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The complexity of the relationship of vocalisation signs of Semitic pointing systems

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This article has a few goals. The first goal is to discover the development of Semitic pointing systems such as Babylonian Hebrew (both simple and complex), Tiberian Hebrew, Palestinian Hebrew, Samaritan Hebrew, Syriac (both Western [Jacobite] and Eastern [Nestorian]) and Arabic. The second goal is to propose the possible development because of the interaction between those languages in the past. In this article, the comparative method will be used as the methodology. A general observation of these signs and a proposition regarding the possible development amongst those languages will be presented.

Contribution: This article traces the synchronic and diachronic development of Semitic languages' vocalisation systems and proposes a possible development between them.

Keywords: Semitic languages; Hebrew; Arabic; Aramaic; Syriac.

Introduction

Since the proto-Canaanite alphabet – from which Semitic languages developed – was without vowels, special systems of vowel notation were gradually created throughout the history of each of these languages. The proto-Canaanite writing system started with consonants that were marked, but the vowels were left unmarked. As a result, various schools in Mesopotamia, Syria and Palestine – between the 4th and 10th centuries CE – started to invent vocalisation systems. Northwest Semitic scribes, for example, tried to solve this problem in the 9th century BCE by employing vowel letters (*matres lectionis*), such as aleph, he, waw (vav) and yod (Morag 1961:9). Arabic, Hebrew and Syriac (Aramaic) use vowel notation to indicate the missing vowels. Therefore, this article will list the vocalisation signs of Hebrew (Palestinian, Babylonian and Tiberian), Syriac and Arabic, compare them and propose the possible development amongst those languages.

List of the vocalisation signs

It is well known that three styles of 'pointing' were used to vocalise Hebrew in medieval times: the Babylonian (simple and complex), the Tiberian and the Palestinian (Diringer 1948:217–218, 257–294). The vocalisation systems were slowly invented in schools that thrived in Mesopotamia, Palestine and Syria between 4th and 3rd centuries BCE. Morag (1961:9) says that the proto-Canaanite alphabet originated a writing system in which only consonants were marked, whilst the vowels were left un-indicated. Morag (1961:9) states that there arose a need to indicate the missing vowels over time. In their search for a solution to this problem, Northwest Semitic scribes, particularly those writing Aramaic, began to employ vowel letters (*matres lectionis*) as early as the 9th century BCE.

The term 'Tiberian', used in a system which will here be called the 'ben Asher biblical' (bA), became the standard method of pointing Hebrew. This system uses seven basic vowel signs and one simple and three composite shewa signs. In Tiberian pointing system, the *shewa* sign communicates the nonexistence of a phonemic vowel. Vocalic *shewa* is pronounced in reading traditions as an allophone of zero. Gzella (2011:429) states that Codex Leningradensis from 1008 CE records this Tiberian vocalisation system, and it became normative for Biblical Hebrew Grammar.

The Babylonian style of pointing (Bab.) used only six basic vowel signs. The Babylonian system has been divided into two major divisions: simple (or *einfach*, E) and complex (or *kompliziert*, K) pointing systems. The 'simple' system does not represent any allophones, nor does it have signs comparable to Tiberian *segol* or *qames hatuf* (Sáenz-Badillos 1993:97). On the other hand, Complex Babylonian employs a few vocalisation systems, most significantly the 'perfect' and the 'imperfect'. The first of these has distinct signs for every type of syllable and employs them consistently, which cannot be said of the imperfect system. In addition to these divisions, Babylonian pointing

systems can be isolated from the other Hebrew systems. For example, the 'Tiberianising' ones create new signs to correspond to bA *segol*, as in mss. 7a, b, c; 36, 38c, 40c (cf. Kahle 1913:56–109). Despite this isolation, the Babylonian simple system corresponds to the Tiberian system of *dagesh* and *rafe* (Sáenz-Badillos 1993:97). The Hebrew alphabet used the *dagesh*. Sáenz-Badillos (1993:97) argues that this *dagesh* was added to the Hebrew orthography simultaneously with the Masoretic system of *niqqud* (vowel points). It takes the form of a dot placed inside a Hebrew letter. The *rafe* is a diacritic (⟨◌̄⟩), a subtle horizontal overbar placed above certain letters to indicate that they are to be pronounced as fricatives, such as in Exodus 20:13, 14, 15; Deuteronomy 5:13, 17, 18, 19; 2 Samuel 11:1; Isaiah 22:10; Jeremiah 20:17; Psalms 119:99; and Zechariah 5:11 (Sáenz-Badillos 1993:97).

