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The Vocalization of Verbs Containing Gutturals in Tiberian and Babylonian Traditions. An Attempt of Systematic Description

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Streszczenie

The subject of the present research is the inconsistencies within the vocalization of the Tiberian and Babylonian tradition. The thesis consists of three chapters. While in the first one the general overview of the pronunciation traditions of Biblical Hebrew was given, the second one constitutes a description of the vowel systems of the selected traditions. The third chapter contains the analytical part of the thesis. The collected material included 127 verbal forms from various stems which subsequently were analysed in order to spot fluctuations demonstrated by their vowel systems and prosodic structure. As will be seen, in the Tiberian tradition most of the inconsistencies are a matter of *shewa* placement and vowel length. Contrary to this, in the Babylonian one the fluctuations occur mostly in the vowel quality. In addition, both traditions present different type of epenthesis.

Słowa kluczowe

Tiberian, Babylonian, vocalization, vowel, consonant, *shewa*, inconsistency, stress, verb, Hebrew

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Introduction

It is generally accepted that Biblical Hebrew, as a literary language, presents a significant level of uniformity resulting from the levelling processes of scribal convention. However, its seemingly consistent and uniform system of phonology and morphology, which was even reinforced by the activity of Masoretes, who presumably corrected many inconsistencies within the biblical texts, exhibits a remarkable linguistic diversity which, according to scholars, reflects a diachronic development (Hornkohl 2013). Thus, thanks to the discovery of, i.a., the Amarna letters, the Ugarit material, and the Dead Sea scrolls, it has been established that Biblical Hebrew constitutes a part of much wider Semitic linguistic framework, which underwent some considerable changes with the passage of time.

The Tiberian vocalization, which constitutes a complex system of diacritics, notwithstanding its high level of standardization, exhibits some inconsistencies as well. Presumably the first scholar to point out this fact was Theodor Nöldeke, who in his article entitled 'Inkonsequenzen in der Hebräischen Punktation' (Nöldeke 1922) discussed the linguistic aspects of some selected inconsistencies and offered some explanations. He noticed, however, that some of them are difficult to explain and that they either reflect some unknown historical development, or are just scribal mistakes. Nonetheless, the majority can indeed be analysed for revealing some conspicuous tendencies. A group presenting such tendencies are verbs with guttural consonants, which without any doubt deserve closer examination due to their peculiarities. Namely, the gutturals bring about some deviations within almost all grammatical forms in Hebrew in comparison with non-guttural consonants, so one can as a result expect a high level of inconsistency in their vocalization. The phenomena caused by these consonants are well described in almost every grammar of Hebrew, starting from Gesenius (Kautsch 1957). Recently, a new approach to analysing gutturals was offered by G. Khan (Khan 1991, 1992, 2013). These works, however, do not attempt to catalogue the inconsistencies and explain their sources, albeit some of them mention discrepancies in verbal forms as well (Khan 2013f, 101).

Contrary to the treatment of the Tiberian tradition, the subject of inconsistencies within the Babylonian vocalization has been almost totally omitted in scholarship after the publication of the monumental work of Yeivin (1985) called *The Hebrew Language Tradition as Reflected in the Babylonian Vocalization*. It is the most accurate and exhaustive grammar of Babylonian Hebrew and without any doubt the most reliable source of knowledge about the phonology of this tradition. Notwithstanding its preciseness, the book

is a reference grammar and very rarely historical background of the phenomena is given. Inconsistencies can be spotted in almost every grammatical category, since the materials examined by Yeivin comprise the manuscripts from the Cairo Genizah from various historical periods. No research, however, that would specifically refer to the topic of inconsistencies within verbal forms with gutturals has been done.

The present research aims, therefore, at a comparative analysis of the inconsistencies in vocalization of verbs with guttural consonants spotted in both traditions. Its scope comprises two groups of verbs with guttural consonants. While the first one contains verbs from the Tiberian vocalization, which present some level of inconsistency, in the second one analogical verbal forms with the Babylonian vocalization are included. The initial idea of this research was to identify the same inconsistencies in the manuscripts of the Babylonian Bible and in the Tiberian one. However, during the process of collecting the materials, this turned out to be impossible due to two factors. Firstly, the manuscripts from Cairo Genizah are incomplete in the sense that they do not contain the whole text of the Bible. In these circumstances, only few verbs of our interest, corresponding directly to the ones from the Tiberian tradition, could be spotted. Secondly, some manuscripts included in the only printed version of the Cairo Genizah use Tiberian vowel points and thus could not be taken into consideration for this research (cf. Yeivin 1973, 6). These obstacles resulted in amending the profile of the research, especially in its second part relating to the Babylonian tradition. Therefore, the verbs vocalized according to the Babylonian tradition are not lexically the same as those from the Tiberian tradition but correspond to them somehow from the morphophonological point of view. The results of the analysis are followed by a detailed description of the morphology of the verbs containing gutturals in both traditions with the emphasis on in the Babylonian one, since it appears to be less studied by Polish scholars.

The thesis consists of three chapters. In the first one the oldest pieces of evidence for the phonology of proto-Hebrew were described. These materials can supply scholars with information about the way this language was pronounced. Subsequently, in order to establish some facts about the phonology of Biblical Hebrew, selected extra-biblical sources were characterized. This part is followed by a study of the Hebrew pronunciation traditions. It was of particular significance to place the Tiberian and the Babylonian traditions in much wider framework of Hebrew dialectology, i.e., to perceive it as a part of geographical and historical diversity of its various pronunciations. The traditions were, thus, divided into two groups: the non-Samaritan and Samaritan ones. However, special stress was put on two sub-groups,

i.e. the Palestinian group, since it contains a number of other important traditions, like, for example, the Ashkenazi one, and on the Samaritan one, hence due to its linguistic peculiarity it deserved a special treatment.

The second chapter examines more closely the vowel systems of both Tiberian and Babylonian traditions. A historical background of every vowel was described, as well as the phonological phenomena they are connected with, like for example attenuation. A separate subsection was devoted to half vowels in the Tiberian tradition, since most of the inconsistencies analysed in the thesis are related to this category. In addition, the matter of vowel length was discussed. Subsequently, the vowel system of Babylonian was examined with special stress on *shewa* placement and on epenthetic vowels, since these are the main points of disagreement between the Tiberian and Babylonian vocalizations.

The third chapter contains two sections, the first was devoted to the analysis of inconsistencies from the Tiberian vocalization, while the second from the Babylonian one. Results of the analyses are followed by a detailed description of the phonology of the verbs containing gutturals in each tradition, especially in the Babylonian one. As will be observed, in both parts forms from the *qal* stem prevail. The description of these verbs is accompanied by some notes on the syllable structure and moraic structure in light of *shewa* placement. Thus, it transpires that while in the Tiberian tradition most of the inconsistencies are related to the length of a vowel, in Babylonian the inconsistencies are a matter of vowel quality. In this tradition in most cases the gutturals were treated as regular consonants and did not require a special treatment. In addition, the analysed traditions present different type of epenthesis, i.e. the epenthetic vowel in the Tiberian tradition is inserted after the second consonant of the cluster (CCeC), while in the Babylonian one between the first and the second consonant (CeCC).

In the present thesis the Hebrew names of vowels and diacritics were transcribed according to the method used in most of the English publications, i.a. in the works of Geoffrey Khan. A reconstructed form or phoneme is always preceded by a * sign. The Hebrew words in transcription are written in italics. Phonemes are marked in italics and placed between two slash signs. When it comes to the method of the transcription of Hebrew words, vowel length was taken into consideration and is marked by a macron. Moreover, in cases where syllable structure is relevant, the syllable division is marked by a single dot. When stress is discussed it is marked by a comma above a letter.

The present research could not have been carried out without professional and personal support of a few people, to whom I hereby would like to express my deep gratitude.

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Chapter 1
Phonology of pre-Biblical[1] and Biblical Hebrew. Sources and attestations.

1.1. Hebrew phonology in its pre-biblical stage.

There are no documents written in pre-Biblical Hebrew. The only pieces of evidence for the use of a certain form of the Canaanite language that precedes the oldest layers of Biblical Hebrew come from Akkadian and Egyptian syllabaries. There we find toponyms and single words transcribed into a foreign script that certainly do not reflect the real conditions of the language spoken at that time. However, from the accessible sources several conclusions about the phonology and morphology of pre-Biblical Hebrew can be drawn. One of the first pieces of evidence that provides us with the North-West Semitic names are the Execration texts from Egypt, dated to the 19th century B.C.E.[2] They contain about 30 personal names of Egyptian slaves of the North-West Semitic origin. Presumably, however, the most important source that directly reflects the vernacular language spoken in Canaan in the 14th century are the Tell el-Amarna letters (Rainey 1995). These tablets contain official correspondence between the Egyptian rulers and their vassal princes representing them in Canaan. Seemingly, these documents are written in Akkadian, although due to the insufficient command of this language, the scribe inserted many Canaanite expressions into the letters. In addition, several glosses can be found in the margins of the syllabary, providing vernacular equivalents of the Akkadian words.

As has been said above, the cuneiform material from the pre-Biblical Hebrew provides us with some precious information about the early stage of the Hebrew phonology. On this basis, it is generally acknowledged that with the passage of time Hebrew lost the phonemes which had existed in the proto-Semitic language[3]. This is the case with some gutturals, among which the pharyngeal fricative *ḥ* and velar *ḫ* merged in Hebrew into one pharyngeal consonant. Thus, in the Phoenician Canaanite script there was no graphic representation of two separate consonants, also the Tiberian vocalization shows no distinction between these phonemes. The transcriptions into Greek, however, coming from a much later period, distinguish between them by using two different ways to render the

[1]The term 'pre-Biblical Hebrew' refers to the written attestations of use of the Hebrew language up to the 12th century B.C.E., according to Brovender (1970).
[2]Published for the first time by K. Sethe, see Sethe (1926).
[3] The term 'proto-Semitic language' refers to a theoretical, reconstructed language, which gave rise the family of Semitic languages, according to Blau (2010).

Hebrew ח. Despite that, the position stating that in the period of Septuagint both of them were pronounced is incorrect, since this phonetic representation is a result of a dialectal development and does not indicate a continuity of pronunciation (Khan 2013b). The evidence that Hebrew speakers ever realized this grapheme in two different ways certainly cannot be found in the Akkadian syllabaries, since due to the impact of Sumerian, Akkadian did not retain the gutturals and every guttural consonant is rendered by a velar consonant /*ḫ*/.[4] However, the early material from Egypt is decisive in detecting the differentiation, because it makes a clear distinction between /*ḥ*/ and /*ḫ*/.[5] It should still be pointed out that only the material from an early period displays this difference, since in the later Shoshenq list the two phonemes fused into one. The same refers to the distinction between /*ś*/ and /*š*/ and /ʿ/ and /*ġ*/. Namely, the Egyptian material applies two distinct graphemes to render these proto-Semitic phonemes that had existed in pre-Biblical Hebrew. It must be noted, however, that the distinction was not regular and many forms identical to those in Biblical Hebrew, i.e. without phonemic distinction can be found. All relevant material from this period indicates a strong tendency within Hebrew to fuse both phonetical realizations into one.

In addition, from the available pre-Biblical written sources we can draw a conclusion about the process of shifting the long /*a*/ vowel in a closed stressed syllable to the long /*o*/, the so called 'Canaanite shift', e.g. Arabic سلام *salām* vs. שָׁלוֹם *shālom* in Hebrew. This phenomenon is considered to be one of the characteristics of the Canaanite languages as the rest of the Semitic languages preserved the proto-Semitic long /*a*/. The shift occurred around the 15th century B.C.E. In Amorite, as well as in the Egyptian material and in Amarna Canaanite, there are already words containing long /*u*/ instead of /*a*/.[6] By the 15th century, therefore, in Canaanite the shift had already taken place.

The materials from the neighbouring countries of Canaan provides us with some more information about the early stage of Hebrew phonology. Notwithstanding the general tendency for the assimilation of nun to the following consonant in Hebrew, the sources indicate that in Canaanite nun was pronounced and was retained unassimilated. Also the early Egyptian documents contain several Canaanite words transcribed with nun. In Amarna,

[4]That means, that Hebrew words like זרוע or נחושת when transcribed into Akkadian contain the same phoneme.
[5]Compare *ḫa-ar-pu* (VESO XII, A, 4) and *ḫu-ru* (VESO XIII, A, 5). Cf. Brovender 1971, 622.
[6] In Amorite the shift did not take place, but when referring to the names of places in Canaan, it renders them using the long vowel /*u*/, like in the toponym Hazor, transcribed as *ḫasura*. Cf. Layton 1990.

on the other hand, both tendencies are present, indicating either a kind of transitional period, or a local phenomenon.

To sum up, despite the fact that there is no corpus of documents written in pre-Biblical Hebrew, many external sources supply information about the roots of many phonological processes that took place at this stage of Hebrew. A deep understanding of the nature of these processes and their results sheds light on many aspects of Biblical Hebrew phonology.

1.2. Extrabiblical sources for analysing the phonology of Biblical Hebrew

According to the majority of scholars, the biblical text contains three layers: the oldest and the most important consonantal skeleton, the vowel letters, marking historically long vowels, and then the vowel and, optionally, cantillation marks. The most crucial corpus of evidence for Biblical Hebrew is the Bible itself; nevertheless, the system of its vocalization was created in a much later period. According to many scholars, there was a continuous tradition of oral recitation of the Bible among Jews throughout the ages, but the system of signs was developed by the Masoretes only between the 6th and 10th centuries C.E. It is, therefore, highly possible that the pronunciation reflected by the Masoretic text is not exactly the same as in biblical times (Blau 2010).

Apart of the Bible, there are few sources that can provide us with some information about the pronunciation of Hebrew in the time the Bible was written. This corpus comprises ancient inscriptions and transcriptions into Greek and Latin. It must be noted, however, that these materials offer several serious impediments and their linguistic evaluation should be very careful (Blau 1971).

The oldest Hebrew inscription is the Gezer Calendar, dated to the 10th century B.C.E. It has a very limited length (7 lines only) and its intended use is not certain. Opinions are divided as whether the language of the Calendar is Hebrew, or some kind of Western Canaanite.[7] Most of the scholars claim, however, that the Calendar presents one of the earliest forms of Hebrew. Nevertheless, it is different from Biblical Hebrew or Samaritan Hebrew, since it does not retain diphthongs. The form *qṣ* - corresponding to the Hebrew קיץ

[7]Z. Zevit declared that the inscription should not be considered as Hebrew. Cf. Zevit 1980.

'summer' gives us clear evidence, that in the language, in which the Calendar was written, the process of monophthongization took place. As its result, the diphthong /*ay*/ reduced into a single vowel, presumably /*e*/, even in a stressed syllable. Similarly, in the Samaria ostraca, one finds the from *yn* 'wine', pronounced probably as *je:n*. It corresponds to the Masoretic form *ja:jin* in which the diphthong is retained.

Another piece of evidence for the pronunciation of ancient Hebrew is provided by transcriptions into Greek and Latin, which, however, have their limitations as well. By the linguistic evaluation of the transcribed text, one must take into consideration that the transcribing language might have had no means to represent the original language. In addition, these transcriptions are usually limited to toponyms and proper names and thus it is rather hard to draw conclusions about the grammatical structure of the transcribed language. Nevertheless, they are of help when it comes to phonetics and phonology. Since Greek distinguishes between a short and long /*e*/ (ε and η) and /*o*/ (ο and ω), in Septuagint we find the form Hσαυ עֵשָׂו – Esau (Gen 36,1). According to Blau, this is the oldest attestation of the vowel in a pretonic open syllable (Blau 1971, 622). Transcriptions of Origen and Jerome seem to have preserved the gutturals, but according to Geoffrey Khan, it is rather an attestation of some dialectal forms than a general tendency (Khan 2013).

Thus, it can be established that some extrabiblical sources provide us with pieces of information about the way Hebrew was pronounced in its earliest stratum.

1.3. Pronunciation traditions of Biblical Hebrew

1.3.1. Non Samaritan traditions.

According to scholars, Hebrew ceased to be spoken in the 3rd century C.E., it survived, however, in various written and oral traditions. The reading traditions of the Bible have been passed from generation to generation and continue to be maintained in modern times. Many of them were in the meantime transmitted into written sources and display a lot of phonological and morphological variations. Presumably, these differences are rooted in the dialectical diversity of Hebrew in the time when it was still spoken as a vernacular language.[8] Geoffrey Kahn distinguishes three main sources of evidence for the reading traditions of the Biblical Hebrew: pre-Masoretic Greek and Latin transcriptions, vocalized

[8]For a long time these differences were considered by scholars as 'mistakes' and the variety of pronunciation of Hebrew was ignored. The turning point came with the linguistic analyses of Yemenite Hebrew made by H. Yalon. He proved that peculiar pronunciation of Yemenite Jews is rooted in spoken Mishnaic Hebrew (Yalon 1939).

manuscripts from the Middle Ages, and living traditions continuing down to our times (Khan 2013).

Two major categories of the traditional Hebrew pronunciation can be differentiated: the pronunciation applied to the reading of the Bible and the pronunciation of the post-biblical literature, principally the Mishna and *piyyutim*. Within some communities this division also involves two different ways of pronunciation. The traditional topological division, supported by the majority of scholars separates the reading traditions of Hebrew into two groups: the Samaritan and non-Samaritan.

The group of non-Samaritan traditions represents a wide range of various traditions, thus it should divided into more specific subcategories. Shlomo Morag, who produced an exhaustive treatment on Hebrew and Aramaic traditions among Yemenite Jews, sets the Yemenite tradition as the only subcategory that should be differentiated from the entire group of non-Samaritan traditions (Morag 2001, 39). Another division, more prevalent, is proposed by Geoffrey Khan, who divides the group of non-Samaritan pronunciations into Tiberian, Palestinian and Babylonian (Khan 2013). The Palestinian tradition gave rise to Sephardi and Ashkenazi traditions, while the Babylonian had a great impact on the Yemenite tradition. Moreover, Morag draws one more division within this group and states that the pronunciation of the Oriental communities was split into two major groups, namely: deriving from Geonic Babylonia and from Palestine. He ascribes the 'Palestinian' nature of these groups to the fact that the realization of *pataḥ* and *qameṣ* on the one hand, and *ṣere* and *seghol* on the other, are almost identical (Morag 1973).

It is generally accepted, that only the Yemenite tradition adapted the linguistic tradition of Babylonia, while all the other Oriental communities used the Palestinian pronunciation. In fact, however, this assumption is fallacious. There is textual evidence that some Jewish communities from Spain used Babylonian pronunciation. In a Hebrew-Greek-Latin glossary preserved in a Spanish manuscript from the 10th century, the way of transcription of the Hebrew words indicates distinctive Babylonian features, like for example identical realization of *pataḥ* and *seghol*.[9] These features are particularly visible in post-Biblical Hebrew, especially in the Spanish Hebrew poetry, where one finds the phenomenon of the gemination of /r/. This phenomenon was common in the communities of Iraq, Aleppo, Djerba and Morocco in the post-biblical traditions (Morag 1959). There is no doubt that the

[9] Cf. Kutcher 1966.

gemination of /r/ is strictly of Babylonian provenance, since it appears also in the Yemenite tradition of post-Biblical Hebrew and in Babylonian Aramaic (Morag 1973). Another feature that should be mentioned is the reduction of vocalic *shewa* to zero. This phenomenon appears only in the post-biblical period, in Biblical Hebrew it has remained unreduced. The reduction is accompanied by the shift of the stress from the syllable following the *shewa*, to the syllable that precedes it, like in word הולכים 'they go' pronounced in Biblical Hebrew as *holəḵīm*.[10] It is proper therefore to assume that the initial stage of the use of Hebrew among the Oriental communities is rooted in Geonic Babylonia. This stage is to be dated to the 9th-10th century C.E.

The following stage in the development of the linguistic traditions of Oriental communities is the shift from the Babylonian tradition to different types of the Palestinian pronunciation.[11] This shift resulted also in the emergence of these traditions as separate units possessing their own distinct features. Starting from the 10th century, the Babylonian tradition began to lose its dominant position and the Tiberian tradition started to be considered as the prestigious and correct one. Various factors brought about such a transition, but from the linguistic point of view, one of them is of special importance. Namely, the Babylonian tradition had lost its status even in Babylonia, since the grammatical structure of Babylonian Hebrew had changed, losing many of its distinct features and becoming more similar to the Palestinian tradition. In parallel, a significant process took place from the other side of the Mediterranean Sea. In the 10th century few Jewish scholars, who had inherited the Palestinian tradition, emigrated from Italy to Spain. One of them was Rabbi Moshe ben Hanokh, who established an influential *yeshiva* in Cordoba and contributed to the transplantation of the Palestinian tradition in Spain. Gradually, Spain became an independent centre and one of the most important heirs of the Palestinian tradition. Due to the migration of the members of Spanish communities, it replaced the Babylonian tradition and introduced standards of Tiberian vocalization reflecting Palestinian pronunciation (Kahn 2013b).

