (BL Or 2539 MS A, fol. 57r, 8 | L [BHS]: מִחוּט Gen. 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.
Vowels and Syllable Structure

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’)

(HEHSTAKHUV) (BL Or 2549 fol. 58v, 13 | L [BHS]: יֵ הֶשְׁתָּהוּ Jer. 8.2 ‘they worshipped’)

[tihoːfuː] (L [BHS]: התֵּיה וּיֶה Ezek. 34.21 ‘you will push’)

[yihroːmaː] (l [BHS]: הָּיָּה Psa. 94.6 ‘they will kill’)
Likewise, there are some manuscripts that regularly transcribe a *patah* lengthened in metrical epenthesis constructions by an Arabic *mater lectionis*, but sometimes omit a *mater lectionis* in the transcription of *patah* with minor *gaʿya*, e.g.

(BL Or 2542, fol. 43r, 3 | L [BHS]: וַיְהִֵ֗י Exod. 1.5 ‘and it was’)

(BL Or 2542, fol. 50r, 5 | L [BHS]: לֹא־פַּח לֹו Exod. 6.25 ‘he took for himself’)

(BL Or 2542, fol. 43r, 6 | L [BHS]: וִּי־שׁרְצֹו Exod. 1.7 ‘and they swarmed’)

The lengthening of the vowel before weak consonants in syllable contact in constructions with metrical epenthesis described in this section is occasionally extended by analogy to situations in which the vowel occurs before weak consonants but is not immediately followed by the syllable bearing the main stress. These often occur before *maqqef*, e.g.

אַרְבַּע־עֶשְּרֵה [ʔaˌɾɜˑ-ʕɛʃˈɾɐ̃] ‘fourteen’ (Gen. 31.41)

וַיְהִי־עֶָ֥רֶב [ˌvaˑjhiː-ˈʕɛːʔɐ̃] ‘and it was evening’ (Gen. 1.5)
I.2.11. **MAQQEF**

The *maqqef* sign joins words that are read together as a group with a single main stress. The number of words joined in this way is most frequently two, e.g.

L: אֶת־הָּאִׂ֖וֹר ‘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: אַחַת לָאִ֖בֶּרַה ‘the heart of Pharaoh’ (Exod. 14.4)

L: עַ ל־כָּל־דְבַר־פִֶּ֡שַׁע ‘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־לִִׂ֖י ‘say with regard to me’ (Gen. 20.13)

L: נִמְצְאוּ־בֵָּ֗ם ‘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.

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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: אָלַיָאֵנָבָרָה 'to Abraham' (Gen. 20.10)
L: לָאַרְבָּרְפָרָי 'all the words' (Exod. 4.30)
L: בֶּן־הָאָמַה ‘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: אָמַרְרִי לָב וֹא־אִתִיַּבָּבִֶׂ֖לַחֲדָֹ֑לוְאִם־רַעַבְּעֵינֶָ֛יךַ '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.

כל /kʰol/ ['kʰoːl], כָל /kʰol/ [kʰol] ‘all’
עֶז /ʕoz/ ['ʕoːz], עָז /ʕoz/ [ʕɔz] ‘strength’ (Isa. 26.1)
תִמְשָׁל /tʰimʃol/ [tʰimʃɔl] (Gen. 37.8), מְשִׁל /tʰimʃol/ [tʰimʃɔl] (Gen. 4.7) ‘you master’
ʔא /ʔeθ/ ['ʔeθ], אֵת /ʔeθ/ [ʔeθ] object marker
וַיִתֵה /vaʃʃen/ [vaʃʃtʰen], הִתֶה /vaʃʃtʰen/ [vaʃʃtʰen] ‘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 /beːʔ/ ‘your father’s house’ (Gen. 24.23)

L: אִישׁ-אֶחִי /ʔiʃ/ ‘one man’ (Gen. 42.11)

L: לֹשׁ-מֵאָות /ʃloʃ/ ‘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: והם-שְׁלֵשׁ-אֵל /ʔalɔːʃ/ ‘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.

שְׁלֹשָׁ֣וֹת (BL Or 2549 fol. 145v, 15 | L [BHS]: שְׁלֹשׁ-מֵאָות Ezek. 4.5 ‘three hundred’)

הָדוֹז (Genizah MS 13, Khan 1990a, 13 | L [BHS]: הָדוֹז Psa. 111.3 ‘majesty’)

הֹן (Genizah MS 13, Khan 1990a, 13 | L [BHS]: הֹן Psa. 112.3 ‘wealth’)

יָּם-כִִנִֶּרֶת (Or. 2546, fol. 118v, 5 | L [BHS]: יָּם-כִִנִֶּרֶת Num. 34.11 ‘sea of Chinnereth’)

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 *ḥolem* [ɔː] rather than the expected short *qameṣ* [ɔ]. In the following two examples, the syllable with the *ḥolem* is marked by a *gaʿya*, reflecting a secondary stress:

L: יִגְנֹ ב־אִישׁ ‘a man steals’ (Exod. 21.37)
L: וֹעְז־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: אַרְבַּע־עֶשְרֵַּ֤ה ‘fourteen’ (Gen. 14.4)
L: שְׁבַ ע־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 șere [eː] and ḥolem [oː] respectively when stressed and the short vowels segol [ɛ] and qames [ɔ] when in words with maqqef, e.g. הֵן/הֶן, שֵׁשׁ/שֶׁשׁ, עֵת/עֶת, לֵב/לֶב, בֵּן/בֶּן, כֵּן/כֶן, שֵׁן/שֶׁן, כֹּל/כָּל.