The Palestinian pointing system, like the Tiberian system, uses seven vowel signs: <u˘>, <o>, <a>, <a´>, <e>, <e´> and <i>, as Revell (1971:52) argues in his article, 'Studies in the Palestinian Vocalization of Hebrew' in *Essay on the Ancient Semitic World*. However, this research will add ə based on the later development. <u˘>, <o> and <i> correspond almost exactly in use to the Tiberian system of *shureq/qibbus*, *holem* and *hireq* (Schramm 1964:26). However, the most common one is seven graphemes because it reflects later vowel differentiation in the direction of Tiberian Hebrew, such as ɔ and ɛ. Also, *shewa* is marked in various ways. In later manuscripts, for instance, a seventh grapheme is used especially for *shewa*, and in some manuscripts for *sere*. This progression also is the reason why Revell does not include 'ə' in his system on his 'Semitic pointing systems' handout (cf. Sáenz-Badillos 1993:86–94).

Samaritan Hebrew, on the other hand, has eight vowel signs. Three of them, nevertheless, are variations of a long vowel for vowel a. From the Samaritan grammatical works, the oldest of which is certainly not earlier than the 10th century, we learn that there are six complete set symbols and undoubtedly the original system. The five symbols above represent vowels, whilst symbol 6 (>) denotes the gemination of consonants. For instance, *i* – if not short, then it is a high-front vowel. However, if it is short, it is situated lower and tends towards the centre. Another example is *e*, which is a medium-front vowel, semi-open, though sometimes, especially when long, it is a little more closed. The *u* vowel is somewhat lowered and on occasion might be heard as *o*, although an ear trained to hear Samaritan does not confuse them. In the use of these two vowels, there exists a special relationship: *o* appears almost always in a closed syllable and is thus short, whereas *u* appears in open syllables and is long (Ben-Hayyim 2000:7, 43–44).

The Arabic branch of Semitic forms part of the Southwest Semitic language group (Versteegh 1997:367). Whilst the Nabatean script possesses 22 distinct characters to represent 22 consonant phonemes, Classical Arabic has a larger consonant inventory. As a result, certain consonants became increasingly hard to differentiate from each other. However, these problems were solved by introducing diacritic marks

consisting of one to three dots placed above or below otherwise homographic characters used to represent distinct phonemes. In short, diacritic marks were meant to represent short vowels, vowel absence, the gemination of consonants or the feminine singular construct ending (Versteegh 1997:373; cf. Coulmas 2003:122–123; Thackston 2000:xvi for three main vowels in the Classical Arabic pointing system: a, i and u and the function of diacritic dots).

Huehnergard (1995) believes that Aramaic has the longest continuous history, around 3000 years, in Semitic languages. It started from the earliest inscription in the early first millennium BCE through the various forms still spoken today. Kaufman (1992) and Gzella (2011:72–73) found that the earliest inscriptions found in north-eastern and central Syria demonstrate some linguistic variation. Nevertheless, the earliest inscriptions unfold that some of these letters have been used as vowels, such as yodh for *e* and *i*, waw for *u* and *o*. Since alaf ceased to be pronounced, then it served as a vowel. In short, these letters could be used as a consonant or vowel (*yodh* and *waw*) or no phonetic value at all (*alaf*) (for more discussion, see Segal 2003:7–47).