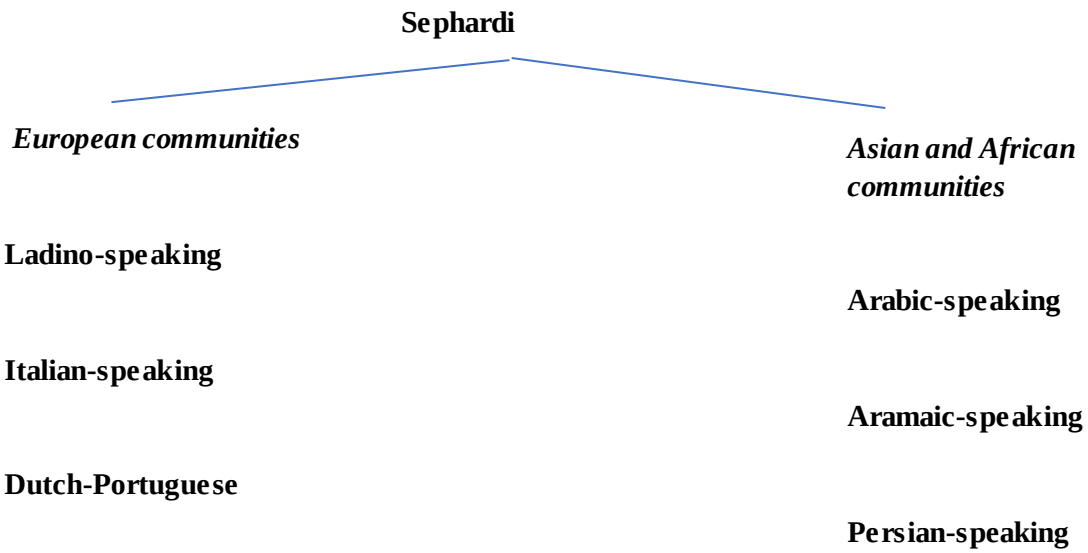
Regarding the next type of pronunciation, i.e. the Sephardi one, it is more proper to say 'Sephardi pronunciations', since this group presents a variety of pronunciations used by Jewry in the Orient, North Africa and Europe. As has been said above, the reading tradition

[10]The Babylonian origin of this phenomenon is not fully confirmed, since the only evidence of such a realization of mobile *shewa* comes from Babylonian Aramaic.

[11]The Yemenite community is excepted since it preserved the Babylonian heritage.

of the Sephardi Jews is based upon the Palestinian tradition, although in the early period Babylonian pronunciation was in use as well. The sources of the Palestinian pronunciation comprise mostly of manuscripts of *piyyutim* and biblical texts written approximately from the 6th and to the 9th century. During this period both Palestinian and Tiberian pronunciations were used, but the latter had a more classical standing. After the expulsion of Jews from Spain, the Palestinian pronunciation was transferred by emigrants to many different counties, among other to the Oriental countries which, from the geographical point of view, should have been more familiar with the Babylonian pronunciation. Various directions of migration brought about a wide-spread use of linguistic tradition of Spanish Jews. Thus, the Palestinian tradition became dominant among the Dutch-Portuguese community of Amsterdam, spread throughout the Mediterranean countries, such as Italy, Greece, Turkey and in North Africa.

The graph placed below presents the division of Sephardi pronunciations of Biblical Hebrew into subgroups, as proposed by Morag (Morag 1971, 548):



Graph no. 1 *Sephardi traditions*

The hallmark of all these traditions is a system of five vowels */i,e,a,o,u/* with no distinction between *pataḥ* and *qameṣ* on the one hand, and *ṣere* and *seghol* on the other. There are some considerable differences between particular subgroups of the Sephardi traditions, due to the impact exerted on them by the vernacular languages. They are particularly disclosed in the post-biblical literature (primarily the Mishna), of which, few distinct linguistic features should be mentioned here. To begin with, in the places where Biblical Hebrew has mobile *shewa*, in the Sephardi traditions of reading the Mishna one finds quiescent *shewa* when it

follows *qameṣ* or *ḥolem*. For example, words like שמרה and שומרים, according to the biblical tradition were pronounced as *šoməra* and *šoməri*, while in the reading of the Mishna in the Sephardi communities the *shewa* is not pronounced and the stress falls on the syllable preceding the *shewa*, i.e. *šámrā* and *šómrīm*. Moreover, the realization of the consonants from the group בגדכפת in the Sephardi Mishna reading tradition stands in opposition to the reading of the Bible, which is almost in complete agreement with the rules of the Tiberian vocalization. In the cases where one of the consonants from this group is preceded by an initial preposition with *shewa*, according to the Tiberian Masorah, its realization should be soft, which means it should be pronounced as fricative. In the Sephardi reading of the Mishna its realization, however, is hard and it is pronounced as a plosive (Ben Hayyim 1954).

Another tradition of great importance which emerged from the Palestinian tradition is the Ashkenazi one. Its beginning is related to the migration of the Jewish people from Italy and France to Germany in the 9th century. They settled in the valleys of the Saale and Elbe in the east and in the Rhine Valley in the west. The description of the early reading traditions of the Ashkenazi Jews was possible due to the prayer books vocalized in the 12th and the 13th century (Eldar 1975). From these sources a system of five vowels with no distinction between *pataḥ* and *qameṣ*, as well as *ṣere* and *seghol* emerges. It is worth mentioning that the early Ashkenazi pronunciation continues the tradition reflected in the Cairo Genizah manuscripts, which have Palestinian vocalization.[12]

The history of the Ashkenazi linguistic tradition in the German-speaking regions can be divided into two periods: pre-Ashkenazi, until the middle of the 14th century, and the actual Ashkenazi tradition, which emerged due to the linguistic shifts that took place in German. Apart from the Hebrew, which served a language of liturgy and studies, the Jewish communities in Germany used Yiddish as a spoken language, which, in fact, emerged as a mix of German, Hebrew and ancient Italian and French; that is, the languages spoken by Jews in the beginning of their settlement in Germany. A new-born language of everyday communication exerted important impact on the reading of Hebrew, as well on German spoken by Jews. As pointed out by Eldar Ilan, in the pre-Ashkenazi period, Hebrew had a tendency to resist the influence of Yiddish and German, while in the later period it became more absorptive.

[12] A detailed research on the origin of Ashkenazi Hebrew has been made, i.a., by Hanoch Yalon and Uriel Weinreich. Cf. Weinreich 1965.

Starting from the 14th century, the reading tradition of Hebrew in Germany entered a new phase due to the evolution of a new vowel system with an explicit qualitative difference between *pataḥ* and *qameṣ* and *ṣere* and *seghol*. The new system displayed an agreement with the Tiberian vocalization containing, therefore, seven vowels /*a, e, ɛ, å, u, o, i*/. Two significant factors brought about this shift. First of them is related to the linguistic works of grammarians from Ashkenazi Europe in the 13th century, who favoued the Tiberian system of vocalization. The grammarians came to Ashkenaz from Babylonia, in which the traditional Babylonian tradition was replaced with the Tiberian one. The Babylonian 'vocalizers' played a major role in achieving a dominant position over the Tiberian tradition, since through their teaching they presented their reading as the only original and correct out of all the reading traditions of Hebrew. Max Weinreich (1954) called the period of their activity the 'Babylonian Renaissance'. According to this scholar, the transplantation of the Tiberian tradition was the main reason for the emergence of the seven vowel system in the Ashkenazi pronunciation, which previously had no distinction between *pataḥ* and *qameṣ* on one hand, and *ṣere* and *seghol* on the other. This fact led scholars to the conclusion that before the 13th century Jews followed the Sephardi way of reading. However, as Yalon points out, this explanation of the shift of the five vowel system to the seven vowel system cannot be fully accepted since there is no sufficient historical evidence for the activity of the Babylonian teachers in Ashkenaz, who allegedly imposed the Tiberian vocalization. According to this scholar, the shift took place under the influence of the phonological changes in German and in Yiddish (Yalon 1939). In the 12th century, in several dialects of German a sound shift took place, i.e. a change from Medium High German long vowel /*ā*/ (and /*a*/ in an open syllable) to a labio-velar /*o*/ (and /*u*/ in some cases) (Beider 2011). This development brought about the same shift in the German component of Yiddish, and then in Hebrew words containing *qameṣ* and in some cases even *pataḥ*. The case with the Hebrew component was that most of the Hebrew words were assimilated into Yiddish in the pre-Ashkenazi period, when no distinction between short and long vowels was made. Thus, the shift from /*a*/ to /*o*/ took place only in an open syllable, in which vowels were lengthened under the influence of German. The following example depicts the difference between pronunciation of *qameṣ* in a closed and open syllable: *dām* - *dō.mim* (= דָּם *dåm* 'blood'-דָּמִים *dåmīm*.) In the first case, the vowel is realized according to the pre-Ashkenazi (Sephardi) tradition as /*a*/, while in the second case the vowel appears in an open syllable, thus it is pronounced as /*o*/. A similar process took place in the case of *ṣere* and *seghol*; that is, in the Hebrew words in Yiddish, under the influence of the German component of

Yiddish, the long /*ē*/ and /*e*/ deriving from the lengthened open syllable, started to be pronounced as a diphthong /*ei*/.

The internal changes within Yiddish affected the way the Ashkenazi Jews read the Bible and prayed. Since in the Tiberian vocalization there is a clear graphic distinction between the quality of the vowels, the Yiddish-speaking Jews of Ashkenaz applied the rules of the pronunciation from their vernacular language to Biblical Hebrew. Therefore, *qameṣ* was differentiated from *pataḥ* due its back articulation, and *ṣere* from *seghol* because it was realized as a diphthong.

The theory explaining the origins of the vowel system in Ashkenazi Hebrew, as presented above, is the most common among the scholars. Nevertheless, it was challenged by David Katz, who gave another explanation (Katz 1993). According to him, the Hebrew-Aramaic component of Yiddish stems directly from the spoken Aramaic brought to Europe by the Jews coming from the Near East. There is evidence that Aramaic served as a vernacular among Jews in Palestine and Babylonia until the end of the 10th century. In the language of the Jewish immigrants, according to Katz's theory, there was a system of ten vowels */ī, i, e, ɛ, ū, u, ō, å:, å, a*/. In addition, it transpires that the reconstruction of the original Semitic set of vowels given by Katz it very similar to the vowel system in Tiberian vocalization as interpreted by the grammarians from the Qimḥi family, who lived in Provence in the 12th century. They argued that in Hebrew, as reflected by the Tiberian vocalization, there was a system of five short and five long vowels. The set of vowels of proto-Ashkenazic Hebrew, according to Katz's theory, would be therefore as follows (Eldar 2013):

shureq	[ū]	*ḥireq*	[ī]
qibbuṣ	[u]	*ḥireq*	[ɪ]
ḥolem	[ō]	*ṣere*	[ē]
qameṣ (in an open syllable)	[å:]	*seghol*	[ɛ]
qameṣ (in a closed syllable)	[å]	*pataḥ*	[a]

Table no. 1 *Vowels of Proto-Ashkenazic Hebrew*

Katz argues that the seven vowels system of Ashkenazi Hebrew derives directly from the presented set and is not a result of the inner process of lengthening of vowels in open syllables, which presumably took place in the reading of Hebrew in the 14th century. This

theory, even though it seems to be very interesting, was called into question. First of all, there is no evidence that such a vowel system ever existed in any known tradition of Hebrew or Aramaic. No medieval grammarian interpreted the Qimḥi's rules as Katz did, there are no references to the system of ten vowels in Tiberian tradition. Another crucial counterargument is that in words of Hebrew origin in Yiddish there is no quantitative difference in the articulation of *ḥireq* (Katz's theory assumes two types of this vowel – short and long) on one side, and between *shureq* and *qibbuṣ* on the other.

1.3.2. Samaritan Hebrew

The earliest manuscripts of the Samaritan Pentateuch are dated to the beginning of the Middle Ages. They contain the Samaritan version of the Hebrew Torah, which significantly differs from the version of the Tiberian Masorah. According to scholars, there are more than six thousand differences between the Samaritan Pentateuch and the Masoretic text (Florentin 2013). The peculiar language of these manuscripts reflects the pronunciation which existed in the period of the Second Temple. This is proven by a number of transcriptions in the Septuagint and by the Dead Sea scrolls, which present a great similarity to Samaritan Hebrew (Florentin 2005, 4). Moreover, as pointed out by Ben Hayyim, Samaritan Hebrew preserved some linguistic phenomena known to scholars from Mishnaic Hebrew (Ben Hayyim 1958). Therefore, notwithstanding the late date of the manuscripts of the Pentateuch, Samaritan pronunciation is deeply rooted in the linguistic tradition of Hebrew. Samaritan Hebrew is thought to be a sort of continuation of Mishnaic Hebrew, although its nature is more progressive, i.e. the phenomena which occur only to a limited extent in Mishnaic Hebrew, are fully represented in the Samaritan Hebrew. For example, Ben Hayyim and Kutcher attempted to prove that in Mishnaic Hebrew penultimate stress was a general rule, not only for the pausal position, exactly as in Samaritan Hebrew, in which almost all the words have the penultimate stress. They considered the *plene* spelling as evidence for the pattern of penultimate stress. Nonetheless, after the study of Ben-Asher, this theory was challenged (Ben Asher 1990). This scholar states that there is no enough textual evidence, except for the pausal form of *huph'al*, that would justify such a view. However, according to Moshe Florentin, though Mishnaic Hebrew is generally stressed on the ultimate syllable, it has reminiscences of the parallel tendency for the penultimate stress. According to him, the phenomenon of the dominant penultimate stress in Samaritan Hebrew

is rooted in this outlier tendency of Mishnaic Hebrew (Florentin 2005, 7). Moreover, Ben Hayyim in his exhaustive grammar of Samaritan Hebrew indicates that Samaritan Hebrew preserves the type of Hebrew that was spoken among the Hebrew speakers shortly before it was displaced by Aramaic (Ben Hayyim 1954).

Regarding the general linguistic features of the Samaritan Hebrew, these are the following:

- Weakening of the gutturals.
- Transition from *niph'al* to *nithpa'el*.
- Spirantization of the consonants בגדכפת.
- Disappearance of the mobile *shewa*.

Samaritan Hebrew developed a system of six vowels with distinct quality, which, according to Florentin, is a reminiscence of the Babylonian tradition. The vowels are the following: /*a*/ (like the Tiberian *pataḥ*), /*å*/ (like the Tiberian *qameṣ*) /*i*/, /*e*/, /*u*/ and /*o*/. There is no separate vowel representing the Tiberian *seghol*. The long /*a*/ has a back realization which makes it similar to the realization of *qameṣ* in the Tiberian and in Ashkenazi traditions. In addition, there is a quantitative difference between vowels. Four vowel types can be distinguished with regards to length, i.e. short vowel only in a closed syllable, long vowel only in an open syllable, medium vowel in an open final syllable and very long vowels in closed or open syllable, which emerged due to the amalgamation of gutturals.

One of the most characteristic features of the Samaritan linguistic tradition in very stable reading tradition, which, as has been mentioned before, is presumably rooted in the 2nd century B.C.E. According to the majority of the scholars the way of pronunciation of Biblical Hebrew of this tradition did not undergo changes in the course of more 2000 years. How did the Samaritan community manage to maintain the continuity of their reading tradition? Stefan Schorch in his paper *The Latent Masorah of the Samaritans* attempted to explain this enigma (Schorch 2010). According to him, Samaritans invented their own version of the Masoretic activity, which was focused not on the written tradition, but on the oral transmission of the text. Therefore, there are numerous manuscripts with different variations in spelling, but the way of reading is always the same. This phenomenon, in much more wider perspective, was described by Shlomo Morag, who proved that the oral tradition of various Jewish communities has its own Masorah-like frameworks (Morag 1968). One of the major features of the 'latent Masorah' is that a respective oral tradition comprises

linguistic forms that are incompatible with the text, but are fully explainable from the historical point of view. According to Schorch, then, the Samaritan tradition of reading contains a lot of parallel forms, which stem from separate primary historical forms. This is the case with the imperfect of the verbs with the fist radical laryngeal. In the Samaritan Torah, besides the forms with the doubled second radical, exist also forms without doubling. Ben Hayyim argues that verb forms with a simple consonant are rooted in a verb paradigm with a secondary vowel between the first and second radical, while a form with doubled second radical originates from a form without a secondary vowel, resulting in the assimilation of the first to the second radical (Schorch 2010, 125).

1.4. Reading tradition of Hebrew in a linguistic environment of vernacular

It is worth noting that the reading tradition of Hebrew faced the vernacular languages spoken by Jews in different ways. As might be observed on the example of *pataḥ* and *qameṣ* in the Ashkenazi tradition, sometimes sound shifts that take place in a vernacular affected also the way Hebrew was pronounced. In other cases, the pronunciation of Hebrew is enriched by acquiring a sound that already exists in a vernacular. For example, in the communities who speak Iranian languages, the biblical reading tradition is derived from the Palestinian tradition; nevertheless, there is a clear distinction between *pataḥ* and *qameṣ*. Thus, as in Ashkenazi tradition, also here *qameṣ* has a back realization, while *pataḥ* is pronounced at the front. Such a state of affairs is brought about by the quality distinction between these two types of the vowel /*a*/ in the Iranian languages. Another possible explanation of the back realization of *qameṣ* is that it might be a vestige of a Babylonian tradition which was used by Jews in this area in the Middle Ages. The general tendency within the pronunciation of vowels and consonants of Biblical Hebrew is that it adopts the sound inventory of a vernacular. If a sound in the inherited tradition did not existed in a vernacular, it was replaced by one that was close to it. In some cases, the vernaculars help to preserve sounds that tend to vanish from the biblical reading. Thus, in Arabic-speaking countries the pharyngeal consonants *ʿayin* and *ḥet* were retained, since in many dialects of Arabic their realization is maintained. On the other hand, some reading traditions of the Bible faced the co-existence with the vernaculars in a more conservative way by preserving sounds which do not exist in a vernacular. In some Persian-speaking communities a pharyngeal

realization of *ʿayin* and *ḥet* has been preserved, notwithstanding the fact that in the Persian language these sounds do not occur.[13]

[13]The same applies to some Italian communities, which preserve the fricative realization of כ [x]. Cf. Khan 2013b.

Chapter 2
Vowel systems as reflected by the Tiberian and Babylonian vocalizations

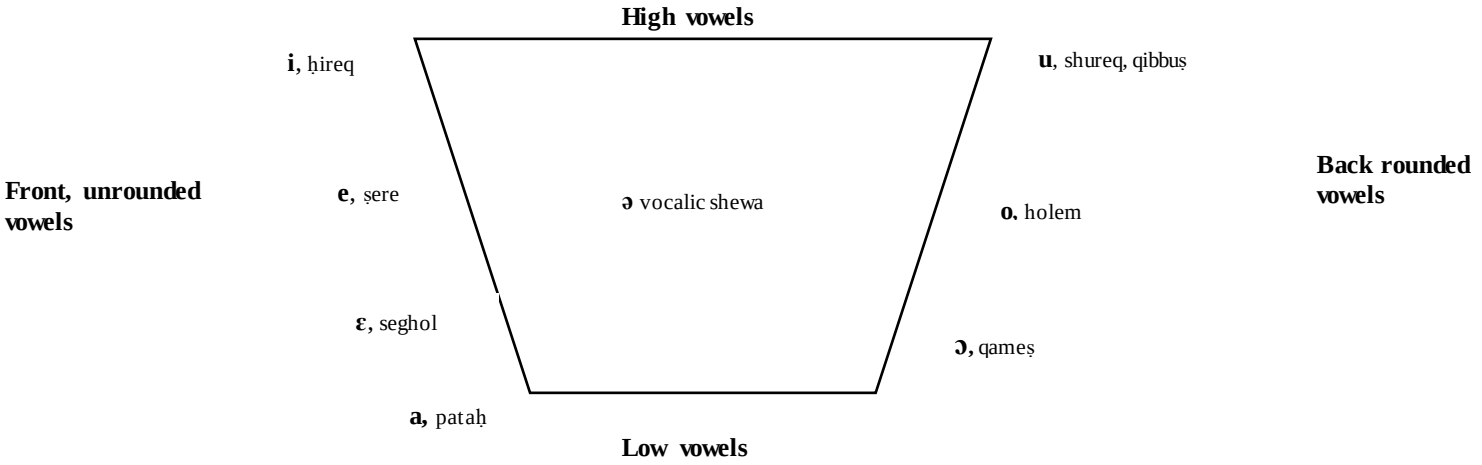
2.1. The Tiberian vocalization

The reading tradition of Hebrew is based on two layers which presumably have existed independently, i.e. the consonantal text (*kəṯīḇ*) and the vocalization consisting of vowel signs and accents (*qərēʾ*). Although the first one presents almost no variations and was passed down in an unaltered form, the second one exhibits lots of variations. Among the different reading traditions of Hebrew, the Tiberian one achieved the status of an authoritative one and underwent a process of standardisation. The vocalization used in this system of signs was invented by the grammarians of Tiberias in the last centuries of the first millennium C.E. It is remarkable that the pronunciation it reflects has its roots in much earlier times, probably in the Second Temple period (Khan 2013e). The reconstruction of the vowel system of Tiberian Hebrew is possible thanks to medieval sources including the Masoretic manuscripts, grammatical texts and transcriptions of the Bible into Arabic made by the Karaite scribes (Khan 2013f, 85).