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־הַשְּׁעֹרִים ‘six (measures) of barley’ (Ruth 3.17)
L: שֵׁן־הַסֶּלַע ‘a crag of rock’ (1 Sam. 14.4)
L: בֵּן־פָּרִיץ ‘a robber son’ (Ezek. 18.10)
L: אֵת־כָּל־גָּבָה ‘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 (§1.2.3.2.), e.g.

L: בֶַ֣ן־יָּאִ֣יר (Esther 2.5) ‘son of Yair’
L: אֶַ֣חַ֣ר־נַהֲרַ֣יָּה (Psa. 60.2) ‘with Aram-naharaim’
L: כָּל־אֲחֵי־רַַ֥נִּי (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.

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There are, indeed, some variants in the sources. According to Diqduqe ha-Ṭeʿamim (ed. Dotan, 1967, §8), for example, the word כָּל in Psa. 87.7 has its own accent but in L it has a maqqef (כָּלְַ֥֖מַעְיָּנַָ֥י: ‘all my springs’).

The lists of differences in Kitāb al-Khilaf, moreover, show that Ben Naftali in a number 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: בְּנָּקְבַָ֥ו שִֵׁׂ֖ם ‘when he blasphemes the Name’

Gen. 39.6:

Ben Asher: יְפֵה־תִֹׂ֖אַר, Ben Naftali: תִֹׂ֖אַרַיְפֵַ֥ה ‘beautiful in form’

Job 12.3:

Ben Asher: אַ֖֑הַרְתַּיְהָנִּ֖י, Ben Naftali: אַ֖הַרְתִּיְיֶנַּיְ֖י ‘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

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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. בְּאֵֽ֖מֶרְיָָ֖בָּי ‘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 maqef, e.g.

Josh. 9.7: ketiv אֶכְרָּתְלָךְ, qere אֶ כְרָּת־לְךַָ֥, ‘I make (a covenant) for you’

Hosea 8.12: ketiv אִכְתֹּבְלָךְ, qere וֹ אֶ כְתָּב־ל, ‘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 maqef 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: שׁכִיֵא (Jer. 17.4) ‘for fire’
A: יְחַלָּנְשֵׁ (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 שׁכִיֵא, 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 ישעיה [jaʃaʕ∅ˈjɔːhuː], in which metrical epenthesis makes a clear division between weak consonants (§I.2.10.).

In the discussion of deḥiq above in §I.2.8.1.2. we have seen that the vowel in a final open syllable in a word with maqef 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: [maˑllɔːɔχ] (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.

- [mah-ʃʃaˈmɛːχɔː] (BL Or 2544 fol. 33v, 1 | L [BHS]: *Mahāshi* Gen. 32.28 ‘What is your name?’)
- [mah-ʃʃaˈmoː] (BL Or 2544 fol. 76v, 12 | L [BHS]: *Mahāshi* Exod. 3.13 ‘What is his name?’)
- [mah-ʃʃeː] (BL Or 2544 fol. 79v, 8 | L [BHS]: *ketiv* מוה, *qere* מוהה Exod. 4.2 ‘What is this?’)
- [mah-ʃʃiː] (BL Or 2554 fol. 86v, 11 | L [BHS]: מוה תמאו, ומה תמאו Cant. 8.4 ‘What do you stir up and what do you awaken?’)
- [mah-ʃʃeː] (BL Or 2555 fol. 12v, 1 | L [BHS]: מוה שומיה 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.

\[\text{نقراهشمى} \quad \text{[niq̟’raʃ̟’mi:] (Genizah MS 14, Khan 1990a, 2r, 8 | L [BHS]: \text{نکرآشمی}} \quad \text{Jer. 32.34 ‘My name is called’)\]

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. \(\text{יִֽלְּכָה} \quad \text{(Revell 1970a, 21). The use of the element [h] as a pausal device is reminiscent of the Arabic 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. \textsc{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 *ga’ya* in order to lengthen the vowel and cause the following *shewa* to be read as vocalic, e.g.

L: יְבַרְתָּה 'you choose' (A: יְבַרְתָּה, Psa. 65.5)

L: יָלְעַת 'it mocks' (A: יָלְעַת, 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: יִבָּבַה 'and on the plunder' (Esther 9.10)

L: יַקְצָת '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.

(BL Or 2548 fol. 128r, 5 | L [BHS]: יִבְקָע־צָוּר Isa. 48.21 ‘and he cleaved the rock’)

(BL Or 2556, fol. 2v, 5 | L [BHS]: יַקְצָת Dan. 1.5 ‘at the end of them’)

(BL Or 2539 MS A, fol. 70v, 4 | L [BHS]: לְגַּעֵי 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 *revia‘ mugrash*. Transcriptions such as the
following show that the vowel was not lengthened by the first accent:

\[ \text{مسلاحة (BL Or 2551, fol. 31r, 3 | L [BHS]: מִָ֜שְׁלֵַ֗חַת Psa. 78.49 'delegation')} \]

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.