There are three known forms of the Syriac alphabet. It started with Estrangela, and from it, two different scripts developed because of the split within the Syriac church. Serto or Serta script was used amongst the Jacobites in the west, whilst the Nestorians used a different script in the east (Muraoka 2005:2). The Nestorian system of vocalisation is earlier than the Jacobite, and it comprises single or double dots. Lipiński (1997:161) argues that the Nestorian system goes back to the 5th century CE. The Jacobite system of vocalisation (700 CE or 800 CE), on the other hand, was more comprehensive and influenced by the Greek alphabet. *Pṯāḥā* or *a* or *ă* represents a capital alpha in Greek, whilst *zqāp̄ā* or *ā* or *â* or *å* represents the lowercase. *Ḥḇāṣā* or *ī* represents a capital etha in Greek, whilst *rḇāṣā* or *e* or *ĕ* and [e] represents the lowercase. *ʿṢāṣā* or *ū* or *u* represents a capital upsilon and lowercase omicron (Diringer 1948:284). Although the Nestorian system of vocalisation adds an intermediate sign for *ptaha*, this system of vocalisation is more stable in terms of their positions. The Jacobite system, on the other hand, could be placed either above or below the consonant or sometimes obliquely (Diringer 1948:280–290; Muraoka 2005:6). This research adopts the Nestorian vowels from Thackston (1991), Muraoka (2005), Nöldeke (2001) and Robinson (1962).

General observation
Same signs but different vowels

◌̇ is *a* in Simple Babylonian but *ā* in East Syriac and *e* in Palestinian. ◌̣ is *o* in Babylonian but *i* in Palestinian and *ā* in ES. The symbol ¨ is *e* in Babylonian but *u* in Palestinian. ◌̤ is *ə* in complex Babylonian system but *a* in Palestinian and Samaritan. The symbol ˂ is *ə* in Palestinian but *i* in Samaritan. ◌̇ is *o* or *ā* in West Syriac but *u* in Arabic. The question is as follows: are these same signs coincidental? This question will be analysed in the discussion of possible development section.

Same signs and same vowels

ō̄ is *a* in Palestinian and Samaritan. ȯ̇ is an *ā* in Palestinian and Samaritan. The *o* vowel is similar both in Palestinian and Samaritan.

Supralinear and sublinear distinction

Syriac, Arabic and Tiberian Hebrew maintain supralinear and sublinear distinction.

Babylonian, Palestinian and Samaritan ignore the supralinear and sublinear distinction. Diringer calls them a superlinear system because some other symbolic signs and small letters were positioned above the consonants. Diringer (1948:264–266) argues that this placement has a purpose, namely to leave the textual orthography consistent. Diringer (1948:264–266) continues that the Babylonian writing system is called a 'superlinear' system of both accentuation and vocalisation. The primary characteristic feature of the Babylonian vocalisation system is the rendition of vowel sounds by small vowel letters such as ` for long *a*, ' for short *a*, *w* for *u*, and *y* for *i*; double *y* for long *e* and double *w* for long *o*. Some of the biblical manuscripts and fragments primarily discovered in ancient synagogues at Chufutkale, Karasubazar and Theodosia in Crimea preserved the Babylonian vocalisation system.

The Palestinian vocalisation system was also superlinear, but its basic element was the dot. The varying position, as well as the change in the arrangement and in the number of the dots, determined the value of the vowel sound. The Palestinian vowel system is preserved only in some fragmentary manuscripts discovered since the end of the 20th century (Diringer 1948:264–266).

Discussion of possible development

Babylonian tradition and Tiberian Hebrew

According to supralinear and sublinear observation, the Babylonian vocalisation system existed independently from the Tiberian vocalisation system despite the similarity of the diacritical dot of *e* and *i*.

Historically, the simple system of Babylonian tradition (BT) is earlier. Babylonian pointing, in its simple form, uses six vowels, with one sign only for Tiberian *pathah* and *segol*. Its origins are to be sought in the 6th and 7th centuries, after which it developed into the more comprehensive complex system, which is as accurate and all-embracing as its Tiberian counterpart. The complex system does not only maintain the diacritical dot feature from the simple system but also replaces some vowels such as *a* and *ā*. For a time, both systems, Babylonian and Tiberian, existed independently (Yeivin 1985:240–243). Old Babylonian used a simple vocalisation pointing system. If vocalised, *alef* and *ayin* take a full vowel. *Hireq* is written after consonantal *yod*, and *patah* after *ayin* at the end of a word. Auxiliary vowels are also used. Middle Babylonian generally employs *plene* orthography,