2.1.1. The vowel inventory of the Tiberian vocalization

2.1.1.1. Full vowels

The vowels in Tiberian Hebrew may be divided into two groups, i.e. the so called full vowels: *pataḥ, seghol, qameṣ, ṣere, ḥolem, ḥireq, shureq, qibbuṣ* and shortened vowels,



Graph no. 2 *Full vowels of Tiberian Hebrew*

so called *ḥaṭaphim*. The trapeze of vowels in the Tiberian Hebrew can be found above (based on Blau 2010, 64).

The traditional division as presented by the scheme above depicts the system of vowels according to the position of the tongue during the time of speaking. High vowels are realized while the tongue comes close to the palate (/*i*/, /*u*/). On the other hand, when the tongue lies flat during the realization of a vowel, the so realized vowel is called low. Front and back quality of a vowel is defined on the basis of the place in which the tip of the tongue is found during the time of speaking.

Pataḥ is an open, unrounded front vowel. It originates from short **a*, but sometimes it represents long **ā* which was created in a much later period like in וַאדוֹנִי < וַאֲדוֹנִי 'and my Lord'. However, according to the Philippi's law, which states that /*i*/ vowel in closed stressed syllable shifts into /*a*/, it also reflects the short Proto-Semitic **i*, like in זָקַנְתִּי 'I became older' and sometimes it serves as an epenthetic vowel which breaks the consonantal cluster in the environment of the laryngeal and pharyngeal consonants, like in נוֹעַר 'youth'. It is found almost exclusively in a closed syllable, in most cases unstressed. In cases where it appears in an open syllable, this syllable was originally closed and opened after the contraction of the final vowel.

Seghol is a front, half-open unrounded vowel which originates from **a* and **i*, which appear in both stressed and unstressed syllables. The alternations of vowels in different grammatical forms confirm this assumption. Thus, *seghol* in the word יֶדְכֶם 'your (pl.) hand' is a derivative of the long **a* of the word יָד 'hand', while in the word חֶג 'the festival' it derives from a short **a*, cf. in הַחַגִּים 'the festivals'. One of the basic functions of *seghol* is to break the consonantal cluster in the so called segholated nouns. This is the case in דֶּרֶךְ 'way, road' which contains two *seghol* vowels. The second one is an epenthetic vowel which was inserted after the final short vowel disappeared, while the first one derives from the proto-Semitic short **a* which in the later period was assimilated to *seghol*, i.e. **dark*^{u} > **dark* > **dareḵ* > **dereḵ* (Blau 2010, 119). In addition, *seghol* sometimes reflects the original **i* vowel דֶּגֶל > **digl*^{u} 'flag'.

Contrary to the short *seghol*, the origin of the so called full *seghol*, meaning the *seghol* which is followed by a *mater lectionis*, is different. This *mater lectionis* is in most cases is *hey* which occurs in the final syllable, like in יִבְנֶה 'he will build', or *yod* in the middle of the word, like in תֵּרֶאֶינָה 'they (f.) will see'. In the first case, *seghol* is a result of the

contraction of the triphthong into a single vowel **ybnáyu* > *ybnē*. This is according to the rule that when at the end the word *yod* was preceded by a short, accented vowel **i* or **u* and it was the first accented vowel in the set of three vowels **-áyu/-áyi/-íyu/-íyi*, it shifted to ־ֶה. It is worth mentioning that such a shift in the case of **-íyu/-íyi* is unexpected from the phonetic point of view, since **i* is not a low vowel, unlike **a* which has a potential to lower a phoneme. As proposed by J. Blau, the unexpected lowering of **i* into *seghol* is a result of an analogy to the forms containing a triphthong *-áyu/-áyi* (Blau 2010, 120).

The *qameṣ* in the Tiberian vocalization includes two vowels of different quality and origin. The first one, which is called *qameṣ gadol* derives from a long **a* in an unstressed syllable and from a short **a*. Although in most of the words in Hebrew containing long **a* in a stressed syllable the Canaanite shift took place, a few factors brought about the retaining of the original **a* vowel. Thus, *qameṣ* has not turned into **o*, as expected, in forms of the past tense and participles of the verbs ע"ו in the *qal* stem, i.e. קָמְתָּ 'you (sg.m.) woke up' as against the third person singular קָם 'he wakes up/woke up'. One would expect that since *pataḥ* in the latter form occurs in the stressed closed syllable, it would shift into a long /o/. It transpires, however, that the original **a* vowel is retained as a result of what Blau defines as 'paradigm pressure' (Blau 2010, 64). The pressure of a uniform verbal system imposed the vowel which appears in almost all the inflected forms. In other forms, like in יְקָר 'glory, honour', the shift has not taken place because the period of the Canaanite shift activity had expired.

On the other hand, *qameṣ* in forms גָּלָה 'he was exiled' and רָצָה 'he wanted' is a result of a contraction of a triphthong. Thus, when w*aw* or *yod* were preceded by a short vowel before **a*, they were reduced and the vowel was lengthened to *qameṣ*, **galaya* > גָּלָה, *raṣiya* > רָצָה.

The second type of *qameṣ*, i.e. *qameṣ qattan*, derives from **u* and occurs in closed and unstressed syllables. According to Blau, the realization of both types of this vowels was the same – low and rounded /ɔ/, that is, the quality distinction between these vowels was unknown to the Tiberians (Blau 2010, 31). On the contrary, as will be described in the following section, in the Babylonian vocalization there is no vowel corresponding to *qameṣ qattan*, as short **u* in a closed and unstressed syllable did not shift into /ɔ/.[14]

[14] In fact only the Sephardi tradition distinguishes between the two types of *qameṣ*.

In numerous cases *qameṣ* is a result of the lengthening of vowels in secondary open stressed syllables. This is the case in, for example, **katabat* > כָּתְבָה, where the last short **a* underwent lengthening after the reduction of the final vowel. However, originally, *pataḥ* found in an open syllable with penultimate stress did not shift into a long vowel. Such an assumption explains why the second *pataḥ* in the form of **katábat* was reduced, if it had been long, one would expect it to be retained and the stress to be preserved as penultimate.

Ṣere is a front, half close unrounded vowel, which emerged from **i* in a closed, stressed syllable and in an open penultimate syllable. As pointed out by Gesenius, *ṣere* which is not found in or before the tone syllable has a strong tendency to be shortened (Kautzsch 1957, 57), but it is almost always retained in closed stressed syllables, like in בֵּן 'son'. When the ultimate syllable of the word was stressed and included the diphthong **-áy/-íy*, it shifted into *ṣere* with a *mater lectionis*, like in **gilíy* >גִּלֵּה 'he discovered, revealed'. However, when such a combination was found in an open penultimate syllable **-ay* shifted into a full *ṣere*, while **-iy* into a full *ḥireq*, like in **aynáynū* > עֵינֵינוּ 'our eyes'.

Ḥolem is a back, half-close rounded vowel which bears the same relation to **u* as **e* to **i*. According to Gesenius it has three different origins (Kautzsch 1954, 45). The first one is related to the contraction of the diphthong **aw* and so is written fully, i.e. with *waw*, like in **tawr* > שׁוֹר 'ox'. This long **o* in Hebrew words of early origin in many cases is a result of the Canaanite shift (see above). As such, it is written fully when in tone syllable and defectively when in toneless, e.g. גִּבּוֹר 'hero'. In some words *ḥolem* reflects a long **a* vowel in unstressed syllable by analogy to the forms with the long **a* in stressed syllables, e.g. מְקוֹמָהּ 'her place' instead of the expected form **məkāmāḥ*.

Ḥireq is a front, close, unrounded vowel, which, when fully written, is followed by *yod*. The long vowel originates from long **ī,* and sometimes from the diphthong **-iy*. Nevertheless, naturally long historical **ī* can be written without a *mater lectionis* as well. The length of this vowel may, therefore, be defined on the basis of the original form, e.g. the plural of צַדִּיק – צַדִּיקִים 'righteous', contains the long **ī*, since it occurs in the singular, even though it is not written with *yod*. Another type of *ḥireq* represents a short vowel, which by principle is written defectively and is usually found in closed unstressed syllables. It derives either from a short **i*, like in תִּשְׁמַע 'you (m.sg.) will listen' or from a short **a* as a result of the shift of short **a* into short **i* (see also below on p. 16) in a closed unstressed syllable, as in almost all verbs in the *hiph'il* stem in the past tense **hagdīr* > *higdīr* 'he

defined'. In addition, *ḥireq* sometimes serves as an epenthetic vowel for breaking the diphthong under the influence of *yod*, like in בַּיִת 'house' (Blau 2010, 119).

For the vowel /*u*/ in the Tiberian vocalization there are two separate signs; the first one is called *qibbuṣ* and represents a short vowel, while the second one is called *shureq* and represents a long vowel. Both of them are of a back, close, rounded quality. *Qibbuṣ* derives from a short **u* and occurs in unstressed closed syllables, it is particularly common in sharpened syllable before *dagesh*, like in דֻּבִּים 'bears'. Otherwise, *shureq* which derives from a long **ū*, like in אוּר 'fire, blaze', and from the contraction of the diphthong **-uw*, e.g. **huwrad* > הוּרַד 'he was lowered'.

2.1.1.2. Half vowels

Apart from full vowels, in the Tiberian Hebrew there are separate signs for half vowels, i.e. *shewa*, silent and vocalic, and *ḥaṭaphim* which substitute for the vocalic *shewa* in the environment of gutturals in an open syllable. They are of remarkable significance in defining the syllable structure and the quality of the בגתכפת consonants.

The *shewa* sign represents either a short vowel or zero. The opinions of scholars regarding the quality of the vocalic *shewa* are divided. According to Gesenius, it was realized as a short, slight vowel sound, a kind of obscure half /*ĕ*/. (Kautzsch 1954, 51). On the contrary, Khan argues that the pronunciation of the vocalic *shewa* was a short /*a*/, similar to *pataḥ*, pointing out that there are numerous interchanges between *pataḥ*, *shewa* and *ḥaṭeph pataḥ* (Khan 2013f, 98). In addition, in some Karaite manuscripts containing the Hebrew Bible transcribed into Arabic scripts, the Arabic vowel sign *fatḥa* marking /*a*/ is employed for both *pataḥ*, *ḥaṭeph pataḥ* and the *vocalic shewa* (Khan 1992, 27).

Shewa has also other realizations which depend on the phonetic environment of the syllable. And so, when a guttural letter was preceded by *shewa*, the letter was pronounced in accordance with the vowel of the guttural, e.g. in the word בְּאֵר 'well' it has the quality of /*e*/, although in מְאוֹד *moˈʔoːð* 'very', it was realized as /*o*/ (Khan 2013f, 27). Similarly, when it was followed by *yod*, its was assimilated to the quality of *yod* and so pronounced as a *ḥireq*, e.g. בְּיוֹם *biˈjoːm* 'on the day'.

According to the rules set by a medieval grammarian Elyahu Bakhur it is possible to define whether a *shwa* is vocalic or silent. Thus, *shewa* subscripted under the first letter of a word is always vocalic: דְּבָרִים 'things, matters'. When two *shewa'im* are found in the middle of a word, the first of them is always silent and the second one is vocalic, e.g. יִכְתְּבוּ 'they

(m.) will write'. According to the third rule, *shewa* following a long vowel is always long, like in שׁוֹמְרִים 'guards'. Next, *shewa* placed under a word geminated with *dagesh* is vocalic, e.g. וַיְדַבְּרוּ 'and they (m.pl.) will talk'. The last rule says that *shewa* between two identical consonants is always vocalic, like in הִלְלוּ 'they praised' (Blau 2010, 123).

Derivative of vocalic *shewa* is a group of signs called *ḥaṭaphim*, which are compounded of *shewa* and an additional vowel. There are three types of *ḥaṭaphim*:

אֱ - *ḥaṭeph pataḥ*, e.g. אֱגֶם 'lake'

אֶ - *ḥaṭeph seghol*, e.g. הֶאֱמִין 'he believed'

אֲ - *ḥaṭeph qameṣ*, e.g. חֲלִי 'disease'

In most cases they are marked under the guttural vowels which require special treatment, since readers would have a difficulty in predicting what kind of *shewa* appears in such an environment (Khan 2013c). In some cases they serve as an epenthetic vowel, which come to break a consonantal cluster. However, the realization of an epenthetic vowel placed under a guttural differs from the realization of *shewa*. *Shewa* under a guttural was always pronounced as /*a*/ regardless of the quality of a vowel following the guttural. On the contrary, an epenthetic vowel was assimilated to the quality of a preceding *seghol* or *qameṣ* vowel, e.g. הֶעֱבִיר 'he removed, he transferred' (Morag 1963, 161).

Apart from the environment of gutturals, *ḥaṭeph qameṣ* and *ḥaṭeph pataḥ* occur also under consonants which are not gutturals. They are found in principle under the consonants bearing *dagesh* and therefore suggest a more distinct realization of *shewa*. When the letter with *shewa* is followed by an identical letter, in some cases it has an additional vowel sign, which is employed for their clear separation, e.g. סוֹרֲרִים 'rebellious (pl.)'. In addition, when at the beginning of a word a sibilant appears and is preceded by a copulative וּ it has *ḥaṭeph pataḥ* instead of simple *shewa*, e.g. וּסְחַר 'and trade'. As pointed out by Gesenius, for some reason *ḥaṭeph pataḥ* occurs also in the environment of consonants which presumably had an emphatic realization, e.g. הוּטָלוּ 'they were imposed' (Kautzsch 1957, 53).

An interesting view was presented by G. Khan with regard to the *ḥaṭaphim* in the environment of *resh*. It transpires that in some cases *ḥaṭeph qameṣ* and *ḥaṭeph seghol* may mark a short vowel nucleus and therefore form a syllable. Medieval sources indicate that *resh* had two realizations, when preceded by an alveolar consonant [דזנטסצתלן] and when *resh* had *shewa* its realization was apico-alveolar /*ṛ*/; however, when *resh* was preceded by an

alveolar with a vowel, in other words, when it stood at the initial position of the following syllable, it received its uvular trill allophone /R/. Given that, one can infer that *ḥaṭeph qameṣ* of the word צָרִי ‘ balm’ forms a syllable boundary and so separates the *ṣade* from the *resh*, since, as the medieval sources indicate, the realization of *resh* in the word צָרִי was uvular. On the other hand, in the word צְרוּפָה ‘purified (f.sg.), in which an alveolar consonant is found in the same syllable as *resh*, the *resh* is pronounced as an apico-alveolar (Khan 2013f, 104).

There are numerous cases of interchanges between vocalic and silent *shewa*. As pointed out by Blau, it may be one of the reasons for inventing only one sign for both types of *shewa* (Blau 2010, 98). One of the most explicit examples of such an interchange is the word מִקְדָּשׁ ‘temple’, in which *shewa* is silent and closes the syllable. However, once it appears with *dagesh* in *qof* מִקֻּדָּשׁ, which apparently does not serve for gemination of the consonant, but rather provides a signal for the reader that the *shewa* has to be pronounced as vocalic. In addition, there are even cases of words in which *shewa* does not precede one of the consonants בגדכפת, like in יִקְהַת ‘obedience’. The opposite interchange of the vocalic *shewa* with the quiescent one is even more common. When the way of reading was less official and the rules of accentuation enabled this, the readers tended to ignore the quality of the vocalic *shewa*, consequently a new grammatical category emerged, called *light alef*, e.g. אֱזְרוֹעַ < זְרוֹעַ ‘arm’ (Blau 2010, 100).

Another crucial attestation of the reduction of the vocalic *shewa* is the medium *shewa*, which, however, does not constitute a separate phonetic entity, since from the phonetic point of view it is identical to the quiescent *shewa*. It emerged from a reduction of a vowel, but it follows a historically short vowel. As a result, it bears characteristics of both types of *shewa*, i.e. it does close a syllable but it does not change the fricative realization of בגדכפת. Moreover, notwithstanding the fact that in Hebrew there was at some point a lengthening of short vowels in open syllables, this process did not affect the vowels in the syllables of the medium *shewa*, because the *shewa* already had the ability to close the syllable, e.g. מַלְכֵי ‘kings of (st. const.)’.

To sum up, from the presented analysis we can infer that *shewa* is a half vowel which has a serious impact on the syllable structure of the word. The vocalic *shewa* had presumably the quality of short /*a*/ vowel, while the realization of the silent *shewa* was zero. Since the gutturals do not admit of the sign of the vocalic *shewa*, the signs of *ḥaṭeph* have been invented.

2.1.2. Vowel length

Vowel length in Tiberian Hebrew was not phonetic and always depended on the syllable structure (Khan 1992, 3). In fact, the only indication of the length of a vowel in Tiberian vocalization is the sign of *ḥaṭeph* applied to a *shewa* sign which constitutes a clear signal that the vowel it represents is of a short quantity. It should be noted, therefore, that the Tiberian vocalization makes quality distinctions solely. Nonetheless, a few attempts have been made to establish a possible length of vowels. As pointed out by A. Ben David, *ṣere* and *ḥolem* were pronounced long regardless of phonological environment, while the length of the rest of the vowels depended on different factors (Ben David 1957). There is no agreement among the scholars regarding the length of particular vowels. Morag proposed a division into three main categories, based on the assumption that *seghol* and *ṣere* followed by *yod* are long (Morag 1962, 25):

ultrashort	**ordinary**	**long**
ă	å	ɛ:
ĕ	a	e:
	ɛ	
	e	

The scheme presented above has been considered by some scholars as unjustified, since there is no positive evidence for the distinctive length of full *seghol* and *ṣere*. Moreover, it will be discussed below that there was no qualitative differentiation between the full vowels and so-called half-vowels. A new and fresh point of view was demonstrated by G. Khan, who argued that the length of a vowel depended on the structure of the syllable and that the quantity of a syllable in Tiberian Hebrew was fixed and comprised of two moras (Khan 1992, 40).

Basing on the assumption that Karaite texts reflect the Tiberian pronunciation, Khan analysed Karaite manuscripts containing the Hebrew Bible transcribed into Arabic characters with the Tiberian pointing apparatus. What is unique about these medieval manuscripts is the fact that the vowels perceived as long were written with the Arabic *matres lectionis*. Since in Arabic there are only three vowel signs, the qualitative distinctions cannot be restored, however, the aforementioned manuscripts supply crucial information on the length of vowels.

First of all, it transpires that the length of a vowel depends on the nature of the syllable, and thus by principle vowels in unstressed open syllables were long and those in

unstressed closed syllables were short. Similarly, all the vowels found in syllables bearing main stress were by nature long. Some fluctuation occurs, however, when it comes to the vocalization of the gutturals. Numerous cases indicate that vowels in unstressed open syllables, which traditionally were perceived as short, were long when followed by a guttural consonant with silent *shewa*, e.g. תַּעֲמֹד < تاعمود 'you (m.sg.) will stand'. It appears that these structures emerged from constructions in which the guttural functioned as a regular consonant, which at a later stage underwent the process of weakening. Consequently, an open syllable appeared. However, there remains the question as to why the vowels in the virtually closed syllables did not lengthen. On the basis of relative chronology one may infer that the process of lengthening of the vowels in open syllables had taken place before the qualitative shift of **a>ā* into ** ā >ɔ* occurred. Given that, it is possible to explain forms like הַהוּא, in which the second *hey* should be doubled, but due to the weakening of the gutturals the syllable remained open. Accordingly, the first vowel of the first *hey* notwithstanding the fact that it was long, did not undergo the shift into *qameṣ* (Khan 2013d). There are, therefore, two separate phonetic phenomena, viz. the lengthening of vowels in open syllables and qualitative shift of the long **ā* into a vowel of a back, rounded quality. Another significant fact regarding the historical relation between the two aforementioned phenomena may be inferred from the analysis of the verbal form such as כָּתְבָה 'she wrote'. First of all, it must be noted that at an early stage of Hebrew there was a general rule of paroxytone stress. Considering such an assumption, a vowel of the syllable preceding the stressed syllable was lengthened and transformed from a front unrounded into a back rounded one. At the next stage, the stress moved from the penultima onto the ultima and so the vowel of the syllable previously bearing the stress was reduced.[15] It was not lengthened since the pretonic lengthening ceased to operate. The process described above can be depicted in the following way:

1. *כַּתַבַת (the accent was on the penultima, the last syllable contained final consonant, like in Classical Arabic).
2. *כָּתַבַת (the position of the stress did not change, the pretonic lengthening and the qualitative shift started to operate).

[15] Blau notes four stages of the accentuation in Hebrew. Cf. Blau 2010, 121.

3. כָּתְבָה (the final consonant was reduced, the stress moved to the final vowel, the short vowel of the penultima was reduced since the pretonic lengthening ceased to operate).

Regarding the length of *shewa* and *ḥaṭeph* in open syllables, there is no evidence that by nature they were shorter than the short full vowels. Moreover, the masoretico-grammatical treatise quoted by G. Kahn indicates that there was no quantitative distinction between them.[16] It was the syllable structure which conditioned the length of the vowel. If so, why the short vowels did not undergo the lengthening in open syllables? The answer is related to the assumption that the syllable in Hebrew had a fixed quantity of two moras, thus, short vowels in open syllables were lengthened in order to achieve this phonological weight. Furthermore, a consonant and short vowel, viz. a CV structure, cannot form a syllable consisting of two moras. Only a combination of a consonant and a long vowel CVV or of two consonants and a short vowel CVC give two morae. What is the status of *shewa* and *ḥaṭeph* in such state of affairs? It appears that they were not taken into consideration in the calculation of moraic weight in the same way as full vowels and served as epenthetic vowels only[17]. Therefore, their role, according to this theory, was to connect two separate consonants. They could be elided in a stream of speech, and thus could not form a morphological syllable which by principle was phonologically stable; for instance, the word תִּסַּפְּרוּ 'you (m.pl) will tell' can be divided into two phonological syllables *tsap-pru,* CCVC-CCV. The same method can be applied in the case of verbs with gutturals which correspond to the regular forms, i.e. יַעֲבֹד 'he will work', which contains only one phonological syllable, the second one, since the first one has an epenthetic *ḥaṭeph*.

2.1.3. Vowels in the environment of gutturals

There are four guttural consonants in Hebrew: ח, ה, א, ע. To this group belongs also ר, which despite the fact that it has no guttural, i.e. pharyngeal or laryngeal realization, causes similar deviation within the behaviour of vowels. The aforementioned group is not uniform and its properties indicate a complex historical development, during which the gutturals have gradually been weakened. Some of them have kept their original pronunciation, others have become *maters lectionis*. The attention should be directed to two particularly significant phenomena with regard to the gutturals.

[16] The mentioned treatise has been published by K. Levy. Cf. Khan 1992, 37.

[17] In the present work an alternative explanation has been proposed, see the first part of the third chapter.

First of all, they do not receive *dagesh*, since, as pointed out by Gesenius, the consonantal realization of the gutturals was hardly audible for Masoretes (Kautzsch 1957, 76). However, as has been pointed out above, a distinction between the members of this group has to be made. Thus, it can be established that *alef* and *ʿayn* in most cases are omitted from pronunciation, on the other hand *hey* and *ḥet* cause virtual gemination, viz. graphically they do not admit of *dagesh*, but in fact the gemination is regarded as having taken place. In the first case, the definite weakening of these two phonemes brings about the situation in which the syllable becomes open due to the free passage of the stream of air through the speech organs. Since, as a rule, short vowels in open syllables in Hebrew underwent a process of lengthening, consequently *pataḥ* shifted to *qameṣ* before א, ר ע, less frequently before ה and almost never before ח, i.e. מֵאֵן 'he refused', הָעָם 'the nation', בֵּרַךְ 'he blessed', הָהָר 'the mountain'. When it comes to virtual gemination, the order of consonants is exactly the reverse, viz. it occurs most often with ח, sometimes with ה, under certain conditions with ע and almost never with א, e.g. הַחֹדֶשׁ 'the month', הַהוּא 'he', בְּעֵר 'he exterminated', נְאֵץ 'he abused'. One may infer from such a state of affairs that *alef* has weakened first, then *ʿayn* has lost its laryngeal feature and in the end it happened to *hey* and *ḥet*.

Apart from the peculiarity in the area of gemination, the gutturals brought about another phonetic phenomenon called the lowering of the vowel. Since gutturals prefer to have in their environment a short /*a*/ sound, which is the lowest among all the vowels, very often *pataḥ* substitutes for another short vowel with the quality of /*e*/ or /*o*/, e.g. זָבַח 'sacrifice' instead of the expected form **zeveh*. Moreover, when a guttural stands at the end of the word and is preceded by a heterogeneous long vowel, it demands insertion of the so called *pataḥ furtivum*. Although its sign is placed under the guttural, it is pronounced before it, but after the long vowel, e.g. לִשְׁלֹחַ 'to send', גָּבוֹהַּ 'high (m.sg.)' (Kautzsch 1957, 79).

In addition, when the quiescent *shewa* occurs under a guttural in a pretonic syllable or further back, it turns into *ḥaṭeph* and consequently the syllable is being artificially opened. In this case *ḥaṭeph* repeats the quality of the preceding vowel, e.g. יֶחֱזַק 'he will strengthen' יַעֲמֹד 'he will stand'. But when the long vowel following the *ḥaṭeph* is reduced due to the stress movement, a full vowel occurs instead of *ḥaṭeph*, e.g. יַעַמְדוּ < יַעֲמֹד 'he will stand' > 'they will stand'.

To sum up, the length of vowels in Tiberian vocalization is not always represented graphically, but it should be rather determined on the basis of historical changes and syllable

structure. As has been pointed out, syllable in Tiberian Hebrew is of fixed weight of two moras. Particular fluctuations are caused by guttural consonants which cannot be geminated and, when preceded by a high vowel, require it to be lowered.

2.2. Babylonian vocalization

Babylonian vocalization is a system invented in medieval Babylonia and used mainly for biblical and rabbinic texts. It is strongly heterogeneous and consists of different typological groups. The scholarship of the Babylonian vocalization started in the middle of the 19th century when Abraham Firkovitch discovered a number of manuscripts containing Babylonian vocalization in Chufut Kale (Crimea). With the passage of time new manuscripts of Yemenite origin with Babylonian vocalization were coming to light. A real breakthrough, however, took place when Paul Khale discovered and described manuscripts containing Babylonian vocalization in the Cairo Genizah. The most comprehensive description of the linguistic tradition reflected by the Babylonian vocalization was made by Israel Yeivin and until now it constitutes the most authoritative source of knowledge in this area (Yeivin 1985).

From different medieval sources we know that the Babylonian vocalization was used by different communities not only on the territory of modern Iraq, but also in Yemen, Egypt and the Arabian Peninsula. It is worth emphasizing that the Yemenite Jews have preserved some of the Babylonian features of pronunciation down to modern times (Morag 1963). As pointed out by Yeivin, the Yemenite tradition continues the late Babylonian vocalization and is under the influence of the Tiberian vocalization. Nevertheless, it is an entity in itself, with its own grammatical system and some independent phonological features (Yeivin 1985, 2).

As has been mentioned above, the Babylonian vocalization system consists of a few different subtypes. Yeivin divided them into three categories on the basis of the pronunciation they reflect, i.e. Old Babylonian, Middle Babylonian and Early Babylonian. The first two represent the original Babylonian pronunciation, whereas the third one is in fact an imitation of the Tiberian tradition. In addition, the sign system differs in the aforementioned categories, since in Old Babylonian partial employment of vocalization is used, while the Middle Babylonian exhibits a full vocalization. The oldest manuscript which reflects the Old Babylonian pronunciation was written in 905 C.E., and also the first manuscripts with the Middle Babylonian begin to occur in the 10th century likewise (Khan 2013a).

2.2.1. Vowel system

In the Babylonian vocalization there are six full vowels and *shewa*. Like the Tiberian tradition, the Babylonian one demonstrates quality differences only and no attestations as to the length of the vowels exist. In the scholarship of the Babylonian vocalization the terms 'short' and 'long' vowels are in use mainly for the sake of explanation of different grammatical phenomena. Vowel length is usually defined on the basis of syllable structure and the position in relation to the stress. Consequently, it has been established that all vowels in stressed syllables are long regardless of whether the syllable is open or closed. The vowels found in closed unstressed syllables are short, while those found in open unstressed syllables are in principle long (Yeivin 1985, 364). The table presented below demonstrates the signs used by the Babylonian vocalization:[18]

Tiberian	**Babylonian[19]**
Pataḥ	
Seghol	
Qameṣ	
Ṣere	
Shureq	
Qibbuṣ	
Ḥolem	
Ḥireq	

Table no. 2 *The signs of the Babylonian vocalization*

There are a few conspicuous differences between the Tiberian and Babylonian vocalizations regarding the system of vowels. Since there is no distinction between *seghol* and *pataḥ* in the latter, *pataḥ* sometimes represents vowels, which in the Tiberian tradition are considered long. The lack of a vowel corresponding to the Tiberian *seghol* might be explained by the fact, that the realization of the Babylonian *pataḥ* was between /e/ and /a/, a kind of slightly raised /a/ (Khan 2013a). Moreover, in Babylonian there are short *ḥolem* and

[18] Due to some technical obstacles, in the present paper the signs of the Tiberian vocalization will be used also to render the Babylonian ones.

[19] The present graphic images of the signs of the Babylonian vocalization were designed by the author of this work.

ṣere and only one type of *shewa* is marked, i.e. the vocalic one. It is highly uncertain whether the distinction between the quiescent and the vocalic *shewa* existed in Old Babylonian, but they do constitute separate phonological entities in Middle Babylonian.

2.2.1.1. Interchanges of long vowels

Long vowels in the Babylonian vocalization occur in similar environments as in the Tiberian one. Contrary to the Tiberian tradition, however, the long /*ī*/ vowel, which sometimes derives from the diphthong **-ay*, at the end of a word is represented by *pataḥ* (Yeivin 1985, 364). Apart from this, there are some significant vowel interchanges which do not take place in the Tiberian vocalization.

Yeivin classifies the aforementioned interchanges into two main categories: phonological interchanges and interchanges of traditions. While within the first one a vowel differs in various forms of inflection, the second consists in differences within the vowel placement in various traditions and manuscripts (Yeivin 1985, 370).

Thus, an interchange between *shureq* and *ḥolem* belong to the first category and they can be found also in the Tiberian tradition. In a few cases *ḥolem* appears in a stressed syllable, while *shureq* occurs in an unstressed syllable, i.e. מָנוֹס 'escape' > מְנוּסֵי 'the escapes of'. This interchange is, however, quite seldom and apparently a reminiscence of an irregular phonetic shift which took place in the Tiberian tradition as well. This can be seen in numerous verbal forms of *niph'al* stem ע״ו, i.e. נְפוֹצַתֶם 'you (m.pl.) were disseminated' in Babylonian corresponds to נָפֹצְתֶם in Tiberian, on the other hand a form like נְקוֹטְתֶם 'you (m.pl) implemented' can be found in Babylonian. In addition, as pointed out by Yeivin, in the Babylonian vocalization there is a strong tendency for vocalization of the first radical in the plural present tense with *shureq*, i.e. נְמֻגִים 'faded (m.pl.) (Yeivin 1985, 372). The interchange between /*o*/ and /*u*/ vowels occurs also in the *qal* stem ע״ו in the future tense: יָשׁוּב < יָשׁוֹב 'he will return'.

Another interchange of remarkable significance in the Babylonian tradition is the interchange between *ḥolem* and *ṣere*. Yeivin classifies this as an interchange of signs only and explains that in Babylonian the realization of both vowels was identical but the signs remained separate due to the fact that the scribes were faithful to the inherited tradition. This phenomenon is much more conspicuous in Early Babylonian and almost does not occur in Old Babylonian. Geoffrey Khan relates it to the process of fronting of *ḥolem* in the

Babylonian Hebrew tradition. He quotes a Karaite grammarian Al Qirqisani who states that the Jews of Iraq pronounce the word קָדוֹשׁ 'holy' as *qadesh* and associates this shift with an influence of an Aramaic dialect called Nabat (Khan 2013a). Moreover, it is noted by Khan that in some Yemenite traditions which presumably have their roots in Early Babylonian, the *ḥolem* vowel has front rounded or unrounded quality, identical to *ṣere* (Morag 1963, 92).

Apart from the aforementioned interchanges, there is also additional interchange of a less frequent occurrence, viz. the interchange of *pataḥ* and *qameṣ*. These interchanges of are highly irregular and are found in early manuscripts only. In some of them, the signs of both vowels are almost the same and it is almost impossible to establish what the scribe intended to represent. It is also worth noting that in some places in which in Tiberian Hebrew a lengthened vowel in a pretonic syllable is reduced to *shewa*, Babylonian Hebrew retains *qameṣ*, e.g. מְחִיר 'price' in Tiberian and מָחִיר in Babylonian.

2.2.1.2 Short vowels and their occurrence

As has already been mentioned above, it is the placement of stress that determinates the length of a vowel. If a syllable is unstressed, regardless of whether it is open or closed, the vowel found in it is defined as short.

Closed unstressed syllables which originally contained the vowel **i* are usually vocalized with a short *ṣere* or *ḥireq*. The distribution of vowels depends on a way a syllable is closed, i.e. when it is closed by *dagesh* it almost always contains *ḥireq*, like in יִקַּח 'he will take'. However, when it is closed by *shewa* it sometimes contains *ṣere* and sometimes *ḥireq*. It must be noted though, that *ḥireq* predominates and *ṣere* appears in syllables which were once stressed but have lost their stress at some point. This is the case, for example, with shortened forms of the future tense, where *ṣere* is found in a closed ultimate syllable but due to the retraction of stress the syllable is no longer stressed, like in וַיֶּבֶן *way.yá.ven* (Yeivin 1985, 373).

In open unstressed syllables the original **i* vowel has been lengthened to *ṣere* due to the pretonic lengthening, or has been reduced to *shewa*. This vowel is retained as short *ṣere* or *ḥireq* in few cases, among others under the letter א at the beginning of a word, like in אֱנוֹשׁ 'person', אֱלֹהִים 'God'. Similarly, short *ḥireq* is retained at the beginning of a word under the letter א followed by a guttural consonant, i.e. וַיְהִי 'and there was' and when it serves as an epenthetic vowel which is preceded by *ḥireq*, e.g. עִזְרְךָ 'your help (m.sg.)'.

Similarly, closed syllables originally containing the **u* vowel nucleus, are vocalized with short *shureq* or *ḥolem*. In syllables closed by both *dagesh* and *shewa, shureq* predominates, i.e. חֻכמָה 'wisdom'. The same rule applies to the occurrence of *ḥolem* as to *ṣere*, viz. it appears in syllables which were once stressed.

Short **u* vowel in an open unstressed syllable has been retained in various phonological contexts. In verbal forms containing non-guttural consonants in most cases *ḥolem* occurs, i.e. תִּדרֹכִי 'you (f.sg.) will step on'. In words containing gutturals, under ה and א at the beginning of a word *ḥolem* occurs as well, i.e. הֹשַמָה 'placement', but when a word begins with ח and ע it usually admits of *shureq*, like in חֻלי 'disease'.

The pair of *pataḥ* and *qameṣ* follows the same pattern as the aforementioned vowels. That is, a closed syllable which originally contained the vowel **a* is usually vocalized with *pataḥ*. When a syllable is closed by *dagesh*, it contains *pataḥ* exclusively. The same vowel sometimes serves as an epenthetic vowel in words containing a guttural, i.e. יַעַבדוּ 'they (m.) will work'. In addition, it occurs in syllables, where in the Tiberian tradition *seghol* is found, usually in the environment of the gutturals. In some words which are vocalized in the Tiberian Hebrew with *seghol* reflecting the original **i* vowel, Babylonian Hebrew demonstrates a tendency to *ḥireq*. In others words, where in the Tiberian tradition consonants are vocalized with *seghol* reflecting the original short **a* vowel, in the Babylonian one *pataḥ* is found, i.e. מַרחָק 'distance', עַגלוֹ 'his calf'. In syllables which once were stressed but lost the stress both *pataḥ* and *qameṣ* occur, i.e. יֵלֵך 'he will go' in a regular future form, in which the *pataḥ* is long due to the stress placement, as opposed to וַיֵּלֶך 'and he went', the shortened future form, in which due to the retraction of the stress *pataḥ* is short (Yeivin 1985, 378).

There is no evidence for a short *qameṣ* in open unstressed syllable, since in verbal forms like וַיִלְבָּשֵנִי 'and he dressed me' *qameṣ* is long. On the contrary, short *pataḥ* may be found in open unstressed syllables, mainly after the gutturals and at the beginning of a word, i.e. עַצֵי 'the trees of'. In addition, the length of *pataḥ* in an open syllable is defined as short when it is followed by syllable with epenthetic vowel, i.e. מַמלָכוֹת 'kingdoms'.

2.2.1.3. Further alternations

As pointed out by Yeivin, numerous examples indicate that short vowels of a guttural consonant at the beginning of a word are full and have a strong tendency to be retained. On the contrary, short vowels of non-guttural consonants are sometimes reduced or even disappear, especially when preceded by a prefix letter, i.e. וַיעַמְדוּ < וַתַּעַבדוּ 'you (m.pl.) will

work' > 'and they worked' (Yeivin 1985, 380). Additional fluctuation is caused by gutturals in syllables closed by *shewa* and *dagesh*. It appears that, especially in the case of *pataḥ*, its length depended on the structure of a syllable. When it was found with א ה ע ח in a syllable which was originally closed by the quiescent *shewa*, i.e. יַחמֹל 'he will have mercy on', it was short, but when it preceded a consonant with *shewa*, which would have been geminated if it had not been a guttural, it was long, i.e. מְטַהֲרִים 'they purify'. There are two pieces of evidence for this statement. First of all, ע, when pointed with *shewa* at the end of a syllable, gives rise to a full vowel after it, but, simultaneously, it causes the reduction of a preceding vowel, e.g. תְּעַבִּירוּ 'you (m.pl.) will remove'. It is worth noting, however, that in Old Babylonian in words containing ע which should be geminated, viz. geminated virtually, this phenomenon does not exist, i.e. מְבַעֲרִים 'they (m.) remove'. The vowel preceding the ע does not undergo reduction and stays stable. As proposed by Yeivin, the reason for such an inconsistency is the different length of each of these vowels, i.e. in the first case the vowel is reduced because it is short, while in the second one it is long. Additional evidence is provided by Middle Babylonian which usually marks vocalic *shewa* solely. Consequently, no *shewa* signs occurs under a guttural at the end of a syllable, i.e. וּבַחמוֹרִי 'and on my donkey', although when a guttural consonant is virtually doubled, it does occur, e.g. הַחֲמֹר 'the donkey'. One may infer, therefore, that the difference between לַחכָמִים and לַחֲכָמִים 'for wise people' involves the quantity of *pataḥ*, in the first example it is short, while in the second one is long (Yeivin 1985, 381).

2.2.2. Philippi's law and attenuation[20] in Babylonian Hebrew

It should be emphasized that the general occurrence of *pataḥ* in relation to *ṣere* and *ḥireq* in closed syllable in Babylonian Hebrew is much higher than in Tiberian Hebrew. It has been already pointed out by J. Blau that Babylonian vocalization demonstrates different tendencies regarding the aforementioned phonological phenomena (Blau 2010, 132). A few factors brought about such a distinction.

First of all, the phenomenon of attenuation according to which *pataḥ* in a closed unstressed syllable shifts to *ḥireq*, is much less operative than in Tiberian. In syllables closed by *shewa* it is particularly conspicuous in verbal forms like אֲרוֹמֲמְךָ 'I will raise you up', מְקַדֵּשכֶם 'the one who sanctifies you (m.pl.)'. In nominal forms of the patterns מקטל, מקטול which in Tiberian would have *ḥireq*, i.e. מִזְבֵּחַ 'altar', in Babylonian the prefix תקטלה, מקטֶל

[20] The translation of the Hebrew term חוק ההידקקות in English according to: Blau 2010, 132.

letter is followed by *pataḥ* מַזְבֵּחַ. In a few cases (most of them are verbal forms) however, in Babylonian *ḥireq* occurs while in Tiberian *pataḥ*, since the influence of a guttural consonant on the preservation of *pataḥ* is much less intensive in Babylonian as compared to Tiberian. It is due to the fact that in Babylonian gutturals are treated mostly as regular consonants and do not require the lowering of a vowel like in Tiberian Hebrew, cf. יַחְשֹׁב 'he will think' in Tiberian as opposed to יִחשֹׁב in Babylonian. As pointed out by Yeivin, syllables closed by *dagesh* present much less differences than those closed by *shewa* (Yeivin 1985, 382).

Another factor which brings about a higher occurrence of *pataḥ* is the Philippi's law, according to which the **i* vowel shifts to /*a*/ vowel in a closed stressed syllable. It appears that in Babylonian Hebrew it was more operative than in Tiberian. It is particularly visible in verbal forms like וּלַמַדְנָה 'and you (f.pl.) will learn' and in short, monosyllabic nouns, e.g. לַב 'heart', צַל 'shadow' which in Tiberian Hebrew are vocalized with *ṣere*.

Moreover, words originally containing the /*i*/ vowel which in Tiberian Hebrew shifted to *seghol*, due to the lack of *seghol* in Babylonian they contain *pataḥ*.

2.2.3. Epenthetic vowel

An epenthetic vowel is a short vowel found in a closed unstressed syllable which serves to break a consonantal cluster. The phenomenon of an epenthetic vowel is found mostly in manuscripts containing the Old Babylonian vocalization. As pointed out by Yeivin, sometimes it is an effect of an activity of scribes from a later period, who tried to complete the earlier vocalization (Yeivin 1985, 386). An epenthetic is inserted between the first two consonants of a word-internal consonantal cluster, e.g. תִּקְרְבוּ 'you (pl.) will bring closer' On the contrary, in the Tiberian vocalization an epenthetic vowel, viz. the vocalic *shewa*, occurs between two last consonants, i.e. תִּקְרְבוּ (Khan 2013a).