and its pointing is more systematic. The gutturals sometimes take a full vowel, at other times *shewa*. Consonantal yod at the beginning of a word normally takes *shewa*, auxiliary vowels are rarely used and changes of vowel are common. According to some scholars, the phonetics of this stage could not have evolved from post-Babylonian and may even be earlier (Macho 1971:53). In summary, Old Babylonian has an incomplete and limited vocalisation system, whilst Middle Babylonian has a full vocalisation system. The *shewa* sign is used somewhat inconsistently in Old Babylonian, sometimes representing *shewa* quiescence (Yeivin 1985:240–243). Chiesa (1979:44) records that Al-Krikisani demonstrates that the Babylonian system was widespread in the first half of the 10th century. But probably in association with the decline of the Jewish community of Babylonia, it gave way more and more to pressure from the Tiberian system, finally being replaced by it because the Tiberian system was more pervasive at the end.

Palestinian tradition and Tiberian Hebrew

According to supralinear and sublinear observation, the Palestinian vocalisation system existed independently from the Tiberian. The Palestinian vocalisation system uses more vowel signs than the Babylonian in comparison to Tiberian, and these vowel signs are more similar to Tiberian. The similarity is because of the influence of the Tiberian vocalisation system that became dominant in the development history of the Hebrew language.

Historically, there is a recognisable development towards a progressively more differentiated vowel structure that gradually grew closer to the Tiberian system (Sáenz-Badillos 1993:89). The popular view is that the Tiberian vocalisation system is younger than the Palestinian vocalisation system. Although the Palestinian vocalisation system is older, the Tiberian vocalisation system influenced the Palestinian vocalisation system (Allony 1973–1974; Bendavid 1958:482–491; Dietrich 1968; Kahle 1927–1930:24). This view also appears to be adopted by A. Dotan (1971). He says that we do not possess the original Palestinian system. However, as this system was closer to (though not identical with) Tiberian pronunciation rather than Sephardi, the Tiberian influence on later Palestinian texts has restored the original situation to some extent (Bendavid 1958:482–491; Dietrich 1968; Kahle 1927–1930:24). There was a time when the systems co-existed, with the Tiberian exerting influence on the Palestinian, eventually becoming totally dominant, even over those who continued to use a Palestinian pronunciation (Sáenz-Badillos 1993:91). Various manuscripts demonstrate some key systematic differences in vocalisation. These variations led to the conclusion of a common development of vocalisation system towards a more distinguished vowel system that is closer to that of the Tiberian Hebrew vocalisation system over time. For instance, the earliest manuscripts use just six graphemes, and they represent a pronunciation like contemporary Sephardi Hebrew. The most commonly occurring Palestinian vocalisation system uses seven graphemes, reflecting later vowel differentiation in the direction of Tiberian Hebrew, such as ɔ and ɛ. Also, *shewa* is

marked in various ways. In later manuscripts, for instance, a seventh grapheme is used specially for *shewa*, and in some manuscripts for *sere* (Sáenz-Badillos 1993:91).

Revell (1970:104, 1972:34), on the other hand, argues that the Palestinian system reveals a more developed form. It means that this system is a later system than the Tiberian system, although they share a common origin. It is not easy to determine the exact place of this tradition in the development of Hebrew.

The Palestinian tradition and Samaritan Hebrew

Both traditions use a supralinear system; the sameness of the vowel *ā, a* and the similarity of the vowel *o* indicate the close relationship between these two traditions. This close relationship is also supported by Kahle, and Morag believes that the Palestinian tradition appears to be close to Samaritan Hebrew (Morag 1961:35–36, 42).