The occurrence of an epenthetic vowel depends on the second consonant of the cluster. It usually appears when the second consonant is one of the sonorants למנר, especially ר, e.g. יִדְרְכוּ 'they stepped on' In the case of נ it usually appears in the *niph'al* stem נִיכְינסוּ 'they entered'.

Apart from the sonorants, an epenthetic vowel occurs often in the environment of the gutturals ה and ח, e.g. יִרַחְקוּ 'they will be sent away'. It does not precede א and ע, since the original short vowels are retained in Old Babylonian after these consonants, e.g. יִזְעַקוּ 'they

will shout'. On the other hand, in some cases in Middle Babylonian a short vowel after a guttural is reduced and consequently an epenthetic vowel arises.

The quality of an epenthetic vowel depends on the quality of a vowel which precedes it. Thus, when a vowel before an epenthetic vowel is *ḥireq*, the epenthetic vowel has the quality of /*i*/, e.g. נִכְלְמוּ 'they were ashamed'. Accordingly, when a vowel preceding the epenthetic vowel is *shureq*, it admits of the /*u*/ quality, e.g. וְהֻשְׁלְכוּ 'they were thrown'. There are, however, a few examples of words in which the original vowel before an epenthetic has been modified, thus the epenthetic has a quality different from both the original vowel and the newly created vowel before the epenthetic, e.g. וּבְקֹצְרְכֶם 'while you were harvesting' instead of the expected form וּבְקֻצְרְכֶם. As can be seen, the original vowel **u* has shifted to /*o*/ and the epenthetic vowel has the quality of *pataḥ*, not of *ḥolem* as expected.

2.2.4. The placement of *shewa* in Babylonian Hebrew

Shewa in Babylonian Hebrew is marked by a vertical line above a letter and is called חיטפא. Its placement is similar to that of Tiberian Hebrew; there are, however, a few differences. First, the division into quiescent and vocalic type known from Tiberian Hebrew is not applicable in all types of Babylonian. For sure, it exists in Middle Babylonian, but there is not enough evidence for its existence also in Old Babylonian (Yeivin 1985, 398). Secondly, it is not certain what the exact realization of *shewa* in Babylonian was. As proposed by Yeivin, presumably it did not have the quality of a vowel, since an epenthetic vowel was created for breaking consonantal clusters. If it had been pronounced as a vowel, there would not have been a need to insert an epenthetic vowel. The occurrence of *shewa* differs in various manuscripts and depends on the general method of vocalization of a particular manuscript. Thus, when a manuscript has a full vocalization the occurrence of *shewa* is much higher than in manuscripts with partial vocalization.

In Old Babylonian most of marked *shewa'im* are vocalic, but in some manuscripts the quiescent *shewa* is marked as well. The first type occurs mostly at the beginning of a word and in pretonic syllables, e.g. לְשׁוֹן 'the language of' but in some cases also in syllable which is not found in direct vicinity of stress, e.g. וְיִלְכֹּד 'and he will unify'.

The fact that in Old Babylonian there is no strict distinction between the quiescent and vocalic *shewa* does not imply that there was no phonetic difference between them or that the distinction between them was less conspicuous than in Tiberian. Such a view is

legitimized by the fact that the rules of gemination of the consonants בגדכפת in Babylonian are similar to those in Tiberian Hebrew. The gemination itself depends on the distinction between the quiescent and the vocalic *shewa*, so one may assume that it did exist in Old Babylonian as well. Additional evidence is provided by Middle Babylonian which makes a very conspicuous distinction between them. It is possible, therefore, that this phenomenon has its roots in Old Babylonian (Yeivin 1985, 404).

In Middle Babylonian only vocalic *shewa* is marked. There are a few phonological differences in comparison to Old Babylonian. After consonantal י there is no *ḥireq* but *shewa*. With regards to the gutturals, after א and ע sometimes a short vowel in an open syllable is retained and sometimes it is reduced to *shewa*. In addition, an epenthetic vowel is almost completely absent. As pointed out by Yeivin, all these phenomena are related to each other and constitute strong evidence that the phonetic distinction between the vocalic and quiescent *shewa* had existed in Old Babylonian. The distinction resulted in a graphic attestation of the latter, since the form had no vocalic quality.

As has been already pointed out, presumably *shewa* in Old Babylonian had a quality of zero or of an ultrashort vowel. It was for sure different from the pronunciation of *shewa* in Tiberian Hebrew which has a quality of the short /*a*/ and before a guttural it admitted of the quality of a vowel of the guttural. In general, the phenomenon of interchanges between *shewa* and a full vowel existing in Tiberian, does not occur in Babylonian, but there are a few manuscripts reflecting both Old and Middle Babylonian in which *shewa* shifts into *pataḥ* (Yeivin 1985, 413). One of the possible explanations of these interchanges is an influence of the Tiberian tradition or another, parallel Babylonian tradition. Within the manuscripts studied by Yeivin, some demonstrate shifts of *shewa* to *pataḥ* but not the other way round, others contain interchanges between *pataḥ* and *shewa* only; lastly, some present both types of interchanges (Yeivin 1985, 415).

To sum up, there are some considerable differences between the Tiberian and the Babylonian vowel system. First of all, the occurrence rate of *pataḥ* is much higher in the Babylonian one, since in this tradition, on one hand, the law of attenuation is much less operative, and on the other the Philippi's law is more operative than in Tiberian Hebrew. Moreover, vowels which in Tiberian Hebrew have transformed into *seghol*, in the Babylonian tradition, due to the lack this vowel, are represented either by *pataḥ*, or by *ḥireq*. Regarding the vowels in the environment of the gutturals, as has been already pointed out,

in the Babylonian tradition no peculiarities occur. In most cases the gutturals were treated as regular consonants and did not require the lowering of the adjacent vowel.

Chapter 3
The analysis of the inconsistencies within the Tiberian and Babylonian vocalization

3.1. General notes on the characteristic features of the verbs containing guttural consonants in the Tiberian tradition

The group of guttural consonants in Biblical Hebrew comprises א ʾ (*ʾālep̄*), ה h (*he*), ח ḥ (*ḥet*), and ע ʿ (*ʿayin*). As can be deduced from various Karaite sources, these consonants were, at least originally, distinguished in pronunciation, i.e. א /ʾ/ being a laryngeal stop, ה /*h*/ a laryngeal fricative, ח /*ḥ*/ an unvoiced pharyngeal fricative, and ע /a voiced pharyngeal fricative (Khan 2013c). Their most conspicuous property is that they cannot be geminated as all other consonants in Hebrew. A few factors may cause the original gemination: a morphological pattern, which normally requires the gemination of one of the consonants, like for example *pi'el* stem: דִּיבֶּר 'he talked', a clustering of two identical consonants of the root, like in צָרִים 'narrow (pl.)' or it can be the result of assimilation of the preceding consonant, like in מֵרֹאשׁ 'in advance'. As pointed out by some scholars, the gutturals must have been geminated on early stages of the development of Hebrew, but were gradually losing this property (Yeivin 1980, 67). As a result, the vowel preceding the guttural which was supposed to be geminated, became long due to the process of compensatory lengthening, i.e. גֵּירֵשׁ 'he expelled' . One of the explanations of the process in question was given by Hovav (Hovav 1884). According to her theory, compensatory lengthening constitutes an attempt to maintain the prosodic structure of the syllable. Thus, the newly created long vowel is able to cover the mora slot remaining empty due to the lack of gemination.

The process of losing by the gutturals their ability to be geminated was gradual, as mentioned. As remarked by Blau, some quality shifts of the vowels preceding gutturals allow to establish the periodization of this process. The reconstruction made by Blau presents the following chronological sequence of weakening of gutturals: (1) א /ʾ/, ר /*r*/, (2) ע /ʿ/, ה /*h*/, (3) ח /*ḥ*/ (Blau 2010, 82).

It is of particular significance to our research to stress that the lengthening described in the first category, i.e. lengthening related to the gemination required by the verb pattern, brings about also quality shift of the vowel, e.g. בִּרֵּךְ * *birrēk̲* > בֵּרֵךְ *bērēk̲*, 'he blessed', מְבֻרָּךְ **məb̲urrå̄k̲* > מְבֹרָךְ *məb̲ōrå̄k̲* 'blessed (m.sg.).

Another piece of evidence for the weakening of the gutturals is provided by the fact that vocalic *shewa* preceding a guttural was assimilated to the quality of the vowel following a guttural. As pointed out by Khan, in some places in Tiberian manuscripts one can find *ḥaṭeph qameṣ* under a guttural where there would normally be a vocalic *shewa*. This vocalization indicates that *shewa* is assimilated to the quality of the vowel following the guttural, e.g. שִׂמְּחֵהוּ *simmɔ'ḥɔːhuː* 'he made him glad' (Khan 2013c).

As has been already remarked in the previous chapter, gutturals require special treatment with regards to the placement of the vocalic *shewa*. Instead of the simple *shewa* sign they receive one of the *ḥaṭeph* signs, which are a combination of signs for *shewa* and one of the vowels: *pataḥ, qameṣ, seghol*. As explained by Khan, the motivation to place a *ḥaṭeph* under a guttural, and thus an additional vowel signs, was to give a strict instruction to the reader on how to pronounce the vowel, since the pronunciation of *shewa* under the gutturals was apparently less predictable (Khan 2013c). It is worth mentioning that *shewa* under a guttural had an ability to keep the default /*a*/ vowel quality, even when it was followed by a vowel of a different quality, e.g. יִמְחָאוּ *jimḥaʔuː* 'they clap' (Khan 2013f, 103). On the other hand, when a compound *shewa*, a *ḥaṭeph*, served as an epenthetic vowel, i.e. when it occurred in the place of silent *shewa*, its quality was assimilated to the preceding vowel, e.g. הֶעֱמִיד *hɛːʕɛˈmiːð* 'he set up'. In cases where *ḥaṭeph* substituted for silent *shewa* which was supposed to close the syllable, the vowel of the preceding consonant was lengthened as it was no longer found in a close syllable, e.g. תַּעֲמֹד *tāˈămoːð* 'you (m.sg.) will stand'.

The aforementioned form attests also to another phenomenon related to the properties of the gutturals, i.e. the lowering of adjacent vowels. Subsequently, in many verbs with gutturals the original historical low vowel emerges, i.e. *pataḥ* or *seghol*, which has been raised by attenuation to /*i*/, e.g. יַהֲרֹס 'he will destroy', but יִכְתֹּב 'he will write'. The occurrence of these vowels in the prefixes of verbs, as proposed by Khan, is the reflection of the Barth – Ginsberg law which states as follows: when the stem vowel was /*a*/, the prefix vowel had a quality of /*i*/ (i.e. **yi-qtal*), but when the stem vowel had a different quality (**ya-qṭul*, **ya-qṭil*), the prefix vowel was /*a*/ e.g. יִצְחַק 'he will laugh' vs. יַהֲרֹג 'he will kill' (Khan 2013c). By contrast, *seghol* tends to occur in verbs with the stem vowel /*o*/, e.g. יֶאְסֹר 'he will forbid'. Judging by the vowel distribution of the aforementioned forms, one may infer that verbs with guttural as the first radical are in fact more conservative with regards to the original

prefix vowel, since they did not undergo vowel change due to the attenuation, unlike the regular verbs.

Thus, it can established that the lack of the gemination of the gutturals brings about not only compensatory lengthening of the preceding vowel, but also a quality shift. In addition, in prefix conjugation the phenomenon of lowering of the prefix vowel occurs. When it comes to the placement of *shewa* under the gutturals, instead of vocalic *shewa*, a *ḥaṭeph* sign is employed.

3.2. The analysis of selected forms from the Tiberian vocalization

The table presented below contains verbs with guttural consonants, which feature different vocalization across the biblical text. Apart from the basic source, i.e. the Stuttgartensia Bible, additional editions of the Bible have been examined in order to detect inconsistencies. Especially, it was of crucial significance to analyse editions based on the manuscripts produced by the Ben Naphtali family, who were active in the same period as the Ben Asher family, but used different method of vocalization. The points of disagreement between the two schools were collected by Misha'el ben 'Uzzi'el in an Arabic treatise which bears the title *Kitāb al-Khilaf* ('The Book of Differences') (Khan 2013f, 5). The method of the school of the Ben Asher family became normative after it was espoused by a prominent Jewish scholar Moses Maimonides (1135-1204).[21] Consequently, most of the modern editions of the Bible are based on the Leningrad Codex, which contains the vocalization produced by the Ben Asher family. In the course of the research, however, it turned out that reaching the editions based on the method of the Ben Naphtali family was rather impossible in Poland. Instead, I have decided to examine three editions of the Bible selected by me, i.e. the Stuttartensia Bible, the Ginsburg Bible and the Ben Hayyim Bible in search of the recorded inconsistencies. In addition, I have compared the verbal forms found in these editions with those found in Nöldeke's article (Nöldeke 1922)[22]. This was done in order to find out whether the aforementioned inconsistencies had been corrected and unified by the editors, or whether they occur in all the editions in the same verbal form. The results of the analysis presented below clearly indicate that, while the Stuttgartensia Bible, the Ginsburg

[21] According to some medieval sources, before Maimonides supported the method of Ben Asher family, there had been a possibility to follow either Ben Naphtali or Ben Asher, without any critical evaluation. Cf. Eldar 1980.

[22] Unfortunately, Nöldeke does not reveal the edition of the Bible which served as a basis for his article. I have examined several editions which potentially could have been used by the German scholar, however, none of them contained the verbal forms found in the article.

Bible and the Ben Hayyim Bible demonstrate no differences, some forms from the version used by Nöldeke differ from the rest. These differences include the placement of *shewa*, employing vowels of different quality and insertion of epenthetic vowels. The occurrences with inconsistencies appear in bold typeface:

	Occurence	**Nöldeke's article**	**Stuttgartensia Bible**	**Ginsburg Bible**	**Ben Hayyim Bible**	**Form description**
1.	Ex 14,6	יֶאְסֹר	יֶאְסֹר	יֶאְסֹר	יֶאְסֹר	*Qal* future form without epenthetic vowel
2.	Gen 42,24	יֶאֱסֹר	יֶאֱסֹר	יֶאֱסֹר	יֶאֱסֹר	*Qal* future form with epenthetic vowel
3.	Eccl 7,18	**תֶּאֱחֹז**	**תֶּאֱחֹז**	**תֶּאֱחֹז**	**תֶּאֱחֹז**	*Qal* future form with epenthetic vowel
4.	Jer 12,13	נָחֲלוּ	נָחֲלוּ	נָחֲלוּ	נָחֲלוּ	*Qal* past form without epenthetic vowel
8.	Ex 22,25	תַּחְבֹּל	תַּחְבֹּל	תַּחְבֹּל	תַּחְבֹּל	*Qal* future form without epenthetic vowel
9.	Deut 24,6	יַחֲבֹל	יַחֲבֹל	יַחֲבֹל	יַחֲבֹל	*Qal* future form with epenthetic vowel
12.	Ps 5,12	יַעְלְצוּ	יַעְלְצוּ	יַעְלְצוּ	יַעְלְצוּ	*Qal* future form without epenthetic vowel
13.	Ps 25,2	יַעַלְצוּ	יַעַלְצוּ	יַעַלְצוּ	יַעַלְצוּ	17-18 *Qal* future form with epenthetic vowel
16.	Num 21,17	עֲנוּ	עֲנוּ	עֲנוּ	עֲנוּ	*Qal* imperative form with *seghol*
17.	Ps 147,7	**עֲנוּ**	**עֲנוּ**	**עֲנוּ**	**עֲנוּ**	*Qal* imperative form with *ḥaṭeph pataḥ* / *ḥaṭeph seghol*
18.	Ex 20,5	תָּעָבְדֵם	תָּעָבְדֵם	תָּעָבְדֵם	תָּעָבְדֵם	*Qal* future form with pronominal suffix
19.	Hag 2,16	לַחְשֹׁף	לַחְשֹׁף	לַחְשֹׁף	לַחְשֹׁף	*Qal* infinitive form without epenthetic vowel
20.	Ps 105,22	לֶאְסֹר	לֶאְסֹר	לֶאְסֹר	לֶאְסֹר	*Qal* infinitive form without epenthetic vowel
21.	Jud 15,10	לֶאֱסֹר	לֶאֱסֹר	לֶאֱסֹר	לֶאֱסֹר	*Qal* infinitive form with epenthetic vowel
22.	Ps 73,9	תִּהֲלַךְ	תִּהֲלַךְ	תִּהֲלַךְ	תִּהֲלַךְ	*Qal* future form with regular /*i*/ stem vowel

23.	Hi 20,26	תְּאָכְלֵהוּ	תְּאָכְלֵהוּ	תְּאָכְלֵהוּ	תְּאָכְלֵהוּ	*Qal* future form with pronominal suffix
24.	Lev 7,6	**יֹאכְלֶנּוּ**	**יֹאכְלֶנּוּ**	**יֹאכְלֶנּוּ**	**יֹאכְלֶנּוּ**	*Qal* future form with *ḥaṭeph* sign under non guttural
25.	Prov 1,22	תְּאַהֲבוּ	תְּאַהֲבוּ	תְּאַהֲבוּ	תְּאַהֲבוּ	165-166 *Qal* future form with epenthetic vowel under the third radical
26.	Num 24,9	**וְאֹרְרֶיךָ**	**וְאֹרְרֶיךָ**	**וְאֹרְרֶיךָ**	**וְאֹרְרֶיךָ**	*Qal* participle form with pronominal suffix
27.	Gen 27,34	בָּרְכֵנִי	בָּרְכֵנִי	בָּרְכֵנִי	בָּרְכַנִי	*Qal* past form with pronominal suffix, *ḥaṭeph* vowel under non guttural
28.	Dan 8,13	**וָאֶשְׁמְעָה**	**וָאֶשְׁמְעָה**	**וָאֶשְׁמְעָה**	**וָאֶשְׁמְעָה**	*Qal* cohortative form, epenthetic vowel *ḥaṭeph qameṣ*
29.	Jud 9,9	**הֶחָדַלְתִּי**	**הֶחָדַלְתִּי**	**הֶחָדַלְתִּי**	**הֶחָדַלְתִּי**	Interrogative ה with *qal* past form, *ḥaṭeph qameṣ* on the first radical
30.	Jes 30,33	בֹּעֲרָה	בֹּעֲרָה	בֹּעֲרָה	בֹּעֲרָה	*Qal* participle form with epenthetic vowel
31.	Jes 34,9	בֹּעֵרָה	בֹּעֵרָה	בֹּעֵרָה	בֹּעֵרָה	*Qal* participle form with long epenthetic vowel
32.	Ex 19, 2	וַיִּחַן	וַיִּחַן	וַיִּחַן	וַיִּחַן	*Qal* shortened future form with prefix vowel /*i*/
33.	Gen 18, 27	וַיַּעַן	וַיַּעַן	וַיַּעַן	וַיַּעַן	*Qal* shortened future form with prefix vowel /*a*/
34.	2 Sam 6,6	וַיאֹחֶז	וַיאֹחֶז	וַיאֹחֶז	וַיאֹחֶז	*Waw* consecutive with *qal* future form, *seghol* stem vowel
35.	1 Reg 6,10	וַיֶּאֱחֹז	וַיֶּאֱחֹז	וַיֶּאֱחֹז	וַיֶּאֱחֹז	Consecutive *waw* with *qal* future form, *ḥolem* stem vowel
36.	Ez 4,12	תֹּאכְלֶנָּה	תֹּאכְלֶנָּה	תֹּאכְלֶנָּה	תֹּאכְלֶנָּה	*Qal* future form with epenthetic vowel under a non-guttural
37.	Gen 18,21	אֵרְדָה-נָּא	אֵרְדָה-נָּא	אֵרְדָה-נָּא	אֵרְדָה-נָּא	Cohortative *qal* form with vocalic *shewa* under the *resh* due to the *deḥiq* phenomenon (see below)
38.	Ex 4,18	אֵלְכָה-נָּא	אֵלְכָה-נָּא	אֵלְכָה-נָּא	אֵלְכָה-נָּא	*Qal* cohortative form with vocalic *shewa*

39.	1 Reg 13,13	יַחְבְּשׁוּ	יַחְבְּשׁוּ	יַחְבְּשׁוּ	יַחְבְּשׁוּ	*Qal* future form without epenthetic vowel
40.	Gen 22,3	יַחֲבֹשׁוּ	יַחֲבֹשׁוּ	יַחֲבֹשׁוּ	יַחֲבֹשׁוּ	*Qal* pausal future form with epenthetic vowel
41.	Jes 44,13	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	*Pi'el* future form with pronominal suffix, epenthetic vowel *ḥaṭeph pataḥ*
42.	Jes 44,13	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	יְתָאֲרֵהוּ	*Pi'el* future form with pronominal suffix, epenthetic vowel: *ḥaṭeph qameṣ*
43.	Jes 42,21	יַאְדִּיר	יַאְדִּיר	יַאְדִּיר	יַאְדִּיר	*Hiph'il* future form without epenthetic vowel
44.	Jes 42,23	יַאֲזִין	יַאֲזִין	יַאֲזִין	יַאֲזִין	*Hiph'il* future form with epenthetic vowel
45.	Oz 7,5	הֶחֱלוּ	הֶחֱלוּ	הֶחֱלוּ	הֶחֱלוּ	*Hiph'il* past form with epenthetic vowel
46.	Hab. 1,15	הֶעֱלָה	הֶעֱלָה	הֶעֱלָה	הֶעֱלָה	*Hiph'il* past form with long vowel under the stem consonant and epenthetic vowel under the first radical
47.	Gen 50,24	הֶעֱלָה	הֶעֱלָה	הֶעֱלָה	הֶעֱלָה	*Hiph'il* past form with epenthetic vowel
48.	Ex 32,7	הֶעֱלִיתָ	הֶעֱלִיתָ	הֶעֱלִיתָ	הֶעֱלִיתָ	*Hiph'il* past form with epenthetic vowel *seghol*
49.	Ex 40,4	**וְהַעֲלִיתָ**	**וְהַעֲלִיתָ**	**וְהַעֲלִיתָ**	**וְהַעֲלִיתָ**	*Hiph'il* past form with *pataḥ* under the stem vowel and *ḥaṭeph pataḥ* under the first radical
50.	Nah 3,5	וְהַרְאֵיתִי	וְהַרְאֵיתִי	וְהַרְאֵיתִי	וְהַרְאֵיתִי	*Hiph'il* past form with *pataḥ* under the stem consonant
51.	Ps 60,5	**הִרְאֵית**	**הִרְאִיתָה**	**הִרְאִית**	**הִרְאִית**	*Hiph'il* past form with /i/ vowel under the stem consonant and in the last syllable
52.	1 Sam 20,34	נָעְצַב	נָעְצַב	נָעְצַב	נָעְצַב	*Niph'al* past form without epenthetic vowel

53.	2 Sam 19,3	נֶעֱצַב	נָעֱצַב	נָעֱצַב	נָעֱצַב	*Niph'al* past form with epenthetic vowel
54.	Ps 78,57	נֶהְפְּכוּ	נָהְפְּכוּ	נָהְפְּכוּ	נָהְפְּכוּ	*Niph'al* past form without epenthetic vowel
55.	1 Sam 4,19	**נֶהֶפְּכוּ**	**נָהֶפְּכוּ**	**נָהֶפְּכוּ**	**נָהֶפְּכוּ**	*Niph'al* past form with epenthetic vowel
56.	Jer 4,2	וְהִתְבָּרְכוּ	וְהִתְבָּרְכוּ	וְהִתְבָּרְכוּ	וְהִתְבָּרְכוּ	*Hitpa'el* future form with *waw* consecutive, the stress on *bet*, the *shewa* is silent

Table no. 3 *Examined forms from the Tiberian tradition*

3.2.1. The linguistic analysis of inconsistencies within the examined forms in the Tiberian tradition

The conducted comparison included 56 verbal forms. As can be observed, the *qal* verbs constitute a vast majority of the analysed material (40 forms), followed by the *hiph'il* stem (9), *niph'al* (4) and *pi'el* (2) and *hitpa'el* (1). In addition, most verbs contain guttural as the first radical, since in this environment most variations occur. As has already been pointed out, most of the inconsistencies result from a double nature of *shewa*, as well as from an non-uniform method of epenthesis. This section, therefore, aims at examining these phenomena, as well as an impact they might have on syllable structure.

To begin with the pattern vowel, in regular *qal* verbs, i.e. the /i/ vowel and silent *shewa*, corresponds to two basic patterns in verbs with first radical guttural. The first one involves the lowering of the vowel from /*i*/ to /*a*/ *pataḥ* or /*e*/ *seghol*, which is followed by a silent *shewa*. This is the case in forms like יֶאְסֹר (e.g. 1) 'he will forbid' or נָחֲלוּ (e.g. 4) 'they gained'. On the other hand, there is a pattern which involves the insertion of an epenthetic vowel of the same quality as the prefix vowel, e.g. תֶּאֱחֹז (e.g. 3) 'you (m.) will keep'. Such patterning of vowels brings up the question what the status of this epenthetic vowel was, why some verbs do not contain it and how it affects the syllable structure.

Various Masoretic sources indicate that vocalic *shewa* was not perceived as an independent vowel but rather as a phonological unit bound to the following consonant. This can be proved on the basis of the distribution of the allophones of *resh*, which had a uvular realization when preceded by full vowel, but when preceded by vocalic *shewa*, its realization was apico-alveolar (Khan 2013d). It can therefore be assumed that in the second form the

shewa was in the same syllable as the following *resh*. If *shewa* was unable to form a vowel nucleus and did not take part in syllabification, what was its significance? Geoffrey Khan, discussing the nature of vocalic *shewa*, introduces a division into a derivation at a 'word-level' and on a 'post-lexical' level (Khan 2013d). According to his theory, vocalic *shewa* is added at the second level, when the syllabification has already occurred at the 'word-level'. From the historical point of view, vocalic *shewa* occurs in a place where there was originally a vowel, e.g. יִשְׁמְרוּ 'they (m.) will guard' which reflects the original pattern **yaktubū*, or יִשְׁמֹר 'he will guard' deriving from the pattern **yaktubu*. In these circumstances, vocalic *shewa* serves as an epenthetic vowel breaking the consonantal cluster and does not preserve the original quality of the vowel. Consequently, one may infer that vocalic *shewa* is equal to silent *shewa* at a deeper phonological level and has the quality of zero (Khan 1991).

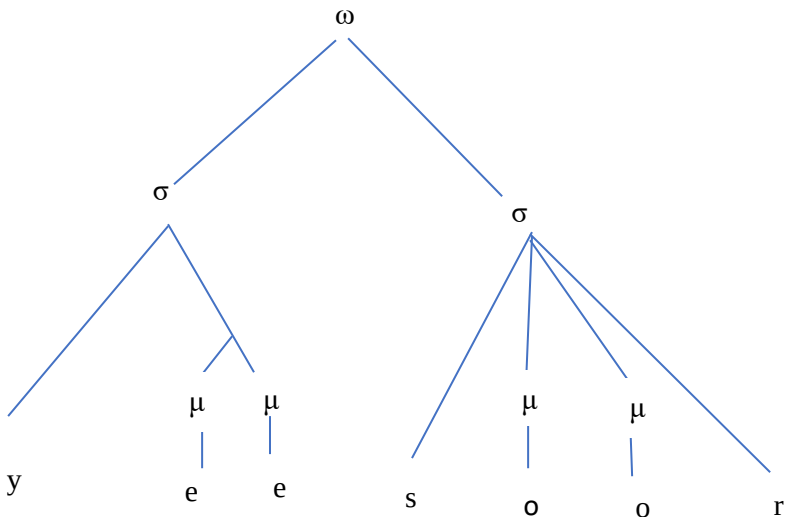
In light of these findings the analysis of the nature of the *ḥaṭeph* vowels, which at a phonetic level are equal to vocalic *shewa*, is more comprehensible. They were marked under both gutturals and, to a lesser extent, non-gutturals, where the realization of the *shewa* was less predictable to readers. Since, as has been remarked, they are equal to vocalic *shewa*, one can ask why in forms like תֶּאֱחֹז 'you (m.) will keep' *ḥaṭeph seghol* occurs in a place where normally there would be a silent *shewa*, cf. יֶאְסֹר 'he will forbid'. Interchanges between silent and vocalic *shewa* are in fact the main source of inconsistencies within the analysed material and therefore this phenomenon should be examined more closely.

In order to find a possible explanation of the aforementioned interchanges, one must take into account the prosodic structure of a word in Tiberian Hebrew. As has been observed by Khan, the syllable in Tiberian Hebrew had in principle a bimoraic structure, which means that word rhymes consisted of two moras, i.e. -VV or -CV (Khan 1992, 23-82). In his analyses of the syllable structure, Khan does not mention the vocalic *shewa*, claiming that it was added on the phonetic level (Khan 2013d). On the other hand, he takes into account the lengthening of the prefix vowel after the *ḥaṭeph* was inserted, which takes place on the phonetic level as well. Thus, the word תַּעַמְדוּ 'you (m.pl.) will stand' according to the aforementioned theory consists of two syllables, i.e. *ta:.ʕa,mðú:* with two extrasyllabic consonants between the syllables. The reason they are rejected in formation of syllable is the fact that otherwise they would violate the general rule of bimoraic syllables. Consequently, applying the method mentioned before, the analysis of the verb יֶאְסֹר *je:.só:r* would be as follows:

ω – word

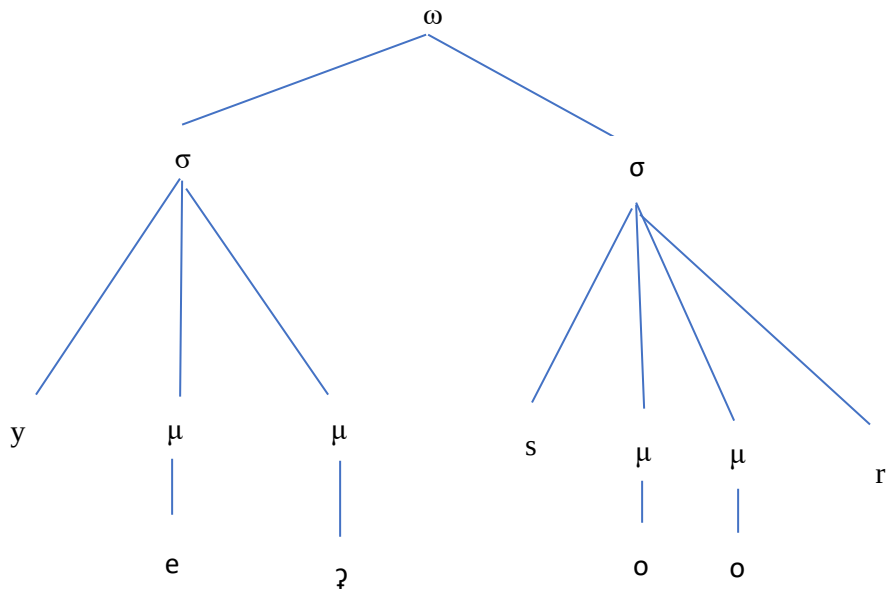
σ – syllable

μ - mora



Graph no. 3 *Moraic structure no. 1*

As can be observed, the analysis of the underlying prosodic structure depicts the lengthening of the prefix vowel after the silent *shewa* had developed into a *ḥaṭeph* and the syllable was no longer closed. In addition, the onset of the first syllable was not regarded as a mora, the same applying to the onset and the coda of the second syllable. Consequently, in both syllables the nucleus is long and consists of two moras. Neither an epenthetic vowel nor the guttural was included in this analysis. This does not answer the question why in some verbs there is an interchange between the silent and vocalic *shewa*. However, let us consider a theoretical scheme of this verb in its original form and with the guttural included in the analysis as a prosodic unit, which has its representation on the underlying level:

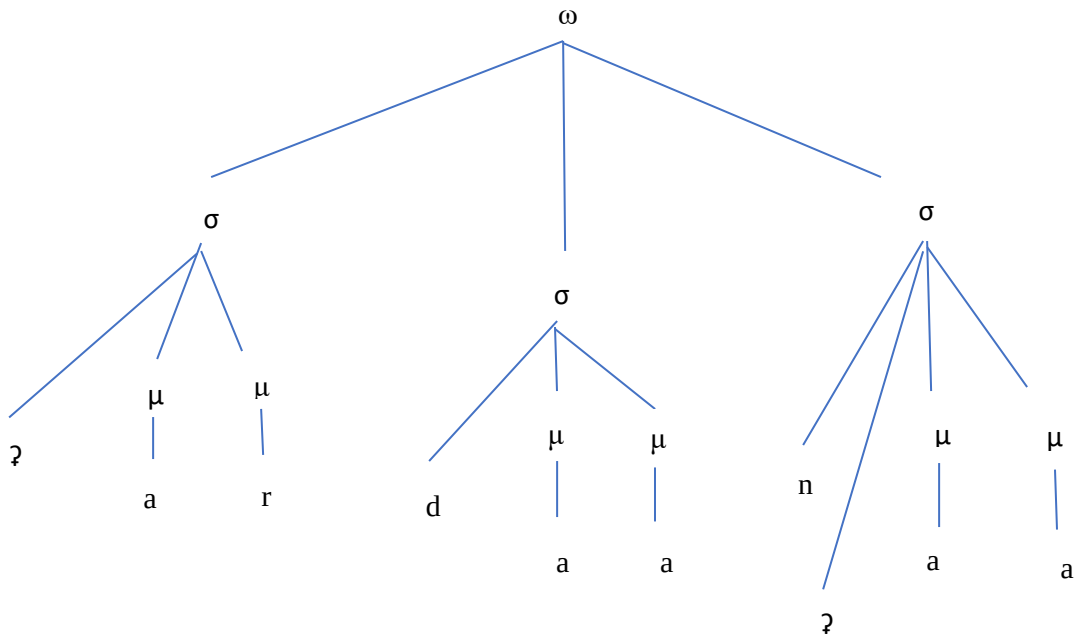


Graph no. 4 *Moraic structure no. 2*

The proposed analysis demonstrates the syllabification of the verb in question, taking into account the consonantal character of the *alef*. As can be observed, the first syllable is bimoraic and has a CVC structure. The vowel nucleus is short, since the syllable is closed by the silent *shewa* and is unstressed. The coda of the first syllable is regarded as a mora and together with the nucleus it forms the rhyme of the syllable. The second syllable contains long vowel nucleus because of the stress it carries. The onset of the syllable, as well as its coda are not regarded as moras. In this state of affairs, the silent *shewa* is inserted after the second mora of the first syllable in order the mark the syllable division. Let us recall that over the time the gutturals were becoming weaker and *alef* was the first to lose its consonantal realization. As a result, the second mora of the first syllable was missing and the general rule of bimoraic structure was violated. Therefore, the shift from a silent to vocalic *shewa* reflects the tendency to produce a substitutional vowel which would fill in the gap created after the weakening of the gutturals. The new structure comprising of a *ḥaṭeph* vowel would therefore be as follows: CVV-CVC. On the prosodic level, the first syllable consists of a consonantal onset and bimoraic nucleus (two short vowels), while the nucleus of the second syllable consists of one long vowel, which has the weight of two moras. Consequently, it can assumed, that the insertion of an epenthetic vowel was a way to preserve the bimoraic structure of a syllable, while the interchanges of silent and vocalic *shewa* reflect the transitional status of the gutturals. Forms with silent *shewa* under the first guttural would in fact be vestiges of the moraic character of the gutturals.

Another category which demonstrates some inconsistencies and needs to be examined more closely comprises verbs with *shewa* under a second radical. This is particularly common in the case of the following roots גר"ש, בר"ך, יר"ד, הל"ך, אכ"ל. According to the Masoretic sources, these verbs, presumably due to their high occurrence rate, required a special treatment (Khan 2013f, 101). Some accurate rules had been established as to how to determine the character of a *shewa* in these verbs (Dotan 1997, 464-466). Thus, in the forms deriving from the roots גר"ש and אכ"ל, the *shewa* on the medial radical is vocalic when there is a *seghol* under the following consonant, e.g. תֹּאכֶלְנָּה (e.g. 36) ‘you (pl. f.) will eat’. By contrast, in forms from the root בר"ך the *shewa* on the medial radical is vocalic when the stress is on *kaf*, like in בָּרַכֵנִי (e.g. 27) ‘he blessed me’, otherwise, when the accent is on *bet* it is silent, e.g. הִתְבָּרְכוּ בוֹ (e.g. 56) ‘they blessed themselves in him’. Apparently, the motivation for inserting the *ḥaṭeph pataḥ* in the former was to indicate that the *shewa* was

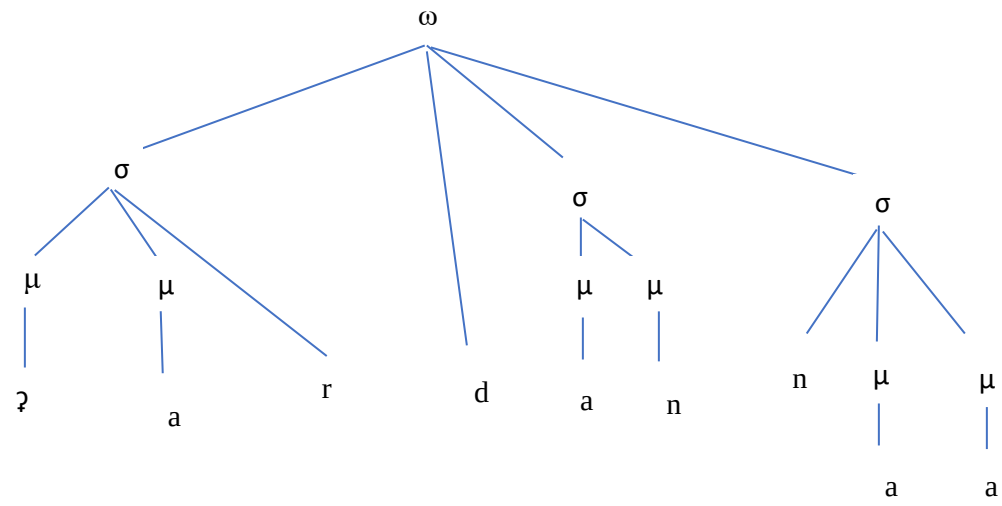
vocalic. In addition, this phenomenon constitutes strong evidence that the quality of the vocalic *shewa* in Tiberian Hebrew was /*a*/ (Khan 2013d). The distribution of the vocalic *shewa* in the forms of the two last roots is related to the phenomenon of *deḥiq*, according to which, the first consonant of a word or a clitic stressed on the first syllable is geminated when the rhyme of the last syllable of the preceding word contains a *seghol* or *qameṣ* (cf. Blau 2010, 123). Thus, in forms followed by the particle נָא with *dagesh*, on the medial radical there is a vocalic *shewa*, e.g. אֵרְדָה-נָּא (e.g. 37) 'I shall go down'. From the prosodic point of view, one may ask what the length of the *qameṣ* is as the final syllable of the first word is not stressed. According to a grammatical Karaite treatise *Hidāyat al-Qārīʾ*, the *qameṣ* in this syllable is 'considerably compressed' (Khan 2013f, 77). The *dagesh* in the following word, therefore, seems to represent the compensation for the deficiency in timing created after the retraction of the stress. A possible analysis of the underlying level of the word without the phenomenon of *deḥiq* can be demonstrated as follows:



Graph no. 5 *Moraic structure no. 3*

As can be observed, the word consists of three syllables, each segment is bimoraic, i.e. CVC-CVV-CVV. In the second and in the third syllable there is a long vowel nucleus which results in two moras. According to the rules of *deḥiq,* the vowel nucleus of the second syllable is compressed so the principle of bimoraic structure is violated. By contrast, the first syllable becomes ultraheavy due to the retraction of the stress. As a result, it contains an

unusual number of three moras. In order to enable the restoration of the bimoraic structure, the *nun* will be geminated, while the coda of the first syllable will be regarded as extrasyllabic. The underlying level of the new CVC-CVC-CVV form, can be possibly depicted as follows:



Graph no. 6 *Moraic structure no. 4*

Some other group of verbs present inconsistencies within the quality of an epenthetic vowel. In Is 44,33 one finds two identical forms with different punctuation, i.e. יְתָאֲרֵהוּ and יְתָאֲרֵהוּ (e.g. 41 and 42) 'they will describe him'. The first one is a regular form with *qameṣ* being the result of a compensatory lengthening and *ḥaṭeph pataḥ* which emerged after the stress had moved to the last syllable. When it comes to the second form, the most satisfactory explanation is that *ḥaṭeph qameṣ* resulted from the assimilation of the epenthetic vowel to the quality of the preceding vowel. There are, however, some forms in which a peculiar way of vocalization is difficult to explain. For instance, on the first radical of the verb הֶחֱדַלְתִּי (e.g. 29) 'did I stop' found in Jud 9,9 where there is *ḥaṭeph qameṣ* and not *qameṣ* as expected. In fact, there is no morphophonological motivation for inserting a vocalic *shewa* in this environment. The preceding interrogative *hey* does not affect in any way the guttural consonant of the verb, neither does a stress shift occur.

On the other hand, some *hiph'il* forms present variations within the vocalization of a vowel before the guttural, which, presumably, result from the uncertain status of the gutturals, i.e. some of them were perceived as regular consonants which did not require the lowering of a vowel. Thus, beside a form with *pataḥ* as וְהַרְאֵיתִי 'and I showed', one also finds הִרְאִיתִי, which has *ḥireq* not only on *hey*, but also on *alef*. Some other interchanges, however,

involve both a different quality of an epenthetic vowel on the first guttural and a different quality of the vowel of the *hey* of the stem . This is the case in הֵעָלָה 'he raised' where the initial *ṣere* is apparently a graphic representation of the quality shift of the /*e*/ vowel, which in regular form is represented by *seghol*.