The Palestinian tradition and the Babylonian tradition

Both the Babylonian and the Palestinian vocalisation systems are known as the supralinear vocalisations. The primary reason is that they position the vowel graphemes above the consonant letters. This phenomenon is different from the Tiberian vocalisation system which places the vowel graphemes above and below. There are two Babylonian vocalisation systems: an earlier or simple (or einfach, E) system and a later or complex (or kompliziert, K) system. The following vowel graphemes were used in the simple system. In addition, the simple system has signs corresponding to Tiberian *dagesh* and *rafe* (Sáenz-Badillos 1993:97). In addition, both traditions share three similar forms of vowels: a vertical line, two vertical dots and a horizontal line. Nevertheless, they co-exist independently for a couple of reasons. Firstly, the vertical line in the Babylonian tradition is the vowel *u*, whilst it is *ɔ* in the Palestinian tradition. Secondly, the two vertical dots in the Palestinian tradition are the vowel *i*, whereas it is *o* in the Babylonian tradition. Thirdly, the horizontal line in the Babylonian tradition is a vowel *ə*, whilst it is *a* in the Palestinian tradition. Fourthly, the other vowels do not share any similarities between both traditions.

Samaritan Hebrew and the Babylonian tradition

Both the Samaritan Hebrew and the Babylonian vocalisation system use a vertical line and a horizontal line of vowels. However, just as in the Palestinian vocalisation system, the vertical line in the Babylonian tradition is the vowel *u*, whilst it is the vowel *ɔ* in the Samaritan Hebrew. Furthermore, the horizontal line in the Babylonian tradition is the vowel *ə*, whilst it is the vowel *a* in the Samaritan Hebrew vocalisation system.

Samaritan Hebrew and Tiberian Hebrew

Because of the closeness between the Palestinian tradition and the Samaritan Hebrew vocalisation system, we can also conclude that Samaritan Hebrew and Tiberian Hebrew co-existed independently. Nevertheless, because of the dominance of Tiberian Hebrew in the later development, the Samaritan Hebrew vocalisation system vanished slowly.

East Syriac and West Syriac

The simplicity of the diacritical dot of Eastern Syriac represents an initial stage of vocalisation of Classical Syriac (Birkeland 1947:13–39; Morag 1961:45–59). This system was an earlier system of vowel notation, because the dot does not offer a particular vowel quality. This dot, however, serves in cases of homographs to provide guidance for native speakers. East Syriac has a simple dot that is placed either above or below a word (or diacritical dot) in which two or three sequences of identical consonants differ phonetically, and consequently in meaning (Bennett 1998:254). This diacritical dot has the purpose of indicating a grammatical distinction. Bennet continues that this diacritical dot is manifestly a rather crude system of vowel notation. This diacritical dot is not an exact notation of vowel quality, but rather meaningful only in cases of homographs and provides a convenient and quick guide for those who already know the language reasonably well. At a later stage, the vocalisation system was further refined by allowing the use of a second or even third dot to distinguish, for example, between 'I made', or 'she made'. Lipiński (1997:161) supports the idea that the East Syriac vocalisation system is older than the West Syriac. He says that the Eastern system of dots used by the Nestorians goes back to the 5th century CE, whilst the Western one used by the Monophysites or Jacobites is based on Greek vowel symbols and probably does not antedate the 7th or 8th century CE.

	Front	Back
High	i	u
Higher mid	ẹ	ọ
Lower mid	e	o
Low	a	å

The eight Syriac vowels are evenly distributed between front and back vowels (Knudsen 2015:92–134). The elimination of *ẹ* and *o*, higher mid, resulted in an East Syriac inventory of six vowels (Knudsen 2015:92–134). In West Syriac, old *ẹ* and *i* merged as i, as did old *ọ* and *u* as u. Further, old *å* shifted to *o* and merged with the infrequent *o* vowel of borrowings from Greek and Latin. These changes reduced the double set of mid vowels to a single set and created a five-term inventory of vowels (Knudsen 2015:92–134).

Syriac and Arabic

The most common research argues that the individual Arabic graphemes can be traced back to the Aramaic alphabet without impediment. However, the drastic change in their graphic character and spatial arrangement has fuelled a controversy about which specific Aramaic branch is responsible for the script transfer, Nabatean or Syriac.

Nöldeke (2001), for example, related the origin of Kufic script to Nabatean. He believes that Old Aramaic was used from the 10th century BCE in Syria. Old Aramaic was a lingua franca between the 7th and 4th centuries BCE both in the Babylonian and Persian empires. Then, Aramaic was divided into eastern and western Aramaic. Eastern Aramaic was Syriac, the language of Christian writings. This language was spoken by the Christians until the 8th century CE. However, it is possible that the diacritical points in Arabic took their origin from Syriac, as Nabataean Aramaic scripts had no dots or diacritics, and there is a strong likelihood that the Arabs mimicked Syriac or the Jews given that some Muslims spoke Syriac and Hebrew since the time of the Prophet. Western Aramaic, on the other hand, was the official language of the Nabatean and Palmyran kingdoms (Versteegh 1997:9–35).

Starcky (1966), who had originally held Nöldeke's view, adopted another approach: the theory that Arabic has its roots in a Syriac cursive. He revealed that the letters seem to be suspended from a line in Nabataean script, whilst the letters appear to stand on a line in both Syriac and Arabic script. Then he concluded that a form of Syriac cursive script had developed into the Arabic alphabet in al-Hira, the capital of the Lahmid dynasty. Most scholars, nevertheless, abandoned this theory. They argue that it is much more likely that the Arabic alphabet is derived from a type of cursive Nabataean. In the Aramaic script, from which Nabatean ultimately derives, there are no ligatures between the letters. But in the cursive forms of the Nabataean script, most of the features that characterise the Arabic script already appear. Even before 200 CE, Nabataean ostraca from the Negev exhibit a cursive script with extensive use of connections, which in epigraphic Nabataean script were not developed until 400 CE. It is conceivable, therefore, that the elaboration of an Arabic script for texts in Arabic took place as early as the 2nd century CE (Diringer 1948:269–277; Gruendler 1993:1–3; Naveh 1982:153–161). Also, it is beyond doubt that the diacritical points in Arabic took their origin from Syriac as there is no diacritical dot in Nabataean Aramaic scripts (Daniels 2013:412–432; Diringer 1948:276; Hirschfeld October 1919 – January 1920:159–183; Versteegh 1997:55). Lipiński (1997:63) also believes that Classical Arabic represents a vocalisation system that matches Proto-Semitic phonemically such as $a/\bar{a}$, $i/\bar{i}$ and $u/\bar{u}$. Further, Lipiński argues that the Nestorian vocalisation system complemented the existing system of *matres lectionis* in Arabic.

Conclusion

This research, through the comparative languages method, reveals that the Babylonian and Palestinian Hebrew vocalisation systems existed independently from the Tiberian Hebrew, although they share some traits. There are debates whether Palestinian Hebrew is older than Tiberian Hebrew. However, the majority of scholars believe that both the Palestinian Hebrew and the Tiberian Hebrew vocalisation systems existed independently, but the Tiberian Hebrew had some influence on the Palestinian Hebrew later. The Babylonian Hebrew vocalisation system, on the other hand, was very much pervasive in the first half of the 10th century, but then it was replaced by the Tiberian Hebrew vocalisation system. The Palestinian Hebrew vocalisation system tradition, however, appears to be close to the Samaritan Hebrew vocalisation system because of the vowel $\bar{a}$, a and the similarity of the vowel o. This article also reveals that both the Palestinian Hebrew and the Samaritan Hebrew vocalisation systems existed independently from the Babylonian Hebrew. Because of the pervasiveness of Tiberian Hebrew in the later history of the Hebrew language, the Samaritan Hebrew vocalisation system vanished because it was replaced by the Tiberian Hebrew vocalisation system.

The study of the pointing system in Syriac reveals that the East Syriac system is older than the West Syriac one, which was influenced by Greek vowel symbols. Research shows that the East Syriac system used by the Nestorians goes back to the 5th century CE. On the other hand, the West Syriac system was used by the Monophysites or Jacobites and probably does not antedate the 7th or 8th century CE. Although Arabic is inspired by the Aramaic and East Syriac systems, classical Arabic preserved a reconstruction of both the three short and long vowels of proto-Semitic.

Further studies

This article is a preliminary research to discover the relationship between Semitic languages, especially the vocalisation signs. Therefore, further studies are needed to be conducted on the relationship (1) amongst the Hebrew languages itself, such as the Babylonian Hebrew and the Palestinian Hebrew, and (2) the comprehensive interaction of the Arabic language with Tiberian Hebrew throughout history.

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