To sum up, most of the analysed inconsistencies occur in the environment of the first radical guttural. Apart from the forms which have particularly peculiar vocalization and no plausible explanation could as yet be proposed, most of the forms involve interchanges between silent and vocalic *shewa* and hence the phenomenon of epenthesis. The proposed analysis of a syllable structure has demonstrated that the insertion of an epenthetic vowels was, in fact, a way to fill the moraic gap which emerged after the gutturals had lost their consonantal properties.

3.3. General notes on the gutturals in Babylonian Hebrew

Some features of the gutturals in Babylonian are identical with the Tiberian ones; however, especially in word-internal position, the Babylonian gutturals exhibit some differences. It is of particular importance to stress, that the corpus of manuscripts with Babylonian vocalization is very diversified and comprises documents from different historical periods. Consequently, the pronunciation reflected in these documents is also diverse. The gutturals are no exception to this; particularly in later manuscripts, they were vocalized according to the Tiberian method which had become the normative one. Thus, only the original Babylonian features should be presented here.

One of the properties of the gutturals which Babylonian and Tiberian Hebrew have in common is the lack of gemination. As observed by Yeivin, a Babylonian vowel before a guttural which was supposed to be geminated, is changing, i.e. *ḥireq* turns into *ṣere*, *ḥolem* into *shureq* and *pataḥ* into *qameṣ* (Yeivin 1985, 283). However, especially in the case of *pataḥ*, there are numerous deviations from this rule and no representation of the lengthening can be found in writing, e.g. *pataḥ* in a word מְטַהֲרִים 'they purify' apparently should be regarded as long and the following *shewa* as vocalic. Moreover, the quality of a vowel depends also on the guttural, since before ר there almost always stands *qameṣ*, before א and ע sometimes there is *qameṣ* but sometimes *pataḥ*, while before ה and ח by principle there is *pataḥ*.

By contrary, the vocalization of the verbal forms with the first radical guttural is different from the one found in Tiberian. Thus, ה and ח are treated like regular consonants

and do not require the lowering of a vowel. As a result of this, the prefix vowel of the future forms is *ḥireq*, e.g. יִהַרֹג 'he will kill'. In the case of ע and א, where in Tiberian *ḥaṭeph* sign would occur, in Babylonian there is a *shewa* sign on the prefix and a vowel sign on the guttural, e.g. תְּעַבֹר 'you (m.) will pass'. According to Geoffrey Khan, this structure reflects in fact two short vowels in the first syllable *taa.vōr* (Khan 2013d). In the Tiberian tradition, on the contrary, the prefix vowel is lengthened, as it is no longer in a closed unstressed syllable, cf. תַּעֲבוֹר.

We could say, thus, that Babylonian tradition demonstrates some differences from the Tiberian Hebrew, which predominantly occur in the initial syllable of the word. This affects the syllabification and, consequently, the prosodic structure of the verb.

3.4. The analysis of selected forms from the Babylonian tradition

The table presented below contains selected verbal forms which attest some level of inconsistency. As has been already pointed out, finding an accurate analogy to the forms included in the first part of this chapter turned out to be impossible. Babylonian Hebrew, especially of the Old and Middle phases, has its own phonological system and therefore variations occur within different morphophonological categories. In addition, the vocalization of Late Babylonian was harmonized with Tiberian tradition, thus, the pronunciation represented does not reflect the original Babylonian Hebrew. Consequently, only forms which differ from the Tiberian tradition and present some level of internal inconsistency have been examined. The collected material consists of 71 forms, which clearly indicate that most of the inconsistencies appear in the stem *qal* with the first radical guttural.

	Occurrence[23]	**Form**	**Group**
1.	אב 10, יח לד, כא	תְּהִדְּפוּ	*Qal* future form, ה first radical, *ḥireq* under the prefix
2.	אג 1, תה צד, ו	יְהִרְגוּ	*Qal* future form, ה first radical, *ḥireq* under the prefix
3.	אג 4, איוב ה,ב	יְהָרֹג	*Qal* future form, ה first radical, no gemination in the second one
4.	אג 1, איוב יב, טו	וְיַהֲפָכוּ	Consecutive *waw* with *qal* future form, ה first radical, no gemination in the second one.
5.	אז 1, איוב יד,ז	תַּחֲדָל	*Qal* future form, ח first radical, gemination in the second one.

[23] The occurrences of the selected forms follow the work of Yeivin (Yeivin, 1985).

6.	אב 5, שו' טו,ז	אַחבֹל	*Qal* future form, ח first radical, no gemination in the second one.
7.	אא 12, דב כח	תְאֱסֹף	*Qal* future form, א first radical, additional vowel inserted.
8.	אב 10, מי ב, בי	אֱאֱסֹף	*Qal* future form, א first radical, additional vowel inserted
9.	אא 11, כב 55	יְאֹרְכוּ	*Qal* future form, א first radical, additional vowel other than *ṣere*
10.	במע.מא 8, שמ' יד,ו	וַיֶאֱסֹר	Consecutive *waw* with *qal* future form, א first radical, the phenomenon of *ḥaṭeph-ṣere*
11.	במע, יר כ,ד	וַיֵאָסְפוּ	Consecutive *waw* with *qal* future form, א first radical, long *ṣere*
12.	בצ.אג 66	וַתַעֲזֹבי	Consecutive *waw* with *qal* future form, ע first radical, the original /o/ vowel is retained
13.	אא 12, דב' י,כ	תְעַבֹד	*Qal* future form, ע first radical, the original /o/ vowel is retained
14.	אב 10, יש' מח,יג	יַעַמדו	*Qal* future form, ע first radical, the two initial vowels are short
15.	אב 5, שמ"א ט,כז	וַיַעבֹר	Consecutive *waw* with *qal* future form, ע first radical, normal behaviour of the verb when *waw* added
16.	אג 1, איוב לד,כ	וַיְעַבֹדוּ	Consecutive *waw* with *qal* future form, ע first radical, retraction of the initial /i/ vowel
17.	אא 5, במ' יח,כג,כד	יִנחָלוּ	*Qal* future form, ח second radical, lack of an epenthetic vowel
18.	אב 10, יר' ו,יט	יְמַחֲאוּ	*Qal* future form, ח second radical, an epenthetic vowel inserted
19.	אב 5, שו' יח,טו	וַישאֲלוּ	Consecutive *waw* with *qal* future form, א second radical, an epenthetic vowel inserted
20.	אג 1, תה' קו,כד	וַיִמאֲסוּ	Consecutive *waw* with *qal* future form, א second radical, *ḥireq* as epenthetic vowel
21.	בב.אב 22	יִשַעֲרוּ	*Qal* future form, ע second radical, *pataḥ* as an epenthetic vowel
22.	במע.מג 5, מש' כז,ב1	תִשבַעֲנָה	*Qal* future form, ע third radical, an epenthetic vowel inserted
23.	אג 1, דה"ב יח,לג	הְפֹך	*Qal* imperative form with first radical ה, *shewa* under the first radical
24.	אג, 1, איוב מ,יב	וחַתֹך	*Qal* imperative form with first radical ח, epenthetic vowel
25.	אג 2, תה' יט,יד	חְשוֹך	*Qal* imperative form with first radical ח, *shewa* under the first radical

26.	במע.מג 1, איוב מ,יג	חְשֹׁב	*Qal* imperative form with first radical ה, epenthetic vowel
27.	במצ.מב 13, יש'	חֲשֹׁפִי	*Qal* imperative form, ח first radical, the phenomenon of *ḥaṭeph hireq*
28.	במצ.מב 13, יש' מז.ב	חֳשָׂפִי	*Qal* imperative form, ח first radical, *seghol* as a derivative vowel
29.	אב 10, שמ"ב יב,כח	אֲסֹף	*Qal* imperative form, א first radical, *ṣere* under the first radical
30.	במצ.מג 1, תה' לה,ג	אֱמֹר	*Qal* imperative form, א first radical, the phenomenon of *ḥaṭeph ṣere*
31.	במע,מג 53, רות ג,טו	וְאֳחֲזִי	*Qal* imperative form, א first radical, *seghol* under the first radical
32.	ספרא, 16ט	אְכוֹל	*Qal* imperative form, א first radical, *shewa* under the first radical
33.	בב.אב 22, יר' מח, יט	אִמְרִי	*Qal* imperative form, א first radical, *ḥireq* under the first radical
34.	אב 10, יח' ב,א	עַמּוֹד	*Qal* imperative form, ע first radical, *pataḥ* under the first radical
35.	מס 36, יש' מז,יב	עִמְדִי	*Qal* imperative form, ע first radical, *ḥireq* under the first radical and additional *ḥolem* after the second one
36.	בב.אב 80, נח' ב,ט	עְמוֹד	*Qal* imperative form, ע first radical, *shewa* under the first radical
37.	מס 12, דב' לג,יא	מחַץ	*Qal* imperative form, ח second radical, *pataḥ* under the second radical
38.	אב 10, זכ' י,א	מַחְצוּ	*Qal* imperative form, ח second radical, *pataḥ* under the first radical
39.	במע.מא 2, בצ.אא 73, בר' יח,ד	רַחְצוֹ	*Qal* imperative form with pronominal 60uffix, ח second radical, *pataḥ* under the first radical
40.	אג, 4, איוב ו,כב	שֻׁחְדוּ	*Qal* imperative plural form, ח second radical, *ṣere* under the first radical
41.	אג 1, מש' ט,ה	לְחֹמוּ	*Qal* imperative plural form, ח second radical, *ḥolem* under the first radical
42.	אב 5, שמ"א	נְהפַכְתָּ	*Niph῾al* regular past form, ה first radical
43.	מא 54, דב', שם	נֶאֱמָן	*Niph῾al* past form, א first radical, *ṣere* under the *nun* of the stem

44.	אב 68, יח' כו,יח	וְנִבַּהֲלוּ	Consecutive *waw* with *niph'al* past form , ה second radical, an epenthetic vowel inserted
45.	במע.מא 21, בר' מב,יט	יֵאָסֵף	*Niph'al* future form, א first radical, *ṣere* under the prefix
46.	אב 10, שמ"ב יב,טו	יִאָנֵש	*Niph'al* future form, א first radical, *ḥireq* under the prefix
47.	אג 4, דה"ב ה,ג	וַיִּקָּהֲלוּ	Consecutive *waw* with *niph'al* regular past form , ה second radical
48.	אב 10, יר' טז	וַיִּקָּרַח	Consecutive *waw* with *niph'al* future form , ח third radical
49.	שא 4, 4ב	יִבָּקַע	*Niph'al* future form, ע third radical, lack of *pataḥ furtivum*
50.	אב 5, שמ"א ג,יח	כֵּחַד	*Pi'el* past form, ח second radical, compensatory lengthening
51.	שז וי' יד,מח	טִיהַר	*Pi'el* past form, ה second radical, lack of compensatory lengthening
52.	בב.אא 7, שמ' מ,טו	כֵּהֲנוּ	*Pi'el* past form, ה second radical, *shewa* under the second radical
53.	אב 5, שמ"א יג,ב	שִׁלַּח	*Pi'el* past form, ח third radical, lack of *pataḥ furtivum*
54.	אב 10, יר' ז,יח	מְבַעֲרִים	*Pi'el* participle form, ע second radical, double *pataḥ*
55.	אב 3, שו' ב,ג	אֵגָרֵשׁ	*Pi'el* future form, ר second radical, compensatory lengthening
56.	אב 7, שמ"א כח,כג	יְאָמֵן	*Pi'el* future form, א second radical, compensatory lengthening
57.	בב.אג 22, תה' עד,י	יְנַאֵץ	*Pi'el* future form, א second radical, lack of compensatory lengthening
58.	דב' כג,כב	תְּאַחַר	*Pi'el* future form, ח second radical, *resh* which requires *pataḥ* instead of *ṣere*.
59.	אב 5, שמ"א ג,יז	תְּכַחֵד	*Pi'el* future form, ח second radical, *ṣere* under the second radical, lack of compensatory lengthening
60.	אג 4, איוב ז,יד	תְּבַעֲתַנִּי	*Pi'el* future form woth suffix pronoun, ע second radical, lack of compensatory lengthening, *ḥaṭeph pataḥ* under the second radical
61.	אא 5, בר' כב, יח	הִתְבָּרְכוּ	*Hitpa'el* past form, ר third radical, *qames* before *resh*
62.	בצ.אג 113, דנ' יא,מ	יִתְמָעֲטוּ	*Hitpa'el* future form, ע second radical, the phenomenon of compensatory lengthening
63.	במצ, להלן, 8	אתנעד	*Hitpa'el* future form, ע second radical, lack of compensatory lengthening

64.	אא 9, וי' יד,כט	הִמטַהֵר	*Hitpa'el* past form, ה second radical, lack of compensatory lengthening
65.	אב 2, שמ"א ז,ט	הִחְזִיק	*Hiph'il* regular past form, ח first radical, *ḥireq* under the stem consonant
66.	במצ.ה2, קיד' א,ו	הֶחְלִיף	*Hiph'il* past form, ח first radical, *shewa* under the stem consonant, the phenomenon of *ḥaṭeph ḥireq*
67.	במצ.מב 52, מי' ז,יח	הֶחֱזִיק	*Hiph'il* past form, ח first radical, *ṣere* under the stem consonant, the phenomenon of *ḥaṭeph ṣere*
68.	בב.אב 22, יר' כה	הַאֲבַדתִי	*Hiph'il* past form, א first radical, *pataḥ* under both the consonant of the stem and the first radical, reflection of the original */a/* vowel
69.	אג 1, בב.אג 14, דה"ב כד,יט	הֶאֱזִין	*Hiph'il* past form, א first radical, reflection of the original /i/ vowel
70.	אג 1, איוב כט,כד	יְאַמִינו	*Hiph'il* future form, א first radical, *shewa* instead of *pataḥ* under the prefix
71.	בב.אג 22, תה' קלו, יד	הֶעְבִיר	*Hiph'il* past form, ע first radical, *ḥireq* under the stem *hey* and the first radical

Table no. 4 *Examined forms from the Babylonian tradition*

3.4.1. *Qal* forms

When the first radical is ה, it almost does not affect the vocalization, thus, the suffix is vocalized with *ḥireq* and *hey* with *shewa*. However, when the second radical belongs to the בגדכפת group, it is always geminated. Usually the prefix is vocalized with *ḥireq*, only in one case there is a *pataḥ* (Yeivin 1985, 454). By contrast, in the Tiberian tradition the prefix, which normally is vocalized with *pataḥ*, receives *seghol* and reflects the original /i/ vowel, cf.: יְהַרְסוּ < יַהֲרֹסוּ 'they will destroy'.

Regarding ח, as in the previous case, this letter was not perceived as a guttural and as such usually receives the quiescent *shewa*, while the vowel of the prefix is *pataḥ* or *ḥireq*. Currently no explanation of these interchanges could be proposed, even though their number is quite high. The only rule which can be established on the basis of the present analysis is that when the prefix is followed by two consonants with *shewa*, it always receives the *ḥireq*. This can be contrasted with the Tiberian vocalization, where variations appear not with regard to the vowel of the prefix, but with regard to the vowel of the first radical. Thus,

whereas in the Babylonian tradition the prefix normally has a zero vowel, in Tiberian one the prefix was lengthened to the quality of *ḥaṭeph*.[24]

As opposed to the default form, in which the prefix bears *ḥireq* while the first radical is vocalized with *shewa*, in forms with א as the first radical, an additional *ḥireq* emerges after the first radical. It then turns into *ṣere*, while the prefix is vocalized with *shewa* or has no sign, i.e. וַיֶאֱסְפוּ 'and they collected'. The only exception to this rule is the first singular form, in which both prefix and first radical are vocalized with *ṣere*. In some cases, however, the *ṣere* interchanges with *ḥolem*, c.f. יְאֹרְכוּ (e.g. 9) 'they were lengthened' or with *ḥaṭeph ṣere*, like in וַיֶאֱסֹר (e.g. 10) 'and he will forbid'. As has been pointed out by Yeivin, there is an inconsistency with regard to the length of these vowels (Yeivin 1985, 460). Since every marked *shewa* is vocalic, the *ṣere* is these forms is long, while in a regular form יַעַמְדוּ (e.g. 14) 'you (m.) will stand' both vowels are short. One of the possible explanations is that the vowel coming after א, which was originally short in Old Babylonian was lengthened in Middle Babylonian, but due the tradition of copying, its graphic form was not changed (Yeivin 1985, 460).

In most cases with first radical ע the original /o/ vowel is retained even when the stress in placed on the last syllable, like in וַתַּעֲזֹבִי (e.g. 12) 'and you (f.sg.) will leave'. The variations occur mostly within the first syllable, where the prefix is vocalized with *shewa*, while after the first radical there is a *pataḥ*. Thus, when ו precedes the form with initial *yod*, this *yod* is vocalized with *ḥireq* and not with *shewa*, like in וְיִעֲבְדוּ (e.g. 16) 'and they (m.) will work'. However, there are some forms in which the original vowel, i.e. *pataḥ* was retained, e.g. וַיַעבֹר (e.g. 15) 'and he will work'.

When the second radical is a guttural, the prefix is vocalized with *ḥireq* and the guttural receives *pataḥ*. However, when in the position of the second guttural there is ח, an epenthetic vowel appears, in most cases with the quality of *pataḥ*, like in יְמַחֲאוּ (e.g. 18) 'they will clap'. However, some level of inconsistency is attested within this verbal class, since some verbs do not contain an epenthetic vowel, e.g. יִנחֲלוּ (e.g. 17) 'they will gain'. Contrary to this, when the second radical is א it is always vocalized with *pataḥ*, e.g. וְיִשאֲלוּ (e.g. 19) 'and they will ask', but even within this group some verbs have a quasi-epenthetic vowel

[24] It is worth mentioning that also an opposite tendency exists, i.e. *seghol* in the *yqtol* forms and *pataḥ* in the *yiqtelu* forms, יַחֲדְלוּ < יֶחֱדַל, vid. Yeivin 1985, 458.

ḥireq, e.g. וְיִמְאְסוּ (e.g. 20) 'and they will be fed up'.[25] A similar epenthetic vowel appears in the case of verbs with ע as the second radical, e.g. יְשַׁעְרוּ (e.g. 21) 'they will suppose'. In this case, however, *pataḥ* is indeed an epenthetic vowel which comes to break the cluster of double *shewa'im*. The same tendency towards epenthesis within the pattern אפעל can observed while the third radical is a guttural, e.g. תִּשְׁבַּעֲנָה (e.g. 22) 'they (f. pl.) will swear'.

When it comes to imperative forms, its regular type without gutturals follows almost the same patterns as the Tiberian tradition. However, some fluctuations occur when one of the radicals of a verb is a guttural.

When ה is the first radical of the root, it is normally vocalized with *shewa*, like in הְפֹךְ (e.g. 23) 'turn over (m.sg.)!', but when ו is added it receives *pataḥ*, e.g. וַחֲתֹךְ 'cut (m.sg.)!' (e.g. 24). A similar alternation applies to ח, which is sometimes vocalized with *shewa* and sometimes with *ḥireq*, e.g. חְשׂוֹב < חְשֹׂךְ (e.g. 25 and 26) 'withhold (m.sg.)!'. In the plural forms one further finds some cases of the phenomenon of *ḥaṭeph ḥireq* which phonologically corresponds with the short vowel (*shewa*) of the form of the singular. It consists of the sign of *shewa* and *ḥireq* and in most cases appears in the imperative forms of the feminine singular and plural. Its occurrence in the forms like חֶשְׂפִּי (e.g. 27) 'expose (f.sg.)!' can be explained as the effect of the assimilation to the suffix. Thus, the initial *ḥireq* was shortened to the original vowel with quality of /*i*/ which apparently gave rise to the *seghol* in the later form חֶשְׂפִּי (e.g. 28).

The vocalization of the imperative forms of the masculine singular with א as the first radical varied over time. Thus, in older manuscripts it is usually vocalized with *ṣere*, e.g. אֱסֹף (e.g. 29) 'collect (m.sg.)!' while in some other manuscripts containing compound vocalization, it has the sign of *ḥaṭeph ṣere*, i.e. אֱמֹר (e.g. 30) 'tell (m.sg.)!'. On the contrary, א in parallel forms in earlier manuscripts is vocalized with *shewa*, like in אְכוֹל (e.g. 32) 'eat (m.sg.)!'. When it comes to the forms of feminine singular, some verbs are vocalized with *ṣere*, i.e. וַאֲחֵזִי (e.g. 31) 'and you (f.sg.) should keep', which corresponds to the Tiberian form וְאֶחֱזִי (Ruth 3,15), while other forms have *ḥireq* in this place, like in אִמְרִי 'tell (f.sg.)!'. Similarly, in the plural forms א receives *ḥireq*, while the second radical has *shewa*, i.e. אִמְרוּ (e.g. 33) '(f.sg.) tell!' Almost the same rules apply to the forms of the imperative with the first ע, masculine forms of the singular are usually vocalized with *pataḥ*, while the feminine

[25] It is rather unlikely that *ḥireq* in this environment serves as an epenthetic vowel, since there are no two *shewa'im* one after another, cf. Yeivin 1985, 468.

forms receive *ḥireq* and additional *ḥolem* after the second radical, עִמְּדִי < עֲמֹד (e.g. 34 and 35) ‘stand (m.sg.)!’ > ‘stand (f.sg.)!’ However, some masculine forms are vocalized with *shewa* instead of *pataḥ*, e.g. עְמוֹד (e.g. 36). Such a way of vocalization is found mostly in the Middle and Late Babylonian period and therefore one may infer that ע with the passage of time was losing its guttural character and was treated as a regular consonant (cf. Yeivin 1985, 483).

In imperative forms with the second radical guttural ה or ח are usually vocalized with *pataḥ*. It is worth noting, however, that in the Late Babylonian period some forms containing ח were vocalized with *shewa* instead of *pataḥ*, which might be the attestation of the same process as mentioned above, e.g. מַחְצוּ < מְחַץ (e.g. 37 and 38) ‘crush (m.sg.)!’ > ‘crush (m.pl.)!’. Remarkable differences occur, paradoxically, with the first radical, which in Old Babylonian has three variants of vocalization. Namely, it can receive either *pataḥ*, like in רַחְצוֹ (e.g. 39) ‘wash him (m.sg.)!’ or *ṣere*, e.g. שֵׁחְדוּ (e.g. 40) ‘bribe (m.pl.)!’ or *ḥolem* like in לֹחמוּ (e.g. 41) ‘fight (m.pl.)!’. The first two forms reflect, in fact, the original /i/ vowel of the pattern קְטָלוּ, while the third one is apparently a vestige of the original /u/ vowel, i.e. the קֻטָלוּ pattern.

3.4.2. *Niph'al* forms

Compare to the Tiberian vocalization, verb past forms of *niph'al* in the Babylonian tradition present quite different tendencies. The occurrence of gutturals in the position of the first radical does not bring about any significant changes in the quality of the vowel; therefore, in most cases when the first radical is ח or ה the prefix is vocalized with *ḥireq*, like the regular form, i.e. נְהפְּכָת (e.g. 42) ‘she turns over’. Some fluctuation appears, however, when the first radical is א, then the prefix is vocalized either with *pataḥ*, or with *ṣere*, corresponding to the original /i/ vowel, e.g. נַאֱמָן (e.g. 43) ‘trustful’. One may infer that the sign under א is a *ḥaṭeph*, which in some forms interchanges with *shewa* and corresponds to the Tiberian *ḥaṭeph seghol*, i.e. נֶאֱמָן. Similar rules are applicable in the case of first radical ע, i.e. the prefix is vocalized with *shewa*, while the first radical receives *pataḥ*, i.e. נְעַ or *shewa/ḥireq*, i.e. נְעָ/נְעִ. In the plural forms with the guttural as the second radical which normally would have two *shewa'im*, i.e.* נְקְהָלוּ ‘they assembled’, there is an epenthetic vowel inserted under the first radical, e.g. ונְבַהלוּ (e.g. 44) ‘and they were frightened’. Comparing to the Tiberian vocalization, no deviations occur when a guttural is the last radical (Yeivin 1985, 504).

Some inconsistencies can be observed within the future forms of *niph'al* with the first radical guttural. Most of the verbal forms repeat the same pattern as in the Tiberian tradition, i.e. the prefix is vocalized with *ṣere*, like in יֵאָסֵף (e.g. 45) 'he will collect'. Here the initial vowel is a result of the impossible gemination of the first radical, which as a guttural cannot be geminated and thus brings about the lengthening of the preceding vowel. Apart from these forms, there are some in which the first guttural does not seem to require any special treatment and the initial *ḥireq* of the prefix remains unchanged, e.g. וְיִאָנֵשׁ (e.g. 46) 'and he will be punished'. Also in the verbal forms with the guttural in the second position in the root it is vocalized as a regular consonant, e.g. ויקָהֲלוּ (e.g. 47) 'and they assembled'. Such neutral status of the gutturals as in the latter case is further confirmed by their vocalization when in the third position in the root, e.g. וַיִּקָּרַח (e.g. 48) 'and he became bald', as opposed to the Tiberian יִקָּרֵחַ. Moreover, in the pausal forms *pataḥ* shifts into *ṣere*, e.g. יִבָּקֵּע (e.g. 49) 'he will split'. As can be seen, in the Babylonian tradition there is no additional vowel before the third radical, and therefore one may infer that the pronunciation of the gutturals was not the same as in Tiberian.

3.4.3. *Pi'el* forms

When the second radical is guttural, in most cases the first radical is vocalized with *ṣere*, while the second guttural receives *pataḥ*, e.g. כֵּחַד (e.g. 50) 'he withheld details'. In some later sources, e.g. Sifra, the first radical is vocalized with *ḥireq* as in regular verbs, i.e. טִיהֵר (e.g. 51) 'he purified' (Yeivin 1985, 516). In turn, in the plural forms of the past tense with the second radical guttural, which in Tiberian Hebrew are normally vocalized with *ḥaṭeph pataḥ*, there is *ṣere* under the first radical and *shewa* under the second one, i.e. כֵּהֲנוּ (e.g. 52) 'they served as a priests'. Similarly to some *niph'al* forms, in case of verbs with the third radical guttural, no additional vowel can be found, i.e. שִׁלַּח (e.g. 53) 'he sent'. Forms of the participle are almost identical to those in the Tiberian tradition, with only few exceptions. Namely, in the plural forms the guttural is vocalized with *pataḥ* and not with vocalic *shewa*, i.e. מְבַעֲרִים (e.g. 54) 'they exterminate'. Future forms present almost the same tendencies as Tiberian Hebrew, i.e. when the second radical is ח or ה the first consonant is vocalized with *pataḥ*. On the other hand, when the second radical is ר, the preceding vowel is lengthened from *pataḥ* to *qameṣ*, e.g. אֲגָרֵשׁ (e.g. 55) 'I will expel'. In the case of ע and א there is some level of inconsistency, e.g. יְאַמֵּן (e.g. 56) 'he will train', but יְנַאֵץ (e.g. 57) 'he

will abuse'.[26] Such a discrepancy can be explained by the fact that א had a transitional status and was not always treated as a guttural. In addition, an interesting phenomenon can be observed when second radical ח is followed by ר. In such cases, both consonants are vocalized with *pataḥ*, contrary to every other consonant which follows ח in these forms, e.g. תְּאַחֵר (e.g. 58) 'you (m.sg.) will be late' vs. תְּכַחֵד (e.g. 59) 'you (m.sg.) will withhold details'. When a suffix pronoun is added to a future form, the second radical guttural, which normally would be vocalized with *pataḥ* or *seghol*, receives *shewa*. However, various fluctuations occur within the punctuations of these forms. A good example is the form תְּבַעֲתַנִּי (e.g. 60) 'you (m.sg.) will prosecute me' which in the manuscripts of the Babylonian tradition is found with three different versions: תְּבַעֲתֵנִי, תְּבַעֲתֶנִּי and תְּבַעֲתַנִּי (cf. Yeivin 1985, 531).

Neither the future forms nor the *pu'al* forms demonstrate any deviations and in the majority of cases are identical to the Tiberian tradition.

3.4.4. *Hitpa'el* forms

Some inconsistencies within this stem reflect almost the same tendencies as *pi'el*, i.e. the first radical before ר and א is vocalized with *qameṣ*, e.g. וְהִתְבָּרְכוּ 'and they were blessed' (e.g. 61). The status of ע is not completely clear, since sometimes its occurrence brings about the lengthening of the vowel of the first radical, like in יִתְמָעֲטוּ (e.g. 62) 'he will diminish', but sometimes the consonant is treated as a regular one and is virtually geminated, e.g. אֶתְעַדָּה (e.g. 63) 'I will meet with'. As pointed out by Yeivin, the tendency to vocalize ע with *pataḥ* prevails in earlier manuscripts, while with *qameṣ* in the later ones (Yeivin 1985, 551). Such a state of affairs presumably reflects a stage of the gradual weakening of this guttural and the occurrence of the compensatory lengthening of the preceding vowel, since usually in earlier sources ע has a status of a guttural and as such cannot be geminated (Khan 2013c). Thus, forms vocalized with *pataḥ* might be regarded as a transitional stage, while those with *qameṣ* would be the result of an accomplished process of lengthening of the vowels preceding the gutturals. The lengthening, however, did not take place in forms with ח or ה as a second radical and the preceding vowel reminded *pataḥ*, e.g. הִמְטַהֵר (e.g. 64) 'he was purified'. Future forms with א and ר have the same punctuation as the past forms mentioned above.

3.4.5. *Hiph'il* forms

[26] Some later forms are vocalized with *ḥireq* under the prefix, i.e. יִנְאַץ, c.f. Yeivin 1985, 529.

Regular past forms with the first radical ח are vocalized with *ḥireq* under the prefix ה and *shewa* under the guttural, e.g. הִחְזִיק (e.g. 65) 'he kept'. In manuscripts with compound vocalization, the same form has *ḥaṭeph ḥireq* under the ה of the stem, which might suggest that this vowel was perceived as short, e.g. הֲחְלִיף (e.g. 66) 'he changed'. Later sources seem to be highly harmonized with the Tiberian tradition, since one finds the same form with *ṣere* and *ḥaṭeph ṣere*, i.e. הֶחֱזִיק (e.g. 67). Presumably such a vocalization reflects an attempt to achieve the quality of two /*e*/ vowels, but due to the lack of the original *seghol*, the *naqdan* decided to choose a vowel with the quality closest to the one in Tiberian.

The forms with first radical א, both past tense and participle, demonstrate some level of inconsistencies on the level of inflection. The first and second persons singular are vocalized with *pataḥ* both under the ה and under the א, while the third person is vocalized with *ṣere*, i.e. הַאֲבַדְתִּי (e.g. 68) 'I demolished' vs. הֶאֱזִין (e.g. 69) 'he listened'. Apparently, the first form reflects the original /*a*/ vowel, while the rest the /*i*/ vowel. As pointed out by Yeivin, it is unclear why such a differentiation was made, since the original vowel of the first syllable of the past forms of *hiph'il* is /*a*/ throughout the paradigm.[27] It seems that the form of the third person is the result of the assimilation of the initial vowel to the quality of the vowel from the last syllable, which is /*i*/. Consequently, *ṣere* is found in forms with /*i*/ in the suffix, also in the first person plural, i.e. הֶאֱמִינוּ 'we believed'. On the other hand, the assimilation does not take place in the future forms of the third singular and therefore one finds forms like יְאַמִינוּ (e.g. 70) 'they (m.pl.) will believe'. As can be observed, the prefix is vocalized with *shewa*, while the first radical admits of *pataḥ*. This situation is unusual, since one would expect *pataḥ* under the prefix and *shewa* under the first radical, as in parallel forms in the *qal* stem. This peculiar tendency occurs due to the influence of the guttural, which, apparently, forced the movement of the original *ḥaṭeph* vowel from the prefix to the first radical.[28]

In the case of ע, the inconsistencies within the past forms are even more conspicuous, but, despite the significant number of attestations, it is hard to find any regularity. Similarly to the forms with first radical א, there are two main tendencies within the inflection, i.e. the sequence הע in forms without the /*i*/ vowel in the last syllable receives *pataḥ*, while the rest is vocalized with *ṣere*. However, in some earlier manuscripts one finds forms with *shewa*

[27] The stem vowel /*a*/ of *hiph'il* was originally /*u*/, as has been proved on the basis of Akkadian and Arabic, but due to similarity to the original /*u*/ vowel of the passive forms, it turned into /*a*/, cf. Blau 2010, 223.
[28] As explained by Yeivin, the insertion of the /*i*/ vowel under the prefix turned to be impossible as well, since only *yod* which in not followed by any vowel, is able to produce an additional /*i*/ vowel, cf. Yeivin 1985, 563.

under the ע. In addition, many forms of the third singular past tense are vocalized with *ḥireq* under the ה of the stem, which presumably reflects the original Babylonian pronunciation, e.g. הִעְבִּיר (e.g. 71) 'he transported'. Contrary to this, forms of the first and second singular are almost always vocalized with *pataḥ* under the ה of the stem and ע, e.g. הַעְבַרְתִּי (cf. e.g. 68) 'I transported'. One may infer, therefore, that in the Babylonian tradition the vocalization of the past forms with the first and second radical guttural depends mostly on the person and does not constitute a uniform system throughout the inflection. In turn, future forms are vocalized with *pataḥ* under both prefix and first radical, or under the prefix only, or under the first radical only. As pointed out by Yeivin, in the early Babylonian manuscripts there is a tendency to vocalize the first radical with *pataḥ* while the prefix remains without any sign (Yeivin 1985, 564). The same tendency occurs in verbs with first radical א (see above).

3.4.6. Syllable structure of Babylonian Hebrew

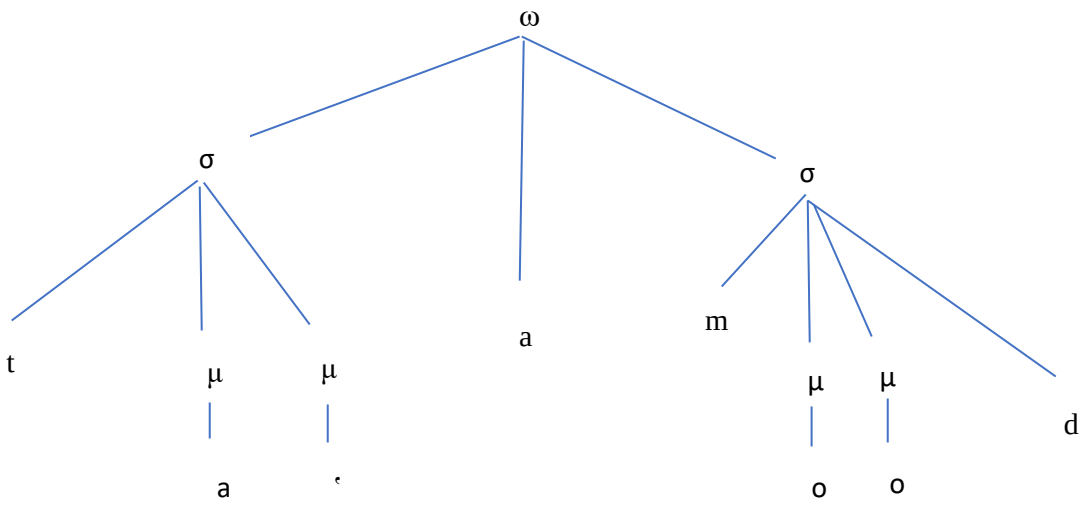
Differences in vocalization results in different types of syllable, which are particularly conspicuous in Old Babylonian Hebrew (Yeivin 1985, 90). The vocalization found in manuscripts with original Babylonian pronunciation clearly indicates that due to the different placement of *shewa* and the distribution of epenthetic vowels, Babylonian had different syllabification system from that found in Tiberian Hebrew.

As pointed out by Khan, in word-initial position, where in Tiberian tradition one finds *shewa*, in Babylonian, due to process of the clustering of consonants, a prosthetic vowel emerged (Khan 2013f). Thus, while Tiberian Hebrew in this respect has a CeC structure, the Babylonian one has eCC. When it comes to word-internal position, an epenthetic vowel is retracted in Babylonian Hebrew in comparison to Tiberian. A cluster of three consonants in Tiberian is broken by insertion of a vocalic *shewa* after the second consonant, i.e. /CCeC/. In Babylonian, on the contrary, an epenthetic vowel occurs between the first and the second consonant, i.e. /CeCC/.

In syllabification, some of these consonants have to be regarded as extrasyllabic. Geoffrey Khan, applying the rules developed by Kiparsky (2003) in the analysis of syllable structure in Arabic, has established that the first consonant of a word-initial cluster CC and the second consonant of a word-internal cluster /CCC/ are extrasyllabic (Khan 2013d). Consequently, these consonants are not considered as an onset of the following syllable and an epenthetic is inserted before them. The role of an epenthetic in this environment, according to Khan, is to separate the extrasyllabic consonant from what precedes. This

explanation might be perceived as satisfactory in the case of the word-internal cluster, however, the motivation for separating the first consonant of a word from the following segment seems rather difficult to accept.

As has been already pointed out, the prefix vowel in verbal forms with guttural as first radical in Babylonian is of different length than the one in Tiberian. There are two variants of the vocalization of these forms in Babylonian Hebrew, either *pataḥ* under a guttural and *shewa* or zero under the prefix, or *pataḥ* under both consonants. According to Geoffrey Khan, both signs in fact reflect two short vowels of the same quality (Khan 2013d). For example, the form תְּעַמֹּד 'you (m.sg.) will stand' consists of two syllables *taʕ.moːð*. Contrary to the analysis of the Tiberian counterpart proposed by Khan, but in line with the analysis proposed in this research, the guttural is regarded as a coda of the first syllable and not as an onset of the second one (Khan 2013d). Consequently, both syllables comprise two moras, the first one has a short vowel nucleus (one mora) and a consonantal coda (one mora) in the rhyme, while the second one has a long bimoraic vowel nucleus and a consonantal coda in its rhyme. In this state of affairs, an epenthetic is placed between the coda of the first syllable and the onset of the second one, i.e. *taʕ.a.moːð*. The analysis of the underlying level of this word can be possibly depicted as follows:



Graph no. 7 *Moraic structure no. 5*

It appears, therefore, that the Babylonian tradition demonstrates a lower level of toleration for epenthetic vowels in the onset of a syllable in comparison to the Tiberian tradition.

To sum up, it can be established that, comparing to the Tiberian vocalization, the inconsistencies within the Babylonian tradition involve different vowel qualities. As proposed, this state of affairs could be caused by two main factors. First of all, as in Tiberian Hebrew, the realization of gutturals was rather weak and thus they were treated as regular consonants which did not bring about any particular phonological phenomena. In addition, the materials examined by Yeivin come from various historical periods and therefore might reflect various stages in the development of the Babylonian pronunciation. In Tiberian tradition, on the other hand, the inconsistencies are mostly the matter of interchanges between the vocalic and silent *shewa*.

Conclusions

The conducted research involved 56 verbal forms from the Tiberian tradition and 71 forms from the Babylonian one. Most inconsistencies in both categories were spotted in the *qal* stem in the environment of the first radical as guttural. The category which presents the lowest level of inconsistency is the third radical as guttural since, while in Tiberian Hebrew it is almost always preceded by *pataḥ furtivum*, in Babylonian, in turn, it is treated as a regular consonant and no epenthetic vowel is inserted.

As has already been pointed out, finding exact symmetry between Tiberian and Babylonian verbal forms turned out to be impossible. Thus, I decided to examine both categories separately and detect internal inconsistencies within their patterns. The research has clearly shown that most of the inconsistencies in the Tiberian tradition are related to *shewa* placement and hence to the insertion of an epenthetic vowel. These fluctuations had impact on the prosodic structure of the word, which by principle was bimoraic. Apart from this, some sporadic forms present inconsistency with regards to the vowel quality. This is particularly conspicuous in places where normally gemination would occur, i.e. the second radical of the *pi'el* and *hitpa'el* stem and attests to a transitional stage of gutturals, which sometimes were perceived as regular consonants.

On the other hand, the inconsistencies within the vocalization of verbal forms with the gutturals in the Babylonian tradition occur mostly in the vowel quality. Some verbs with first radical guttural did not require the lowering of the preceding vowel and thus the guttural was treated as a regular consonant. In addition, in a few forms the lack of gemination brought about the shift of the vowel quality. The vocalization of manuscripts from a later period was to a high extant harmonized with the Tiberian one, thus the phenomena characteristic of this tradition occurred, for instance the lowering of a prefix vowel in verbs containing guttural as the first radical. Consequently, it can be established that most of the inconsistencies in Babylonian Hebrew result from the variety of manuscripts, which reflect different stages in the development of Babylonian Hebrew. The earliest stratum of this tradition presents the original Babylonian pronunciation, however, in many manuscripts from this period the punctuation is only partial and thus reconstructing its morphophonological features is rather impossible. In turn, Middle Babylonian contains both vestiges of the original pronunciation and attestations of the gradual influence of Tiberian Hebrew. In this category, therefore, most

of the inconsistencies occur. The Late Babylonian, despite the preciseness of its vocalization, reflects mostly Tiberian features.

As I have mentioned in the final part of the third chapter, the Babylonian tradition has a different type of syllable structure from the one found in the Tiberian vocalization and, consequently, an epenthetic vowel is inserted in a different position. A cluster of three consonants CCC is broken by an epenthetic vowel inserted between the first and the second consonant, i.e. CeCC. On the contrary, Tiberian Hebrew has in this respect CCeC. However, due to the fact that the Babylonian vocalization very rarely marks the *shewa* sign and does not use the *ḥaṭeph* signs, establishing an accurate syllable structure in this tradition is rather difficult.

One can ask where this type of syllabification comes from and what kind of syllable structure Early Babylonian has. It is worth noting that a very similar type of epenthesis is present in Classical Arabic and thus a comparative study of early Medieval Arabic and Babylonian Hebrew would be a possible direction for further research. It could potentially shed some light on the relation between these two languages.

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